Rules of Origin in the World Trading System [*]

Antoni Estevadeordal
Kati Suominen

Integration, Trade and Hemispheric Issues Division,
Integration and Regional Programs Department
Inter-American Development Bank
Washington, D.C.

PAPER PREPARED FOR THE SEMINAR ON

REGIONAL TRADE AGREEMENTS

& THE WTO

Centre William Rappard

World Trade Organization

November 14, 2003

Table of Contents

Rules of Origin in the World Trading System:
Proposals for Multilateral Harmonization

Introduction

Rules of origin (RoO) are a powerful trade policy instrument arbitrating the market access of goods and guiding firms' outsourcing, export, and investment decisions around the world. Feared to risk important distortions in global trade and investment patterns, RoO are gaining growing policy attention at the multilateral level. In preparation for the Doha Trade Round, the Committee on Regional Trade Agreements of the World Trade Organization (WTO) is for the first time raising preferential RoO to a systemic issue in the negotiation agenda. Meanwhile, the WTO Committee on Rules of Origin is making strides towards finalizing the process of harmonizing non-preferential RoO at the global level.

The recently heightened attention to RoO begs a boost to the still incipient understanding of the types and implications of the colorful mosaic of RoO regimes governing global commerce. Also required are constructive policy prescriptions for tackling RoO's potentially distortionary effects on trade and investment flows. These are the tasks of this paper. We seek to accomplish five objectives, in particular: (1) to provide an overview of the objectives, types, and effects of rules of origin (RoO) used around the world; (2) to present a comparative analysis of the preferential RoO regimes in some of the main preferential trading arrangements (PTAs) in Europe, the Americas, Asia-Pacific, Africa, and the Middle East; (3) to measure the degree of restrictiveness and selectivity of product-specific RoO employed in the various RoO regimes; (4) to capture the extent of flexibility instilled in RoO regimes by various regime-wide RoO and also by *ad hoc* measures that we term "RoO innovations"; and (5) to put forth recommendations for minimizing the frictions created by RoO on global commerce. Our primary focus is on preferential RoO; however, we do include non-preferential RoO in the analysis.

This paper makes three main arguments. First, the design of rules of origin regimes has important implications to trade flows: the more restrictive the RoO, the larger the trade diversion and other negative economic effects they create. Second, despite an ostensive *de facto* global convergence toward a few ostensibly similar preferential RoO regime models, even slight existing inter-regime differences can have important implications to firms' outsourcing and investment decisions the world over, and potentially lead to the rise of exclusive trade- and investment-diverting hubs. Third, the Doha Trade Round presents a unique and most timely opportunity for attacking the distortions generated by restrictive and divergent RoO through multilateral means. The Doha negotiators should take decisive measures to address RoO as a major distortionary trade and investment policy instrument and do so in four concrete ways: (1) to give a forceful push for finalizing the harmonization of non-preferential RoO; (2) to commit themselves to harmonizing preferential RoO with the relatively unrestrictive non-preferential RoO as the blueprint; (3) to forge in a multilateral mechanism to monitor and enforce the transparent application of RoO; and (4) incorporate RoO in the negotiations over trade-related investment measures (TRIMs).

The first section of this paper discusses the purposes of RoO, lays out the different types of product-specific and regime-wide RoO, presents the latest empirical evidence on the economic effects of RoO, and explores the broader policy implications of these findings. The second section examines the prevalence of the different types of RoO in a hundred RoO regimes employed around the world. The third section draws analytical comparisons between the different RoO regimes by their level of restrictiveness. Section four presents RoO innovations particularly from PTAs forged in recently by the European Union and Singapore, respectively. The fifth section makes predictions of the evolution of the global preferential RoO panorama, and makes policy recommendations on multilateral measures to counter the distortionary effects of RoO. Section six concludes.

I.   Purposes and Effects of Rules of Origin

A.   Purposes of RoO

There are two types of rules of origin, non-preferential and preferential RoO. Non-preferential RoO are used to distinguish foreign from domestic products for the purpose of applying several other trade policy instruments, such as anti-dumping and countervailing duties, safeguard measures, origin marking requirements, discriminatory quantitative restrictions or tariff quotas, and/or rules on government procurement.

Preferential RoO are employed in PTAs and in the context of generalized systems of preferences (GSP) to 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. The economic justification for preferential RoO is to curb trade deflection—to avoid products from non-preference receiving countrues from being transshipped through a low-tariff PTA or GSP partner to a high-tariff one. RoO are a feature of virtually all PTAs around the world, affecting the nearly 50 percent of world trade that is conducted on a preferential basis.[1]

However, since preferential RoO can serve as an effective means to deter transshipment, they can give rise to uses beyond the efforts to avert trade deflection. Indeed, RoO are emerging as a widespread trade policy instrument with the proliferation of PTAs around the world that can work to offset the benefits of the on-going multilateral lowering of tariff and non-tariff barriers.[2] Most prominently, RoO can be employed to favor intra-

---

[1] RoO are an inherent feature of free trade agreements (FTAs) where the member states' external tariffs diverge and/or where the members wish to retain their individual tariff policies vis-à-vis the rest of the world (ROW). The Asia-Pacific Cooperation (APEC) forum is a prominent exception, with its members employing their respective domestic RoO (OECD 2002). APEC is based on a principle of open regionalism—extending tariff preferences on an MFN basis—which renders the need for preferential RoO obsolete. RoO would be unnecessary in a customs union (CU) with a common external tariff (CET) that covered the whole tariff universe. However, in practice, RoO are widely used in CUs, either as a transitory tool when moving toward the 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.

[2] Analysts engaged in the nascent yet rigorous debate on RoO are increasingly picking up on the political economy of RoO; see Krueger (1993); Krishna and Krueger (1995); Jensen-Moran (1996); Garay and Estevadeordal (1996); Stephenson (1996); Scollay (1996); Ju and Krishna (1998, 2002); Appiah (1999);

PTA industry linkages over those between the PTA and the rest of the world (ROW), and, as such, to indirectly protect PTA-based input producers vis-à-vis their extra-PTA rivals (Krueger, 1993; Krishna and Krueger, 1995). Stringent RoO can compel intra-PTA firms with low-cost extra-PTA supply sources to turn to higher-cost inputs produced within the PTA in order to obtain preferential treatment for their final products, particularly in sectors where preferential margins are wide. As such, RoO liken a tariff on the intermediate product levied by the importing country (Falvey and Reed 2000; Lloyd 2001), and can even be used by one PTA member to secure its PTA partners' input markets for the exports of its own intermediate products (Krueger 1993; Krishna and Krueger 1995).

If RoO introduce a price wedge in the intermediate market, they could be expected to engender opposition by downstream producers intent on retaining their extra-PTA low-cost supply sources while still qualifying for the PTA-conferred preferential treatment. However, there are two reasons why downstream producers may accept or even favor stringent RoO. First, RoO may simply be the price that downstream producers have to pay for the PTA: despite risking costly trade diversion, restrictive RoO can help placate protectionist sectors so as to render PTA formation politically feasible (Duttagupta 2000). Second, downstream producers that are not globally the most competitive ones yet intent on exporting to the PTA partner's market can draw contingent benefits from stringent RoO, and, as such, be willing to shoulder the heightened production costs. For instance, should the linkages between different stages of production in the industry be tight, extra-PTA final goods producers would likely be hard-pressed to locate approriate components witin the PTA and remain competitive vis-à-vis the intra-PTA producers in the PTA market. Even if extra-PTA firms were to locate in the PTA market via tariff-jumping-like "RoO-jumping", discrimination would continue until the regional sourcing met the RoO (Graham and Wilkie 1998).

RoO can thus be used to meet the political economy goal of extending protection to both intra-PTA input and final goods producers. In an en econometric study of the determinants of the restrictiveness of the RoO in the North American Free Trade Agreement (NAFTA), Estevadeordal (2000) shows that the same political economy factors that drive tariff protection also drive RoO. Sanguinetti and Bianchi (2004) finds similar evidence in the RoO of the Southern Common Market (Mercosur), as does Suominen (2004), even after controlling for industry fixed effects, in the European Union-Mexico FTA while.[3] Furthermore, given that RoO hold the potential of increasing local sourcing and affecting the locational decisions of investors,[4] governments can use RoO to encourage investment in certain strategic or high-value sectors—for instance in order to create lucrative jobs (Jensen-Moran 1996; Hirsch 2002).

Falvey and Reed (2000); Estevadeordal (2000); Duttagupta (2000); Duttagupta and Panagariya (2000); Lloyd (1996, 2001a, 2001b); Rodriguez (2001); Brenton and Manchin (2002); Flatters (2002); Garay and Cornejo (2002); Hirsch (2002); Krishna (2004); Estevadeordal and Suominen (2003, 2004).

[3] Similar patterns have been documented in non-econometric studies by Flatters (2002), who examines the Southern African Development Community RoO, and Estevadeordal and Suominen (2003), who look at European Union's extra-regional FTAs with South Africa, Mexico, and Chile.

[4] For

B.   Types of RoO

Besides the theoretical notions of how RoO can serve political economy ends, there are two immediate indications that RoO are a matter beyond resolving the trade deflection problem: (1) negotiations over preferential RoO in PTAs are generally prolonged and contentious; and (2) rather than employing simple, value added or change in tariff heading-RoO across the tariff universe, integrating governments are adopting highly complex RoO and often a combination of different RoO criteria to govern any given products. This part surveys the various existing types of product-specific and general, regime-wide RoO.

i.   Product-Specific RoO: Five Main Components

The Kyoto Convention recognizes two basic criteria to determine origin: wholly obtained or produced, and substantial transformation.[5] The wholly obtained or produced-category applies only to one PTA 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 four main components that can be used as stand-alone or in combinations with each other. The precision with which these components define RoO in PTAs today contrasts sharply with the vagueness of the substantial transformation-criterion as used by the United States since 1908 through the inception of the Canada-US Free Trade Agreement (CUSFTA) and, subsequently, NAFTA (Reyna 1995: 7).[6]

The first component of the substantial transformation criterion is a change in tariff classification (CTC) between the manufactured good and the inputs from extra-PTA parties used in the productive process. The CTC may require the product to alter its chapter (2 digits under the Harmonized System), heading (4 digits), sub-heading (6 digits) or item (8-10 digits) in the exporting country.

The second criterion is an exception attached to a particular CTC (ECTC). ECTC generally prohibits the use of non-originating materials from a certain sub-heading, heading, or chapter.

The third criterion is value content (VC), which requires the product to acquire a certain minimum local value in the exporting country (or, alternatively, to remain below a certain ceiling percentage of value originating in the non-member countries). The value content

---

[5] 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.
[6] 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).

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 for products meeting a minimum percentage of originating parts out of the total.

The fourth RoO component is technical requirement (TECH), which requires the product to undergo certain manufacturing operations in the originating country. TECH requires or prohibits the use certain input(s) and/or the realization of certain process(es) in the production of the good.[7] It is a particularly prominent feature in RoO governing textile products.

Table 1 summarizes the frequency of the various product-specific criteria in 93 PTAs—6 customs unions and 87 FTAs—around the world. The change of heading-requirement is the staple of PTAs. 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 alternative RoO for a given product, such as a change of chapter or, alternatively, a change of heading + RVC.

Table 1 – Frequency of Various Product-Specific Criteria

PTAs	Criterion				
	CTH	VALUE CONTENT			TECH
		MC	RVC	VP	
Customs unions (6)	6	2 (60-40%)	2 (35-60%)	-	-
FTAs and other PTAs (87)	83	68 (60-30%)	7 (25-65%)	67	74

Source: World Trade Organization (2002).
Note: MC criterion refers to the maximum percentage of non-originating inputs that can be incorporated in a product; the RVC criterion, which can be considered the inverse of MC, refers to the minimum percentage of regional inputs required for a product.

ii.   Regime-Wide RoO

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

First, most PTAs contain a *de minimis* rule, which allows for a specified maximum percentage of non-originating materials to be used without affecting origin. The *de minimis* rule inserts leniency in the CTC or TECH criteria by making it easier for products with non-originating inputs to qualify.

---

[7] TECH can be highly discretional given that lack of classification tools to objectively guarantee sufficient transformation in the production of the good.

Second, the roll-up or absorption principle allows materials that have acquired origin by meeting specific processing requirements to be considered originating when used as input in a subsequent transformation. That is, when roll-up is allowed, non-originating materials are not taken into account in the calculation of the value-added of the subsequent transformation.

Third, cumulation allows producers of one PTA member to use non-originating materials from another PTA member (or other members) without losing the preferential status of the final product. There are three types of cumulation. Bilateral cumulation operates between the two PTA partners and permits them to use products that originate in the other PTA partner as if they were their own when seeking to qualify for preferential treatment. Diagonal cumulation means that countries tied by the same set of preferential origin rules can use products that originate in any part of the area as if they originated in the exporting country. Full cumulation extends diagonal cumulation. It provides that countries tied by the same set of preferential origin rules among each other can use goods produced in any part of the area, even if these were not originating products. All the processing done in the zone is then taken into account as if it had taken place in the final country of manufacture.[8] As such, diagonal and full cumulation can notably expand the geographical and product coverage of a RoO regime. Table 2 illustrates the frequency of general RoO provisions around the world.

Table 2 – Frequency of General RoO Provisions

PTAs	DE MINIMIS	TYPE OF CUMULATION			ROLL-UP
		Bilateral	**Diagonal**	**Full**	
Customs unions (6)	3	6	0	0	2
FTAs and other PTAs (87)	85	87	58	8	81

Source: World Trade Organization (2002).

Whereas de minimis, roll-up, and cumulation allow for leniency in the application of RoO, there are three provisions that may have the opposite effect—increase the stringency of RoO.[9]

First, most PTAs contain a separate list indicating the operations that are in all circumstances considered insufficient to confer origin, such as preservation during transport and storage, as well as simple operations of cleaning, sorting, painting, packaging, assembling, and marking and labeling.

---

[8] In bilateral cumulation, the use of the partner country components is favored; in diagonal cumulation, all the beneficiary trading partners of the cumulation area are favored. While diagonal cumulation and, even more so, bilateral cumulation, promote the use of materials originating within the FTA, full cumulation is more liberal than diagonal cumulation by allowing a greater use of third-country materials. It is, however, rarely used.

[9] To be sure, some countries argue that a system of cumulation merely introduces another layer of discrimination, since non-participating countries are not eligible for its benefits.

Second, many PTAs prohibit duty drawback—preclude the refunding of tariffs on non-originating inputs that are subsequently included in a final product exported to a PTA partner market. Many developing countries in particular employ drawback in order to attract investment and to encourage exports; however, drawback in the context of a PTA is viewed as providing a cost advantage to the PTA-based producers who gear their final goods to export over producers selling their final good in the domestic market.[10] The end of duty drawback entails an increase in the cost of non-originating components for PTA-based final goods producers. As such, the end of drawback in the presence of cumulation may encourage intra-PTA producers to shift to suppliers in the cumulation area (WTO 2002).

Third, PTAs may impose high administrative costs stemming from the method of certifying the origin of goods. The main models of certification employed in PTAs are self-certification by exporters, certification by an industry umbrella group, and certification by the exporting country government—or various combinations of the three. The more numerous the bureaucratic hurdles and the higher the costs for an exporter to obtain an origin certificate, the lower the incentives to seek PTA-conferred preferential treatment.

C.   Effects of RoO

What, then, can the complex instrument of RoO do? That RoO can be employed for distributive, political economy purposes does not automatically mean they divert resources from their most efficient uses. However, analysts of the potential trade effects of RoO have produced resounding evidence that RoO impose important administrative costs and increase production costs to parties applying them. Both types of costs introduce protectionist biases that undercut the unfettered flow of commerce. We consider each in turn.

i.   Administrative Costs of RoO

The administrative costs of RoO stem from the procedures required for ascertaining compliance with the requirements of the RoO regime. These are essentially book-keeping costs—first and foremost the costs for the exporter of certifying the origin of a good prior to its export to the territory of another PTA member—and the costs to the partner country customs of verifying the origin of goods. The different certification mechanisms impose divergent costs on firms; moreover, while in some countries certification is free of charge, in many the costs are hardly trivial. In Brazil, for instance, the cost of obtaining certification for a single shipment from a certifying agency is estimated to range between US$6 and US$20; in Chile, the cost is US$7. Koskinen (1983) estimates the administrative costs for Finnish exporters under the European Community-European Free Trade Association (EFTA) FTA at 1.4 percent to 5.7 percent of the value of export transactions.[11] Holmes and Shephard (1983) find the average export transaction from

---

[10] Cadot, de Melo and Olarreaga (2001) show that duty drawback may have a protectionist bias for reducing the interest of producers to lobby against protection of intermediate products.

[11] In another pioneering study, Herin (1986) puts the cost of obtaining the appropriate documentation to meet the RoO at three to five percent of the FOB value of the good in the context of EFTA.

EFTA to the EC to require 35 documents and 360 copies.[12] Administrative costs are important even in regimes operating on self-certification: in a recent study, 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. The verification costs of RoO to member governments have yet to receive empirical scrutiny; however, such costs could be expected to rise particularly for countries party to several complex and divergent RoO regimes.

ii.   Production Costs of RoO

The production costs of RoO arise from the various technical criteria imposed by the RoO regime. They start playing a role in trade flows when they encourage the use of intra-PTA inputs at the expense of extra-PTA ones even if the latter were cheaper—that is, when they increase the costs of intermediate goods for final goods producers from the pre-PTA levels. Should this occur, RoO could be expected (1) to result in trade diversion in intermediates to the PTA area; and (2) to moderate the potential for a PTA to boost aggregate trade between the members due to raising the costs for final goods producers. The pioneering empirical evidence supports these hypotheses. Estevadeordal and Suominen (2004) carry out the most extensive effort as yet to capture the trade effects of RoO by employing a 156-country gravity model. In a cross-section study for 2001, they reach three main conclusions. First, regimes with restrictive RoO and with high degrees of sectoral selectivity discourage aggregate trade flows. Second, at the sectoral level (in vehicles), restrictive RoO in final goods encourage trade in intermediate goods, and could thus engender trade diversion in inputs. Third, regime-wide RoO that allow for flexibility in the application of the product-specific RoO, such as cumulation, drawback, and self-certification facilitate aggregate trade flows. As such, various regime-wide RoO provisions can counteract restrictive RoO's negative effects on trade. More definitive results will be obtained by their forthcoming gravity exercises that estimate the effect of RoO in a panel spanning 20 years, and that at the sectoral level are expanded to incorporate also apparel, chemicals, machinery, televisions, and textiles.

Other, single-regime studies have reached similar results. Cadot et al. (2002) and Cadot et al. (2004) find that Mexican exports to the US have been undermined by restrictive NAFTA RoO.[13]   Similarly, Appiah (1999), also examining NAFTA but in a three-country, multisector Computable General Equilibrium (CGE) model, documents that NAFTA RoO distort trade flows and undercut welfare. James (2004) posits that NAFTA preferences and restrictive RoO have undercut Asian textile and apparel exports to US. Flatters and Kirk (2004) note that restrictive SADC RoO work against efficiency gains that members would reach through extra-regional outsourcing. Augier, Gasiorek and Lai-Tong (2004) examine cumulation, arguing that without cumulation, trade would be up to 52 percent lower than expected; the impact is particularly notable in intermediate goods.

---

[12] Quoted in Herin (1986).

[13] In January 1995, the US found a high compliance rate among the Mexican and Canadian exporters and producers on RoOs, or at 90 percent and 80 precent, respectively (Reyna 1995: 37-38). In NAFTA, the United States played a key role in establishing the agreement's Uniform Regulations and RoO enforcement mechanisms.

D.   Policy Implications of RoO's Effects

The findings on the effects of RoO have four immediate policy implications. First, RoO can reduce the utilization rates of the PTA- or GSP-provided preferences. Estevadeordal and Miller (2002) document "missed preferences"—i.e., utilization rates below 100 percent—between the United States and Canada, which they attribute to the tightening of the pre-FTA RoO under NAFTA launched in 1994 (figure 1). Cadot et al. (2002) link the mere 64 percent utilization rate of NAFTA preferences to stringent RoO. Indeed, already in the context of the NAFTA predecessor, the US-Canada FTA, Canadian producers were reported to have opted to pay the tariff rather than going through the administrative hurdles to meet the RoO (Krueger 1995). In the EU context, Brenton and Manchin (2002) and Brenton (2004), albeit not operationalizing RoO, attribute the low utilization rates of the EU's trading partners in the textile sector to excessive stringency of EU RoO. Inama (2004) finds similar evidence in the context of the Generalized System of Preferences (GSP).

Figure 1 – From USA-Canada FTA to NAFTA:
Rules of Origin and Utilization Rates
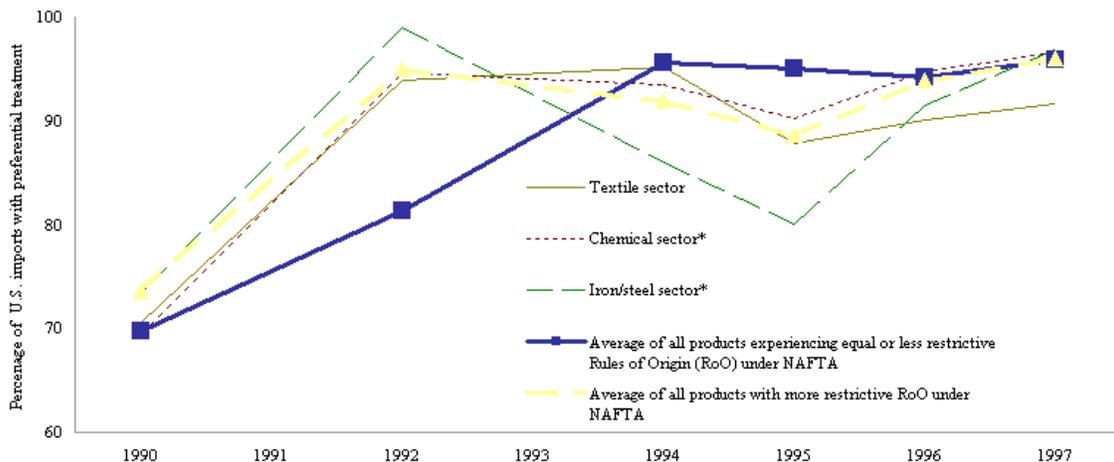
Note: 1991 and 1993 data points linearly interpolated.
Source: Estevadeordal and Miller (2002)

Second, from a legal standpoint, preferential RoO are feared to breach Article XXIV of the General Agreements on Tariffs and Trade (GATT), which in paragraph 8(b) defines a free trade area as "a group of two or more customs territories in which the duties and *other restrictive regulations of commerce*...are eliminated on *substantially all* the trade between the constituent territories in products originating in such territories."[14] Indeed, the WTO has recently recognized RoO to be part of "other regulations of commerce (ORCs); ambiguities remain as to the meaning of "substantially all the trade".[15] Since RoO have implications to extra-PTA parties' access to the PTA market, they also risk

---

[14] Italics added.
[15] See, for instance, WTO (2002b).

violating paragraph 5 of Article XXIV that prohibits PTAs that raise barriers toward the rest of the world from the pre-PTA levels. The WTO Negotiation Group on Rules is in effect advocating a case-by-case analysis of the potentially restrictive effects of preferential RoO on extra-PTA parties (WTO 2002b).

Third, besides the short-run trade effects, RoO may in the longer run cause investment diversion. This occurs when extra-PTA final goods producers "jump" the RoO by locating plants within a PTA region in order to satisfy the RoO even if the PTA region was not the most optimal location for investment. RoO can also produce investment diversion within the PTA area. For one, should final goods producers be hard-pressed to locate approriate components in the PTA area and remain competitive, they may simply choose to locate to the territory of the largest PTA market and the one with the lowest external tariffs—such as the United States in the context of NAFTA—and continue importing third-country inputs required for the final product.[16] Two, producers located in the PTA member with the lowest production costs can be placed in a disadvantage when the RoO are based on RVC, which is easier to meet in PTA members with higher production costs. As such, RoO may encourage investment to a large hub country that may well be an inefficient producer, and perpetuate the hub given the agglomeration effects of foreign direct investment. Rodriguez (2001), Francois (2004), and Theoning and Verdier (2004) alike show that RoO can have important implications to and generate distortions in supply relations and production structures within the PTA area. To be sure, RoO-induced investment can also help counteract RoO's effects: should extra-PTA input producers locate to the PTA area to take advantage of higher rents, they could crowd the market, augment supply, and thus drive the price of inputs down.

Fourth, the relevance of RoO *per se*—and their importance as a constraint on commerce and guide for investment thereby—decreases with the lowering of MFN tariff barriers by PTA members. With the production and administrative costs imposed by RoO rising to unsustainably high levels, final goods producers would rather import their inputs from the ROW and sell their output at their home market than produce to the PTA partner's market at high input costs. However, the higher a PTA member's MFN tariff, the greater the preferential margin offered to its PTA (or GSP) partners, and thus the greater the willingness of firms in the partner countries to comply with the RoO, including to shift to intra-PTA inputs and furnish the certifying documentation—and for firms in non-PTA countries to engage in RoO-jumping foreign direct investment. This has rendered some analysts to suggest that the expanding spaghetti-bowl of overlapping PTAs and RoO regimes should be accompanied by the principle of open regionalism and/or replaced by customs unions or a hybrid arrangment between and CU and FTA altogether, lest the benefits of preferential trade liberalization be lost.[17]

---

[16] For example, a Mexican and a US firm selling at the US market and purchasing their inputs from outside the NAFTA region would be unequally treated under NAFTA, as the Mexican firm would be disadvantaged vis-à-vis the US firm by the failure of the former to meet the RoO required to export to the US market (Graham and Wilkie 1998: 110).
[17] See Bergsten (1997); Wonnacott (1996).

II.   Rules of Origin around the World

This section turns to examining the great variety of combinations of product-specific and regime-wide RoO used in selected PTAs in Europe, the Americas, Asia-Pacific, Africa, and the Middle East, as well as in PTAs between these regions. We subsequently discuss the structure of non-preferential RoO. The latter part of this section presents an analytical, comparative assessment of (1) the relative restrictiveness of the product-specific RoO governing different economic sectors in the different RoO regimes, and (2) the degree of flexibility instilled in the various RoO regimes by the regime-wide RoO.

A.   Comparing the Structure of RoO Regimes in Five Regions

i.   Europe: Expansion of the PANEURO System

The RoO regimes employed today across the EU's FTAs are highly uniform vis-à-vis each other. This owes largely to the European Commission's recent drive to harmonize the EU's existing and future preferential RoO regimes in order to facilitate the operations of EU exporters dealing on multiple trade fronts, and to pave the way for particularly the EU's East European FTA partners to draw greater benefits from EU-provided preferential treatment via diagonal cumulation—that was precluded by the lack of compatibility among the EU's RoO regimes. The harmonization efforts pertained to product-specific and regime-wide RoO alike. They extended to the RoO protocols with the EFTA countries that dated from 1972 and 1973, as well as across the EU's FTAs forged in the early 1990s in the context of the Europe Agreements with Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia, and Romania.[18] The work culminated in 1997 in the launch of the Pan-European (PANEURO) system, which established identical RoO protocols and product-specific RoO across the EU's existing FTAs, providing for diagonal cumulation among the participating countries thereby. The Commission's regulation 46 of January 1999 reiterates the harmonized protocols, outlining the so-call single list RoO. Overall, the PANEURO RoO are highly complex, combining CTC mainly at the heading level with exceptions, VC, and TECH, and varying markedly across economic sectors.

Since 1997, the PANEURO model has become incorporated in the EU's newer FTAs, including the Euro-Mediterranean Association Agreements, the Stabilization and Association Agreements with Croatia and the Former Yugoslav Republic of Macedonia, the EU-Slovenia FTA, as well as the extra-regional FTAs with South Africa, Mexico, and Chile. 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 approximate the single list, PANEURO model. EFTA's recently concluded FTAs with Mexico and Singapore also follow the PANEURO model; however, the EFTA-Singapore RoO provide in many sectors—such as plastics, rubber, textiles, iron and steel products, and some machinery products—an alternative, 50% import content RoO that either does not exist in the PANEURO model, or is in PANEURO set at lower and thus more demanding levels.

---

[18] See Driessen and Graafsma (1999) for review.

Overall, however, the harmonized RoO do not represent a dramatic break with those of the pre-1997 era. For example, the RoO in nearly three-quarters of the products (in terms of tariff sub-headings) 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, the EU RoO feature remarkable continuity: the RoO of the European Community-Cyprus FTA 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 (Estevadeordal and Suominen 2003a). 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.

ii.   Americas: Four RoO Families

There is much more variation across RoO regimes in the Americas. Nevertheless, distinct RoO families can be identified (Garay and Cornejo 2002). One extreme is populated by the traditional trade agreements such as the Latin American Integration Agreement (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). The LAIA model is the point of reference to RoO used in the Andean Community (CAN) and Caribbean Community (CARICOM). At the other extreme lie the so-called new generation PTAs such as NAFTA, which, in turn, is used as a reference point for the US-Chile, Mexico-Costa Rica, Mexico-Chile, Mexico-Bolivia, Mexico-Nicaragua, Mexico-Northern Triangle (El Salvador, Guatemala, and Honduras), Chile-Canada, and Mexico-Colombia-Venezuela (or G-3) FTAs; the NAFTA model is also widely viewed as the likeliest blueprint for the RoO of the Free Trade Area of the Americas (FTAA).[19] The RoO regimes in these agreements may require a change of chapter, heading, sub-heading 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.

Mercosur RoO, as well as RoO in the Mercosur-Bolivia and Mercosur-Chile FTAs fall between the LAIA-NAFTA extremes. They are mainly based on change of heading and different combinations of regional value content and technical requirements. The Central American Common Market's (CACM) RoO regime can be seen as located between those of the Mercosur and NAFTA: it uses chiefly change in tariff classification only, but in a 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. In some products, CACM introduces exceptions; a handful of products are also governed by regional value content or technical requirements.

Notably, unlike the EU's extra-European FTAs that follow the PANEURO system, US bilateral FTAs with extra-Hemispheric partners—Jordan and Israel—diverge markedly

---

[19] NAFTA RoO enshrined in Chapter 4 constitute a maze of highly disaggregated trade regulations described in a 150-page long Annex.

from the NAFTA model, operating on VC alone. However, the RoO of the US-Singapore FTA are again more complex, likening the NAFTA RoO. Similarly, the RoO of the recently forged Chile-South Korea FTA also feature a high degree of sectoral selectivity à la NAFTA, and, indeed, the US-Chile FTA. Nonetheless, the RoO of the Chile-Korea regime are overall less complex than either NAFTA or US-Chile RoO, and also more reliant on the change in heading criterion than NAFTA that has a strong change in chapter-component and US-Chile FTA, which features an important change in subheading-component.

iii. *Africa, Asia, Middle East: Toward Selectivity from Across-the-Board RoO?*

The relative complexity of RoO in Europe and the Americas stands in contrast to the generality of RoO in many Asian, African, and Middle Eastern PTAs. Some of the main integration schemes in these regions—the ASEAN Free Trade Area (AFTA), Australia-New Zealand Closer Economic Relations Trade Agreement (ANZCERTA), Singapore-Australia Free Trade Agreement (SAFTA), and South Pacific Regional Trade and Economic Cooperation (SPARTECA) in Asia-Pacific; the Economic Community of West African States (ECOWAS), Common Market for Eastern and Southern Africa (COMESA), and Namibia-Zimbabwe FTA 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 RVC, ranges from 25 percent (in Namibia-Zimbabwe FTA) to 50 percent (ANZCERTA). Some of the agreements allow, or, indeed, require, the RoO to be based on import content; however, the percentage requirement in such instances is higher than in terms of the RVC. Most of these regimes also specify and alternative RoO based on the CTC criterion, most often change in heading or, in the case of ECOWAS that also has a relatively low RVC requirement at 30 percent, change in subheading.

However, the more recent RoO regimes in both Africa and Asia-Pacific carry RoO of high degrees of sectoral selectivity. The Southern African Development Community (SADC) RoO approximate 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 greater selectivity. On the Asian front, the RoO of the Japan-Singapore Economic Partnership Agreement (JSEPA) are also complex, as evinced by the more than 200-page RoO protocol. However, much like in the Chile-Korea FTA, nearly half of JSEPA 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, free-standing VC rule, which instills generality and flexibility to the agreement.

The inter-continental RoO regimes of the US-Singapore and Chile-Korea FTAs have delivered additional complexity to the Asia-Pacific RoO theater. RoO in these agreements tend to follow the NAFTA model yet be notably less complex overall, featuring a strong change of heading component. The future Mexico-Singapore, Canada-Singapore, Mexico-Korea, Mexico-Japan, and US-Australia FTAs, among others, will likely compound this trend. Meanwhile, further European overtures to the Asian front will likely bring the PANEURO model to accompany the NAFTA model in the region. The EFTA-Singapore FTA attests to that; however, importantly and much like in JSEPA,

the standard PANEURO package in the FTA is accompanied by the flexible, alternative import content RoO. Further intra-regional FTAs in Asia-Pacific, such as between Japan and Korea, between Korea and Singapore, and between ASEAN on the one hand, and China, Japan, and/or Korea, on the other, will allow to gauge whether a genuinely Asian RoO model à la JSEPA of greater generality than the EU or NAFTA models yet higher complexity than featured in the older, across-the-board RoO regimes might be emerging.[20] The future FTA between India and Singapore could bring further novel features to the Asian RoO panorama.

B. 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; these RoO apply to the roughly 55 percent of world trade that is conducted on a non-preferential basis (WTO 2003). 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). The harmonization work, propelled precisely by growing concerns of the divergent national RoO's effects on unfettered 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 Cooperation Council, which 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 to be completed by July 1998. However, the deadline has been extended several times since then. The Technical Committee's work was concluded in 1999, with about 500 pending issues that could not be solved at the technical level being sent to the CRO in Geneva. As of June 2003, the process at the WTO had yet to reach a solution to some 93 issues; these affect an estimated fifth of the actual tariff subheadings of the entire tariff universe. In their current structure, the non-preferential RoO approximate the PANEURO and NAFTA models in sectoral specificity, yet are less demanding than either of the two main RoO regimes. However, since several issues are still contested at the WTO, their final degree of complexity and restrictiveness remains to be gauged. What is clear is that the definition of the non-preferential RoO is driven by the same political economy considerations as the definition of preferential RoO; indeed, the harmonization work can be considered in part endogenous to the RoO regimes that already exist in the manifold PTAs around the world. We address the harmonization work in greater detail in section V.

C. Depicting Product-Specific RoO around the World

Figure 2 centers on the first RoO component, the CTC criterion, in three of EU's RoO regimes (PANEURO—where the RoO are basically fully identical to those of the EU-South Africa FTA—and the RoO in the EU-Mexico and EU-Chile FTAs); the EFTA-

---

[20] There have been impulses to establish separate, bilateral FTAs between ASEAN and Japan, China, and Korea rather than negotiating a single FTA encompassing all the players. Japan has reportedly also studied possible economic partnership agreements with Thailand and the Philippines, respectively.

Mexico RoO that approximate the EU-Mexico RoO; six RoO regimes based on the NAFTA model gaining prominence in the Western Hemisphere (NAFTA, US-Chile, Group of Three, and Mexico-Costa Rica, Mexico-Bolivia, and Canada-Chile FTAs); the RoO in the CACM-Chile FTA, the RoO regimes in the FTAs between Mercosur on the one hand, and Chile and Bolivia, on the other; the LAIA RoO; and the RoO in force in four PTAs in Africa (ECOWAS, COMESA, Namibia-Zimbabwe FTA, and SADC), five in Asia-Pacific (AFTA, Bangkok Agreement, ANZCERTA, JSEPA, and Chile-Korea FTA); the Gulf Cooperation Council in the Middle East; and US extra-hemispheric FTAs with Jordan and Israel. The two final sets of bars depict two potential outcomes of the harmonization process of the non-preferential RoO (as set to their "lowest" and "highest" levels of stringency, which will be discussed in the next section).[21]

Figure 2 - Distribution of CTC Criteria by Agreement
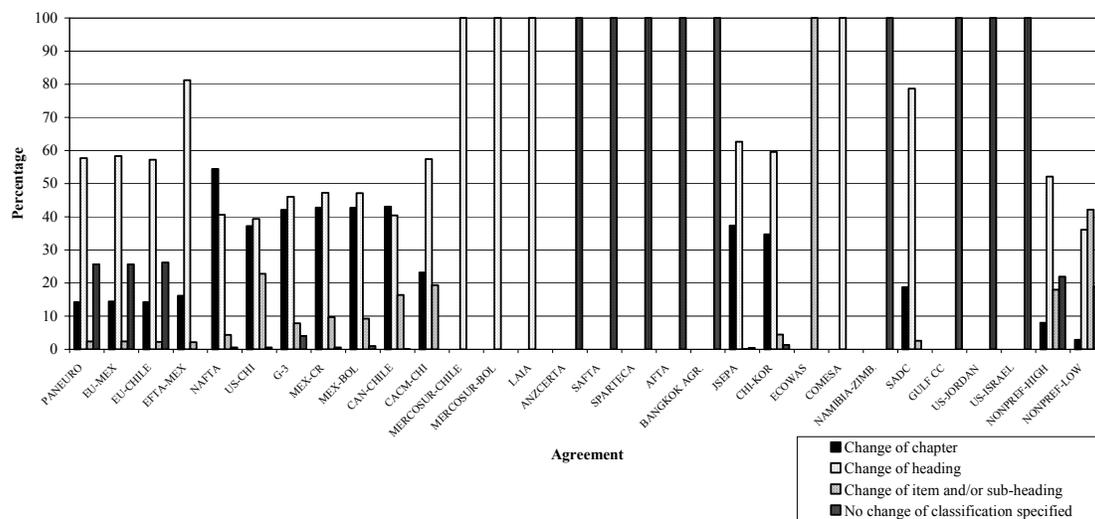
Source: Authors' calculations based on RoO protocols.

The change of heading-criterion predominates EU RoO, whereas the 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 FTA stands somewhat apart for requiring only change in sub-heading for a substantial number of tariff lines. The Chile-CACM FTA diverges from the NAFTA model due to its marked change in heading-component, as do the Japan-Singapore and Chile-Korea FTAs. The other Asian PTAs considered here stand out for their generality—for using an across-the-board value content requirement exclusively. Except for the SADC, African RoO regimes are also marked by general, across-the-board CTC RoO, as are LAIA and Mercosur's FTAs with Chile and Bolivia that employ the change of heading-criteria across the RoO universe. In contrast to the PANEURO and NAFTA models, non-preferential RoO feature also a strong change of subheading-component. Another notable difference between the various FTAs is that

---

[21] The figure is based on the first RoO only when two or more possible RoO are provided for a tariff heading or subheading. The recently published Chile-Korea and Japan-Singapore FTAs await future coding efforts.

some, such as ANZCERTA, 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; 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.

Table 3 centers on the tariff sub-headings 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, in particular, on the height of the VC criterion. The most usual level of VC is 40-50 percent, whether defined as MC or RVC; however, the permitted value of non-originating inputs of the price of the final product is as low as 15-30 percent in some products in the PANEURO and SADC regimes. The table also displays the various bases for calculation of the VC; differences in the method of calculation can have crucial implications to the exporters' capacity to meet the RoO. The PE model that is separated here for analytical purposes essentially involves the same product-specific RoO as PANEURO, while diverging somewhat from the PANEURO in the regime-wide RoO. It applies to some 15 FTAs, particularly to those forged by the EU and East European countries with Israel (WTO 2002).

Table 3 – VC Criteria by Agreement

PTA	Value Content Criterion		Basis for Calculation
	MC	RVC	
PANEURO (50)	50-30		Ex-works price[i]
PE (15)[ii]	50-30		Ex-works price
EU-SA	50-30		Ex-works price
EU-MEX	50-30		Ex-works price
EU-CHILE	50-30		Ex-works price
EFTA-MEX	50-30		Ex-works price
NAFTA		50-60	50 net cost; 60 transaction value[iii]
US-CHILE		35-45	35 build-up; 45 build-down[iv]
CANADA-CHILE		50-60	50 net cost; 60 transaction value
G-3		50-55[v]	Transaction value
MEX-COSTA RICA		41.66-50	41.66 net cost; 50 transaction value
MEX-BOLIVIA		41.66-50	41.66 net cost; 50 transaction value
MEX-CHILE		40-50	40 net cost; 50 transaction value
CACM		N/A	Transaction value
CACM-CHILE		30	Transaction value
MERCOSUR	40	60	Fob export value[vi]
MERCOSUR-CHILE	40		Fob export value[vii]
MERCOSUR-BOL	40		Fob export value
CAN	50[viii]		Fob export value
CARICOM-DR		N/A	Transaction value
LAIA	50		Fob export value
ANZCERTA		50	Factory cost[ix]
SAFTA		30-50	Factory cost
SPARTECA		50	Factory cost
AFTA		40	Value of content
BANGKOK		40	Ex-works[x]
JAPAN-SINGAPORE	40	60	Export value[xi]
US-SINGAPORE		30-65	30-35 build-up; 45-65 build-down
CHILES-KOREA		30-45	30 build-up; 45 build-down
COMESA	60	35	60 value of materials; 35 ex-factory cost[xii]
ECOWAS		30	Factory cost
NAMIBIA-ZIMB.		25	N/A
SADC	70-35		Ex-works price
GULF CC		40[xiii]	Ex-works price
US-JORDAN		35	Value of materials/processes[xiv]
US-ISRAEL		35	Value of materials/processes
MEX-ISRAEL		35-45	35 net cost; 45 transaction value
NON-PREF.	60-40		Ex-works price

Source: FTA texts.

Capturing the full scale of variation in the RoO regimes requires a look at the various combinations of RoO components. Table 4 displays the RoO combinations in selected FTAs around the world. Particularly notable is the high degree of selectivity of PANEURO, NAFTA, and non-preferential RoO, as opposed to the Africa and Asian RoO that are set at the same values across sectors within a given agreement.

Table 4 - Distribution of RoO Combinations, Selected PTAs (1st RoO only)

Requirement	EUROPE				AMERICAS										ASIA/PACIFIC							AFRICA				MIDDLE EAST			NON-PREF		Requirement
	PANEURO	EU-MEX	EU-CHI	EU PRE-97	EFTA-MEX	NAFTA	US-CHI	G3	MEX-CR	MEX-BOL	CAN-CHI	CACM-CHI	MERC-CHI	LAIA	ANZCERTA	SAFTA	SPARTECA	AFTA	BANGKOK	JSEPA	CHI-KOR	ECOWAS	COMESA	NAM-ZIMB	SADC	GULF CC	US-JORDAN	US-ISRAEL	HIGHEST	LOWEST	Requirement
NC	0.39	0.39	0.39	0.20		0.54	0.51	4.05	0.55	0.95	0.04									0.51											NC
NC+ECTC	2.39	2.04	2.39	2.36																											NC+ECTC
NC+TECH	1.39	1.39	1.39	0.72			0.02																						0.72	9.62	NC+TECH
NC+ECTC+TECH	0.00	0.00	0.00	0.00																											NC+ECTC+TECH
NC+VC	11.46	10.91	11.90	11.08					0.02						100	100	100	100	100	0.78				100		83.94	100	100	11.48	0.06	NC+VC
NC+ECTC+VC	1.57	1.57	1.57	1.61																											NC+ECTC+VC
NC+VC+TECH	0.08	0.20	0.20	0.00																									0.34	0.5	NC+VC+TECH
NC+WHOLLY OBTAINED CHAPTER	7.62	7.62	7.62	3.24																						16.06			9.39	8.7	NC+WHOLLY OBTAINED CHAPTER
NC+WHOLLY OBTAINED HEADING	0.70	0.70	0.70	0.70																0.42											NC+WHOLLY OBTAINED HEADING
SUBTOTAL	25.60	24.82	26.16	19.91	0.00	0.54	0.53	4.05	0.57	0.95	0.04	0.00	0.00	0.00	100.00	100.00	100.00	100.00	100.00	0.42	1.29	0.00	0.00	100.00	0.00	100.00	100.00	100.00	21.93	18.88	SUBTOTAL
CI											0.99																		3.64	6.18	CI
CI+ECTC						0.02			0.04		0.23																		0.12	0.12	CI+ECTC
CI+TECH					2.17						0.02														1.39				0.08	3.09	CI+TECH
CI+ECTC+TECH																															CI+ECTC+TECH
CI+VC																															CI+VC
CI+ECTC+VC						0.02																									CI+ECTC+VC
CI+VC+TECH																															CI+VC+TECH
SUBTOTAL	0.00	0.00	0.00	0.00	2.17	0.04	0.00	0.00	0.04	0.00	1.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.39	0.00	0.00	0.00	3.84	9.39	SUBTOTAL
CS	0.20	0.20	0.20	0.08		1.29	16.56	1.54	2.99	2.94	10.52	19.16									1.68	100			1.16				13.53	30.42	CS
CS+ECTC	0.00	0.00	0.00	0.00		2.52	5.57	0.73	2.14	1.32	4.13	0.20								0.05	0.47								0.64	0.92	CS+ECTC
CS+TECH	1.90	1.90	1.78	1.89		0.04	0.14	0.10	0.02	0.11																				1.41	CS+TECH
CS+ECTC+TECH	0.00	0.00	0.00	0.00		0.40	0.04	0.04	0.28	0.43	0.26																				CS+ECTC+TECH
CS+VC	0.27	0.27	0.27	0.37			0.42	4.60	4.25	4.24	0.06	0.03									2.11										CS+VC
CS+ECTC+VC	0.00	0.00	0.00	0.00			0.10	0.04			0.10										0.16										CS+ECTC+VC
CS+VC+TECH	0.00	0.00	0.00	0.00						0.26																					CS+VC+TECH
CS+ECTC+VC+TECH	0.00	0.00	0.00	0.00				0.83																							CS+ECTC+VC+TECH
SUBTOTAL	2.37	2.37	2.25	2.34	0.00	4.35	22.77	7.88	9.66	9.21	15.18	19.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	4.42	100.00	0.00	0.00	1.16	0.00	0.00	0.00	14.17	32.75	SUBTOTAL
CH	32.99	32.99	32.86	36.83	58.79	17.09	23.70	16.45	24.32	17.00	17.42	57.15	46.00	100.00						45.81	46.87		100		68.65				40.13	33.88	CH
CH+ECTC	4.60	5.13	4.56	4.57	7.22	19.18	11.19	13.45	19.66	14.27	18.72	0.26								14.46	9.12				3.35				11.64	2.22	CH+ECTC
CH+TECH				0.34		0.02		0.34	0.97	0.22	0.17	20.04								0.58	0.14								0.36		CH+TECH
CH+ECTC+TECH	6.66	6.66	6.66	6.68	9.04	0.14	0.44	0.26			1.74	0.09													6.52						CH+ECTC+TECH
CH+VC	13.01	12.68	12.78	13.58	6.1	3.54	3.25	2.01	2.67	2.17	3.52		9.99							1.66	2.95				0.13						CH+VC
CH+ECTC+VC	0.37	0.86	0.37	0.43	0.08	0.58	0.48		0.52	0.85	0.52									0.10	0.49										CH+ECTC+VC
CH+VC+TECH						0.10		8.06	0.02		10.01		23.97																		CH+VC+TECH
CH+ECTC+VC+TECH	0.02	0.02	0.02	0.03				4.82	0.89																0.03						CH+ECTC+VC+TECH
SUBTOTAL	57.65	58.34	57.25	62.43	81.26	40.65	39.40	46.02	47.19	47.15	40.44	57.41	100.00	100.00	0.00	0.00	0.00	0.00	0.00	62.61	59.57	0.00	100.00	0.00	78.65	0.00	0.00	0.00	52.13	36.10	SUBTOTAL
CC	2.16	2.16	2.16	2.28		30.95	23.18	21.09	31.05	21.80	29.20	22.94									22.49				0.68				7.86	2.78	CC
CC+ECTC	1.02	1.02	1.02	0.74	0.7	17.71	5.83	5.90	5.65	6.67	8.08	0.26								37.35	4.71								0.1	0.1	CC+ECTC
CC+TECH	0.04	0.04	0.04	0.04	0.05	0.02	0.06	5.43			6.30	0.04									0.08										CC+TECH
CC+ECTC+TECH	11.02	11.25	11.02	11.02	15.41	5.76	8.08	6.65	5.81	6.24	3.74										5.67						18.09				CC+ECTC+TECH
CC+VC	0.00	0.00	0.00	0.00				0.06			0.14	0.26	0.43								1.80										CC+VC
CC+ECTC+VC	0.00	0.00	0.00	0.00				0.00																							CC+ECTC+VC
CC+VC+TECH	0.00	0.00	0.00	0.00							2.67	1.24																			CC+VC+TECH
CC+ECTC+VC+TECH	0.00	0.00	0.00	0.00				0.20																							CC+ECTC+VC+TECH
SUBTOTAL	14.24	14.47	14.24	14.08	16.16	54.44	37.21	42.08	42.77	42.68	43.06	23.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	37.35	34.75	0.00	0.00	0.00	18.77	0.00	0.00	0.00	7.96	2.88	SUBTOTAL
TOTAL	100	100	100	99	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	TOTAL

CC = CHANGE IN CHAPTER
CH = CHANGE IN HEADING
CS = CHANGE IN SUBHEADING
ECTC = EXCEPTION TO CHANGE OF TARIFF CLASSIFICATION
VC = REGIONAL VALUE CONTENT
TECH = TECHNICAL REQUIREMENT
Calculations at 6-digit level of the Harmonized System.
Source: Authors' calculations and Devlin and Estevadeordal (2001).

D.   Regime-Wide RoO

Besides sectoral RoO, the different RoO regimes can be compared by their regime-wide RoO. Table 5 contrasts the various RoO regimes by their general, regime-wide RoO—*de minimis*, roll-up, cumulation, and drawback.

Table 5 – Regime-Wide RoO in Selected PTAs

PTA	De minimis (percentage)	Roll-Up	Cumulation Bilateral	Cumulation Diagonal	Drawback Allowed?[vi]
PANEURO (50)	10	Yes	Yes	Yes (full in EEA)	No
PE (15)	10	Yes	Yes	Yes	No[xv]
EU-South Africa	15	Yes	Yes	Yes with ACP (full with SACU)	Not mentioned
EU-Mexico	10	Yes	Yes	No	No after 2 years
EU-Chile	10	Yes	Yes	No	No after 4 years
EFTA-Mexico	10 (not chs. 50-63)	Yes	Yes	No	No after 3 years
NAFTA	7 (exceptions in agric. and ind. prod.; 7% of weight in chs. 50-63)	Yes except automotive	Yes	No	No after 7 years for Mex.
US-Chile	10 (excep. in agric. and processed agr. prod.)	Yes	Yes	No	Not mentioned
G3	7 (7% of weight in chs. 50-63)	Yes	Yes	No	Not mentioned
Mexico-Costa Rica	7 (excep. in chs. 4-15 and headings 0901, 1701, 2105, 2202)	Yes	Yes	No	No after 7 years
Mexico-Chile	8 (excep. in agric. and ind. products; 9% of weight in chs. 50-63)	Yes	Yes	No	Not mentioned
Mexico-Bolivia	7 (not chs. 1-27 unless CS; not chs. 50-63)	Yes	Yes	No	No after 8 years
Canada-Chile	9 (excep. in agric. and ind. products; 9% of weight in chs. 50-63)	Yes	Yes	No	Not mentioned
CACM-Chile	8 (not chs. 1-27 unless CS)	Yes	Yes	No	Not mentioned
CACM	10 until 2000; 7 from 2001 on (7% of weight in chs. 50-63)	N/A	Yes	No	Yes
MERCOSUR	Not mentioned	Yes except automotive	Yes	No	Yes (except automotive imports from Arg. and Braz.)
Mercosur-Chile	Not mentioned	Yes	Yes	No	Yes
MERCOSUR-Bolivia	Not mentioned	Yes	Yes	No	Yes
CARICOM	Not mentioned	Not mentioned	Yes	No	Possibly[xvi]
CARICOM-DR	7	Not mentioned	Yes	No	Not mentioned
ANZCERTA	2	Yes	Yes	Yes (full)	Yes
SAFTA	2	Yes	Yes	No	Not mentioned
SPARTECA	2	Yes	Yes[xvii]	Yes (full)	Yes
AFTA	Not mentioned	Not mentioned	Yes	No	Yes
BANGKOK	Not mentioned	Yes	Yes[xviii]	No	Not mentioned
Japan-Singapore	Not available	Yes	Yes	No (Outward Processing allowed)[xix]	Not mentioned
US-Singapore	10 (excep. in various agric. Products; 7% of weight in chs. 50-63)	Yes	Yes	No (OP and ISI allowed)[xx]	Not mentioned
Chile-Korea	8 (not chs. 1-24 unless CS; 8% of weight in chs. 50-63)	Yes	Yes	No	Not mentioned
COMESA	Not mentioned	Yes	Yes	No	Not after 10 years
ECOWAS	Not mentioned	Not mentioned	Yes	No	Not mentioned
SADC	10 (not chs. 50-63, 87, 98)	Yes	Yes	No	Not mentioned
GULF CC	Not mentioned	Not mentioned	Yes	No	Not mentioned
US-Jordan	Not mentioned	Not mentioned	Yes	No	Not mentioned
US-Israel	Not mentioned	Yes	Yes	No	Yes
Canada-Israel	10 (excep. in agric. and industrial prod.; 7% of weight in chs. 50-63)	Yes	Yes	Yes (with US)	Not mentioned
Mexico-Israel	10 (excep. in agric. and industrial prod.; 7% of weight in chs. 50-63)	Yes	Yes	No	Not mentioned

Sources: World Trade Organization (2002); ALADI (2002); FTA texts.

First, EU RoO regimes feature a higher *de minimis* than NAFTA and many other FTAs in the Americas, while there is no *de minimis* rule in Mercosur's FTAs and various FTAs in Asia and Africa. However, the principle does have exceptions in most regimes: for example, the 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 FTA, *de minimis* is set at 15 percent but excludes fish and crustaceans, tobacco products, as well as certain meat products and alcoholic beverages. The NAFTA *de minimis* 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). In textiles, the 7 percent *de minimis* refers to the total weight rather than cost of the input component. Chile-Korea FTA places *de minimis* at 8 percent, but requires the non-originating materials in chapters 1-24 of the Harmonized System to undergo a change in subheading prior to re-exportation.

Second, the roll-up principle is widely used around the world. For example, in NAFTA, a good may acquire originating status if it is produced in a NAFTA country from materials considered as originating (whether such materials are wholly obtained or having satisfied a CTC or RVC criterion) even if no change in tariff classification takes place between the intermediate material and the final product. Similarly, the EU-Mexico FTA stipulates that "if a product which has acquired originating status by fulfilling the conditions…is used in the manufacture of another product, the conditions applicable to the product in which it is incorporated do not apply to it, and no account shall be taken of the non-originating materials which may have been used in its manufacture."

Third, 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. The foremost diagonal cumulation regime in the world, the Pan-European system incorporates 16 partners and covers no fewer than 50 FTAs.[22] These include FTAs between EU and third parties, such as the members of the European Free Trade Agreement (EFTA), the central and eastern European countries, the Baltic states, Slovenia, and Turkey, and also FTAs forged between the EU's partner countries—such as between Slovenia and Estonia. In concrete terms, the Pan-European system enables producers to use components originating in any of the participating countries without losing the preferential status of the final product. The EEA agreement between EU and EFTA permits full cumulation. The EU-South Africa FTA also provides for full cumulation. It incorporates the "single territory" concept, whereby goods originating from countries party with South Africa to the Southern Africa Customs Union (SACU) are considered as originating in the EU-South Africa FTA area. Notably, AFTA and ANZCERTA models provide for full cumulation, while the Canada-Israel FTA allows for cumulation with the two countries' common FTA partner, the United States. Singapore's FTAs incorporate the outward processing (OP) concept tailored to accommodate Singapore's unique economic features and its access to low-cost processing in neighboring countries; OP will be detailed in Section IV of this paper.

---

[22] The participants in the PANEURO system of cumulation are the EU, Bulgaria, Czech Republic, Estonia, Hungary, Iceland, Lativia, Liechtenstein, Lithuania, Norway, Poland, Romania, Slovak Republic, Slovenia, Switzerland, and Turkey.

Fourth, EU's FTAs and FTAs in the Americas tend explicitly to preclude drawback. Nonetheless, both have allowed for a phase-out periods during which drawback is permitted. For instance, Mexico was allowed to employ drawback for the first two years under the EU-Mexico FTA, while Chile can do so through 2007, the fourth year of the FTA with the EU. NAFTA allowed Mexico to use drawback during the first seven years. NAFTA also provides for leniency in the application of the no-drawback rule by putting in place a refund system, whereby the producer will be refunded the lesser of the amount of duties paid on imported goods and the amount of duties paid on the exports of the good (or another product manufactured from that good) upon its introduction to another NAFTA member. AFTA, ANZCERTA, SPARTECA, the US-Israel FTA, CACM, and Mercosur's FTAs stand out for permitting drawback. However, in Mercosur *per se*, no-drawback rule does govern Argentine and Brazilian imports of intermediate automotive products when the final product is exported to a Mercosur partner.

E.   Administration of RoO

The various RoO regimes diverge in their administrative requirements, particularly the method of certification (table 6).

Table 6 – Certification Methods in Selected PTAs

PTA	Certification method
PANEURO	Two-step private and public; limited self-certification
PE	Two-step private and public; limited self-certification
EU-South Africa	Two-step private and public; limited self-certification
EU-Mexico	Two-step private and public; limited self-certification
EU-Chile	Two-step private and public; limited self-certification
NAFTA	Self-certification
G3	Two-step private and public
US-Chile	Self-certification
Mexico-CR	Self-certification
Mexico-Bolivia	Self-certification (two-step private and public during first 4 years)
Canada-Chile	Self-certification
CACM-Chile	Self-certification
CACM	Self-certification
Mercosur	Public (or delegated to a private entity)
Mercosur-Chile	Public (or delegated to a private entity)
Mercosur-Bolivia	Public (or delegated to a private entity)
CAN	Public (or delegated to a private entity)
CARICOM	Public (or delegated to a private entity)
CARICOM-DR	Public (or delegated to a private entity)
LAIA	Two-step private and public
ANZCERTA	Public (or delegated to a private entity)
SAFTA	Public (or delegated to a private entity)
SPARTECA	Not mentioned
AFTA	Public (or delegated to a private entity)
BANGKOK	Public (or delegated to a private entity)
Japan-Singapore	Public (or delegated to a private entity)
US-Singapore	Self-certification
Chile-Korea	Self-certification
COMESA	Two-step private and public
ECOWAS	Public (or delegated to a private entity)
SADC	Two-step private and public
US-Jordan	Self-certification

Source: Authors' classification based on the texts of RoO protocols.

The EU RoO regimes require the use of a movement certificate, EUR.1, that is to be issued in two steps—by the exporting country government once application has been made by exporter or the exporter's competent agency, such as a sectoral umbrella organization. However, the EU regimes provide for an alternative certification method, the invoice declaration, for "approved exporters" who make frequent shipments and are authorized by the customs authorities of the exporting country to make invoice declarations. NAFTA and a number of other FTAs in the Americas as well as the Chile-Korea FTA, meanwhile, rely on self-certification, which entails that the exporter's signing

the certificate suffices as an affirmation that the items covered by it qualify as originating. The certification method in Mercosur, Andean Community, Caricom, AFTA, ANZCERTA, SAFTA, the Bangkok Agreement, JSEPA, and ECOWAS require certification by a public body or a private umbrella entity approved as a certifying agency by the government. However, unlike in the two-step model, the exporter is not required to take the first cut at filling out the movement certificate, but, rather, to furnish the certifying agency with a legal declaration of the origin of the product.[23]

The self-certification model can be seen as placing to burden of proof essentially on the importing country producers; as such, it arguably minimizes the role of the government in the certifying process, entailing rather low administrative costs to exporters and governments alike. In contrast, the two-step system requires heavier involvement by the exporting country government and increases the steps that an exporter is to bear when seeking certification. To be sure, the invoice declaration system implemented by the EU facilitates exporting among frequent traders.

III.   A Comparative Analysis of the Restrictiveness of RoO Regimes

A.   *Restrictiveness of Product-Specific RoO*

The manifold RoO combinations within and across RoO regimes present a challenge for meaningful and rigorous cross-RoO comparisons. This paper seeks to draw such comparisons through a categorical index grounded on the plausible restrictiveness of a given type of RoO. First developed by Estevadeordal (2000) to examine NAFTA RoO, the index ranges from 1 (least restrictive) to 7 (most restrictive), and can be conceptualized as an indicator of how demanding a given RoO is for an exporter. The observation rule 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 sub-heading, and so on; and (2) VC and TECH attached to a given CTC add to the RoO's restrictiveness.[24] While this paper builds on Estevadeordal's index to consider the restrictiveness of product-specific RoO, some modifications are made to the observation rule (specified in appendix I) to account for the structure of EU RoO—in particular the instances where the CTC criterion is not used.

---

[23] The certificate in NAFTA and G3, CACM-Chile, will be valid for a single shipment or multiple shipments for a period of a year; in ANZCERTA and SAFTA, the certificate will be valid for multiple shipments for two years. In ECOWAS, certificate is not required for agricultural, livestock products and handmade articles produced without the use of tools directly operated by the manufacturer. In Mercosur-Chile, Mercosur-Bolivia, CARICOM-DR, ANZCERTA, and SAFTA, the certificate requires to be accompanied by a legal declaration by the final producer or exporter of compliance with the RoO. In CAN and CARICOM, declaration by the producer is required. In CARICOM, the declaration can be completed by the exporter if it is impossible for the producer to do so.
[24] Given that the degree of restrictiveness is 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.

Figure 3 reports the restrictiveness of RoO as calculated at the six-digit level of disaggregation in selected FTAs. The EU RoO regimes are again strikingly alike across agreements; indeed, the similarities are accentuated in comparison to the graphs above as the differences between the pre- and post-1997 RoO regimes in about a fifth of subheadings are too small to alter the restrictiveness code. For instance, in many products the only difference between the two sets of regimes is that a RoO requiring, say, a change of heading for a given product may also impose an ECTC under one regime while not doing so under another; such differences go uncaptured by the index employed here. The RoO regimes based on the NAFTA model, such as the G-3, are also highly alike. The Mercosur model pertinent to Mercosur-Chile and Mercosur-Bolivia FTAs is more general, yet still exhibiting more cross-sectoral variation in the restrictiveness of RoO than the LAIA model marked by the across-the-board change of heading RoO. However, diverging from each other, the NAFTA, Mercosur, and LAIA models evince the distinctive RoO families operated in the Americas. The generality of the LAIA model is replicated by the most Asian and African RoO regimes. However, some newer PTAs—Japan-Singapore, Chile-Korea, and SADC—feature high levels of cross-sectoral variation in RoO. Notably, the restrictiveness of Chile-Korea RoO resembles those of NAFTA and US-Chile RoO. The JSEPA model appears less restrictive than it is as about half of the tariff sub-headings in the agreement do not have RoO given that the parties have zero MFN tariffs in these sectors already; for these sub-headings, the graph simply assigns the value of zero. Non-preferential RoO similarly carry RoO of marked sectoral selectivity. However, the overall restrictiveness of the non-preferential model is lower than that of most preferential RoO regimes.

Figure 3 - Restrictiveness of RoO in Selected PTAs
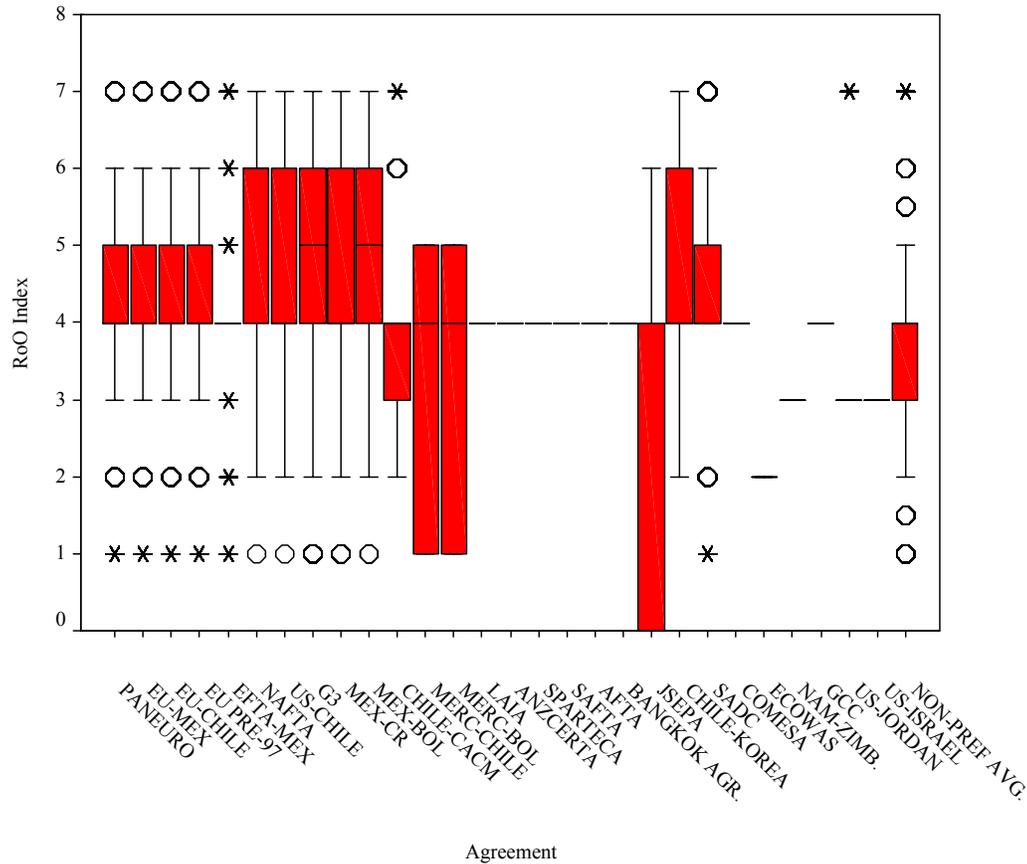
Note: Boxplots represent interquartile ranges. The line in the middle of the box represents the median 50th percentile of the data. The box extends from the 25th percentile to the 75th percentile, or through the so-called inter-quartile range (IQR). The whiskers emerging from the boxes extend to the lower and upper adjacent values. The upper adjacent value is defined as the largest data point less than or equal to x(75) + 1.5 IQR. The lower adjacent value is defined as the smallest data point greater than or equal to x(25) + 1.5 IQR. Observed points more extreme than the adjacent values are individually plotted (extreme values are marked with "o" symbol).
Source: Authors' calculations based on RoO protocols.

i.   Comparing the Restrictiveness of Sectoral RoO

To what extent does the restrictiveness of RoO vary across economic sectors? Are some sectors more susceptible to the negative trade and investment effects of RoO than others? We explore these questions by focusing on nine RoO regimes with inter-sectoral variation in RoO—the PANEURO, EFTA-Mexico, NAFTA, US-Chile, Chile-CACM, JSEPA, Chile-Korea, SADC, and non-preferential models. Table 7 reports the restrictiveness values aggregated by section of the Harmonized System that are established on the basis of these regimes.

Table 7 – Sectoral Restrictiveness of Sectoral RoO in Selected PTAs

HS Section	PAN-EURO	EFTA-MEX	NAFTA	US-Chile	Chile-CACM	JSEPA	Chile-Korea	SADC	Non-Pref. Avg.
1. Live Animals	7.0	5.3	6.0	6.0	5.9	7.0	6.0	7.0	6.2
2. Vegetable Products	6.6	4.0	6.0	6.0	5.6	7.0	6.1	6.6	6.6
3. Fats and Oils	4.7	4.0	6.0	6.0	3.0	7.0	7.0	7.0	4.0
4. Food, Bev. and Tobacco	5.0	4.4	4.7	5.7	3.7	6.8	5.2	5.4	4.6
5. Mineral Products	3.5	3.5	6.0	3.9	5.3	6.6	5.4	4.0	4.8
6. Chemicals	3.9	3.8	5.3	2.6	2.6	3.7	4.0	4.0	2.5
7. Plastics	4.9	4.9	4.8	3.7	3.2	4.0	4.1	4.7	4.0
8. Leather Goods	3.3	3.5	5.6	5.0	3.7	4.0	4.9	3.8	3.4
9. Wood Products	2.9	2.9	4.0	4.1	3.2	4.0	4.1	4.8	3.3
10. Pulp and Paper	4.4	4.6	4.8	4.9	4.1	4.0	4.3	4.3	3.9
11. Textile and Apparel	6.1	6.1	6.9	5.9	4.5	6.0	5.5	6.1	3.4
12. Footwear	2.8	4.1	4.9	4.8	3.5	4.3	4.7	2.6	3.7
13. Stone and Glass	3.7	3.7	4.9	4.4	4.2	4.0	5.0	3.7	3.5
14. Jewelry	3.7	3.7	5.3	5.2	4.0	4.0	5.4	3.7	3.4
15. Base Metals	4.2	4.2	4.6	4.6	3.8	4.0	4.5	3.9	3.4
16. Machinery and Electrical Equipment	4.8	4.0	3.2	2.9	4.3	6.0	3.8	4.1	3.6
17. Transportation Equipment	4.7	4.2	4.8	4.2	3.4	4.0	4.3	3.8	3.8
18. Optics	5.0	4.4	4.0	4.5	4.0	4.0	4.3	3.9	3.5
19. Arms and Ammunition	4.0	4.0	4.7	5.5	4.0	4.0	4.8	3.1	4.0
20. Works of Art, Misc.	4.1	4.1	5.1	5.3	3.6	4.6	4.7	4.0	3.3
Average	*4.5*	*4.2*	*5.1*	*4.8*	*4.0*	*4.9*	*4.9*	*4.5*	*3.9*

Source: Authors' calculations based on the RoO protocols.

Two issues stand out. First, the average restrictiveness value for the PANEURO RoO falls between 4 and 5, which correspond to the change of heading and change of heading plus regional value content criteria, respectively. As such, the index conveys the same message as the analysis above of the predominance of the change of heading rule in EU's RoO regimes. The average is somewhat higher for NAFTA, reflecting the use of the change in chapter criterion. EFTA-Mexico and Chile-CACM RoO are somewhat more lenient, while the restrictiveness of the SADC RoO is strikingly similar to the PANEURO model. Non-preferential RoO, here set at the average level of restrictiveness of RoO in sectors where agreement on one single RoO has yet to be identified, are less restrictive overall given the downward influence of the change of sub-heading and change of item criteria.

Second, the data reveal important variation in the degree of restrictiveness across economic sectors within the three regimes, as well as striking similarities in the variation of cross-sectoral restrictiveness within each agreement. Agricultural products and textiles and apparel are marked by a particularly high restrictiveness score in each regime, which provides precursory evidence that the restrictiveness of RoO may be driven by the same

political economy variables that arbitrate the level of tariffs particularly in the EU and United States. Non-preferential RoO exhibit similar patterns across sectors, communicating the operation of political economy dynamics also at the multilateral level. Yet, most sectors in the non-preferential RoO are less restrictive than their preferential counterparts.

The box-and-whisker plots in figure 4 provide a more nuanced look at the sectoral restrictiveness across four major recent RoO regimes—PANEURO, SADC, NAFTA, and Chile Korea FTA. The plots reveal some differences in the range of restrictiveness (or the lack of it) within sectors in each agreement. For instance, while PANEURO RoO and SADC RoO tailored to a good extent after the PANEURO model are nearly uniform with sections 13-21, NAFTA and Chile-Korea RoO vary more within these sections—and tend to be more restrictive than the EU RoO. Meanwhile, EU and SADC RoO in foodstuffs (section 4) feature a wide range of restrictiveness values, while the NAFTA and Chile-Korea RoO are highly uniform in the sector. Also notable is the somewhat lower extent of intra-sectoral variation in the Chile-Korea FTA than NAFTA in some sectors, such as pulp and paper (section 10) and transportation equipment (section 17), which communicates the higher level of generality of the trans-Pacific regime.

Figure 4 – Profiles of Sectoral Restrictiveness of RoO in PANEURO, SADC, NAFTA, and Chile-Korea FTA
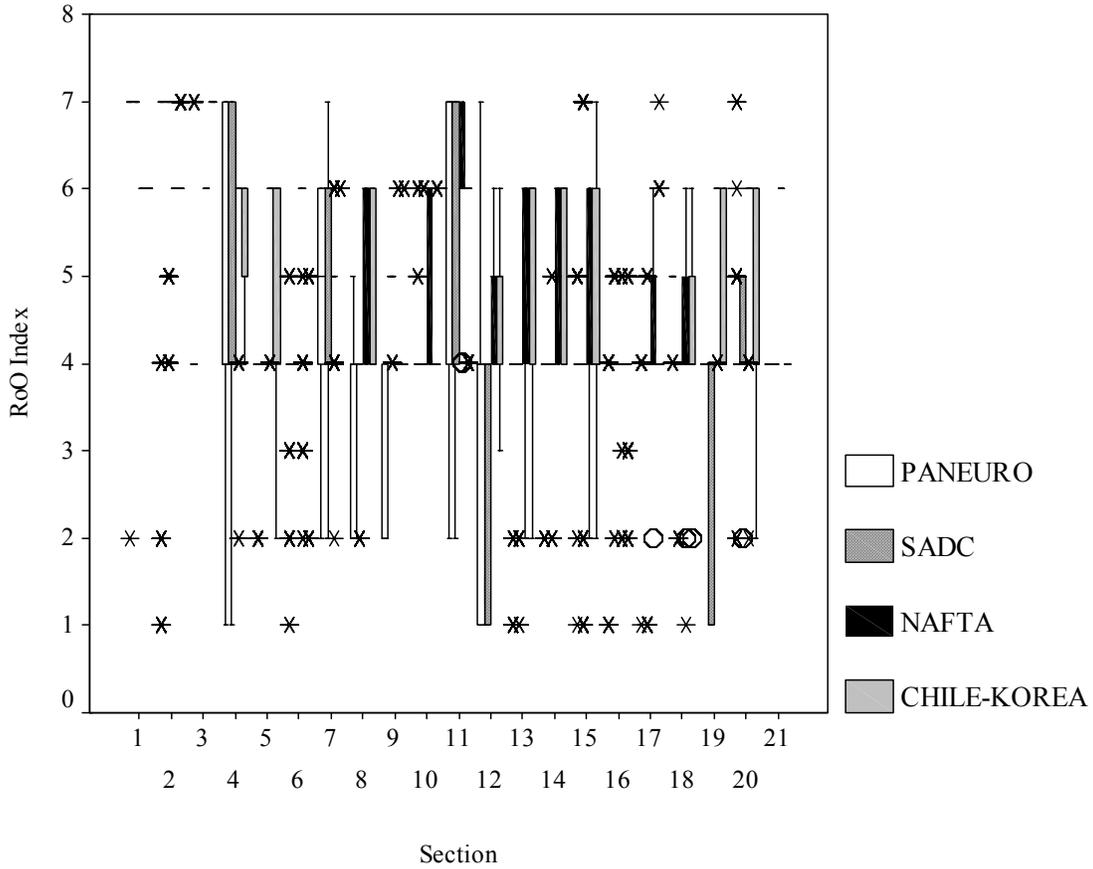
Note: Observed points more extreme than the adjacent values are individually plotted (outliers and extreme values are marked using "x" and "o" symbols).
Source: Authors' calculations based on the texts of EU, NAFTA, and SADC RoO protocols.

The methodology is replicated in figure 5, which provides a look at the various potential outcomes of the harmonization process for non-preferential RoO—with the RoO set at the average, lowest, highest levels of restrictiveness. The spread of restrictiveness values by sector is rather similar across the possible outcomes; neither are the overall restrictiveness values between the three possibilities are too divergent. Notably, however, unlike in many sectors in the PANEURO and NAFTA models, few sectors in non-preferential RoO feature a uniform RoO, but rather display great intra-sectoral selectivity.

**Figure 5 – Profiles of Sectoral Restrictiveness of RoO in
Three Potential Non-Preferential RoO Regimes**
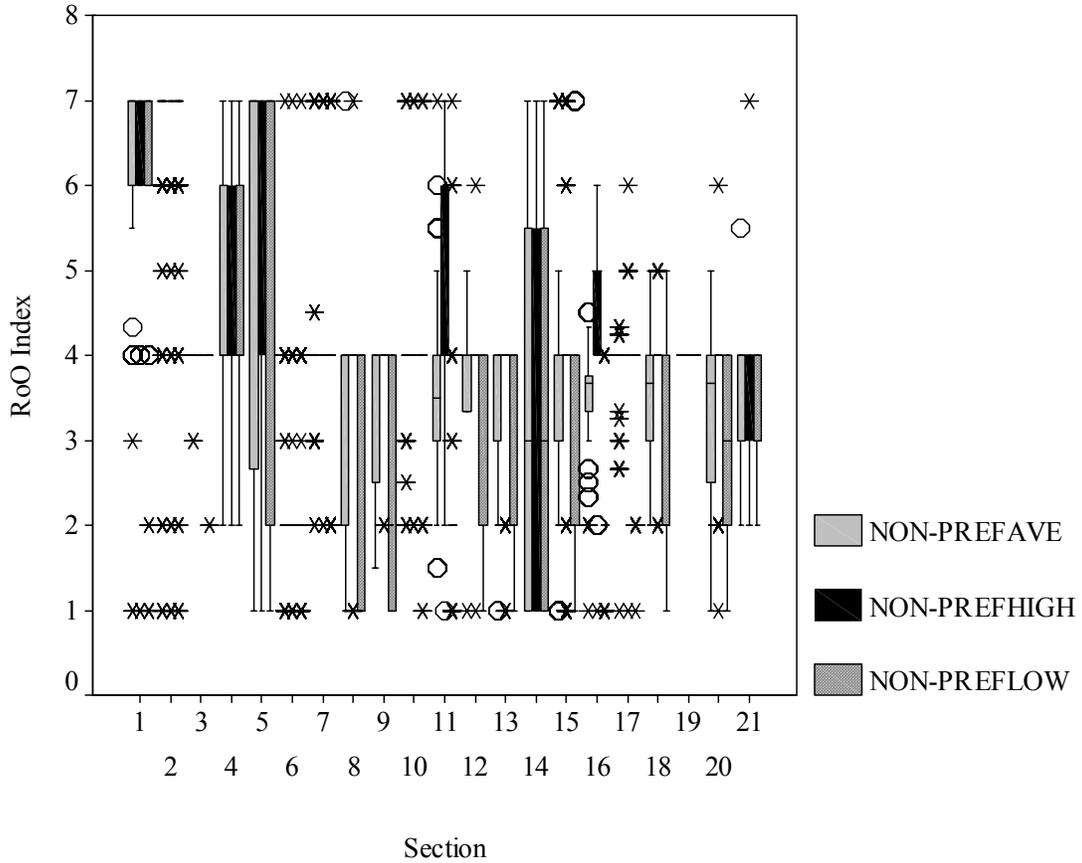
Note: Observed points more extreme than the adjacent values are individually plotted (outliers and extreme values are marked using "x" and "o" symbols).
Source: Authors' calculations based on the latest revisions to the non-preferential RoO.

ii.   *"Weighted" RoO: RoO's Coverage of Actual Trade Flows*

A look at RoO's coverage of tariff sub-headings provides an indication of the prevalence of various types of RoO and RoO of different degrees of stringency in and across RoO regimes. However, an analysis of the potential trade effects of RoO benefits from exploring the coverage of actual imports by different types of RoO. Table 8 presents such a "weighted" RoO measure of NAFTA, PANEURO, Chile-CACM, and SADC RoO based on weighting by US imports from NAFTA partners, EU's total imports, Chilean imports from CACM, and South African imports from SADC partners, respectively, in year 2000. The column next to each FTA specifies the deviation of the weighted RoO from the unweighted RoO, operationalized here as the share of the weighted RoO of the unweighted one. When the share is 1, the RoO in the unweighted and weighted exercises are as restrictive; when the share rises above one, the weighted RoO is more restrictive. When the share is zero, the country on whose imports the weights are generated has no incoming flows from the partners, as is the case in many sectors in the Chile-CACM FTA.

31

The table reveals striking similarity between the weighted and unweighted RoO. Indeed, the weighted RoO tend to be less restrictive than the unweighted RoO; this may in and of itself be an indication that stringent RoO stifle commerce.

Table 8 – Weighted Restrictiveness of PANEURO, NAFTA, Chile-CACM, and SADC RoO

HS Section	PANEURO	as share of unweighted	NAFTA	as share of unweighted	Chile-CACM	as share of unweighted	SADC	as share of unweighted
1. Live Animals	7.0	1.00	6.0	1.00	7.0	1.19	7.0	1.00
2. Vegetable Products	5.5	0.83	5.8	0.96	7.0	1.25	6.3	0.96
3. Fats and Oils	4.2	0.90	6.0	1.00	4.0	1.33	7.0	1.00
4. Food, Bev. and Tobacco	4.9	0.99	5.0	1.06	0.9	0.23	6.4	1.19
5. Mineral Products	2.4	0.68	5.3	0.88	0.0	0.00	4.0	1.00
6. Chemicals	4.1	1.04	4.9	0.93	4.1	1.56	4.0	1.00
7. Plastics	4.8	0.97	4.8	1.00	2.3	0.72	4.3	0.91
8. Leather Goods	3.5	1.06	5.5	0.98	2.0	0.54	4.0	1.05
9. Wood Products	2.5	0.85	4.0	1.00	0.0	0.00	5.0	1.04
10. Pulp and Paper	4.3	0.97	5.6	1.17	4.0	0.98	4.0	0.93
11. Textile and Apparel	6.6	1.09	6.8	0.98	6.9	1.54	4.5	0.74
12. Footwear	2.1	0.74	4.9	1.00	0.0	0.00	1.2	0.46
13. Stone and Glass	3.8	1.03	5.0	1.02	0.0	0.00	2.8	0.76
14. Jewelry	3.6	0.98	5.7	1.08	0.0	0.00	3.9	1.06
15. Base Metals	3.9	0.93	4.8	1.03	4.6	1.22	4.5	1.15
16. Machinery and Electrical Eq.	4.9	1.01	3.8	1.20	4.6	1.07	4.0	0.96
17. Transportation Equipment	4.6	0.98	4.8	0.99	0.0	0.00	3.7	0.97
18. Optics	5.2	1.04	4.1	1.02	5.0	1.25	3.8	0.98
19. Arms and Ammunition	4.0	1.00	4.8	1.02	0.0	0.00	0.0	0.00
20. Works of Art, Misc.	2.9	0.72	5.4	1.05	0.0	0.00	4.9	1.22
Average	4.2	*0.94*	*5.1*	*1.01*	*2.6*	*0.66*	*4.3*	*0.95*

Source: Authors' calculations based on the RoO protocols and UNCTAD TRAINS trade data for 2000.

The RoO index provides extremely useful means for capturing the restrictiveness of RoO. However, as a caveat, it should be kept in mind that restrictiveness of RoO is in practice highly specific to the product in question, with some of the nuances escaping the index. First, that RoO are formulated on the basis of the Harmonized System, which was not designed with a consideration for the determination of origin, can have important implications to some types of products. Even if a product undergoes a substantial transformation, it may still in practice fail to alter its tariff classification, and hence fail to meet the CTC test. The ostensibly simple change of heading criteria may thus be highly restrictive for some sectors where the intermediate and final goods are often classified under the same heading. This is the case particularly in the machinery sector. Second, the similarly seemingly simple stand-alone VC RoO can be problematic for producers to meet in the face of frequent fluctuations in exchange rates and changes in production costs; the

VC rule is also particularly susceptible to subjectivity by the importing country customs. The problems of calculating the production costs particularly of goods produced in multiple countries has led Lloyd (2001a) to recommend a value-added tariff in lieu of RoO—a tariff whose base is not the price of the imported article but rather the proportion of the value added outside the area.

B.   *Comparing Regime-Wide RoO: A Facilitation Index*

Product-specific RoO in a given PTA absent of an across-the-board RoO can impose highly divergent requirements to the exporters of different goods. Furthermore, even an across-the-board rule applicable to all sectors will undoubtedly have more striking implications in some sectors than in others, depending on the product-specific features. However, as discussed above, RoO regimes employ several mechanisms to add flexibility to the application of the product-specific RoO. We strive to capture the combined effect of such mechanisms by developing a regime-wide "facilitation index". The index is based on five components: *de minimis*, diagonal cumulation, full cumulation, drawback, and self-certification. The maximum index value of 5 results when the permitted level of de minimis is 5 percent or higher and when the other four variables are permitted by the RoO regime in question. The minimum value of zero results when de minimis is below 5 percent and none of the other regime-wide RoO are included in the PTA. Each component provides one extra "point" to the index.

Figure 6 graphs the "facil index" values for PTAs. The PANEURO and NAFTA models are nearly at *a par*; the difference here is produced by coding NAFTA as allowing drawback, as it did for the first seven years for Mexico. The EU-South Africa and the Canada-Israel are the most "permissive" regimes, the former thanks to drawback and diagonal and full cumulation, and the latter because of self-certification, drawback and cumulation with the United States. Meanwhile, many regimes with an across-the-board RoO neither provide for *de minimis* nor feature many regime-wide provisions of flexibility; the most usually occurring regime-wide rule in these PTAs is drawback. Indeed, that regimes with most stringent RoO and highest degree of sectoral selectivity in RoO feature the highest facilitation values may evince counter-lobbying by producers jeopardized by stringent product-specific RoO. Given that the restrictiveness of product-specific RoO is likely a less salient issue in regimes employing an across-the-board RoO, political economy pressure for alleviating mechanisms could be hypothesized to be reduced at the time when RoO are negotiated.

**Figure 6 – Facilitation Index for Selected PTAs**
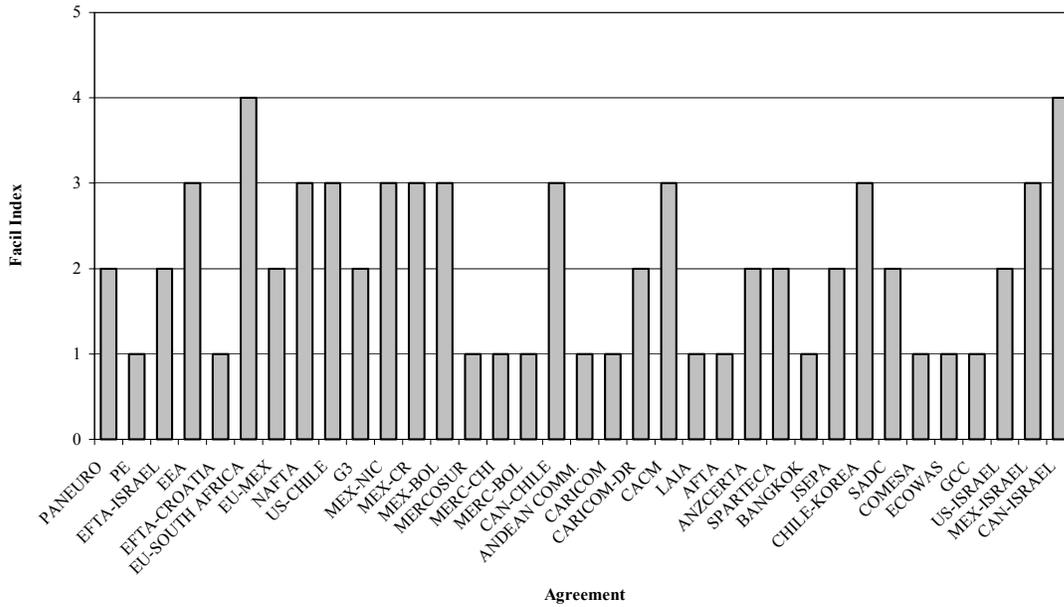
Table 9 summarizes the average restrictiveness of RoO (ROORI), the sectoral selectivity of RoO (ROOSD, operationalized as standard deviation in the product-specific RoO), and the facilitation index scores (Facil) for selected PTAs. Note that although the bulk of the FTAs have been reviewed for RoO, agreements for which restrictiveness values have yet to be obtained or calculated (regimes not displayed in figure 3) are coded as having a ROORI average of 4. The RoO variable is set at 2 when the country pair is party to the same customs union, but when the customs unions is an aspiring one and hence "imperfect", i.e. where RoO continues governing trade between members in a portion of the tariff universe for which a CET has not been reached

Table 9 – Restrictiveness of RoO, Standard Deviation in RoO, and Facil Index Values in Selected PTAs

PTA	ROORI	ROOSD	Facil
PANEURO	4.811	1.373	2
PE	4.811	1.373	1
EFTA-ISRAEL	4.811	1.373	2
EEA	4.811	1.373	3
EFTA-CROATIA	4.811	1.373	1
EU-SOUTH AFRICA	4.811	1.373	4
EU-MEXICO	4.821	1.360	2
NAFTA	5.154	1.163	3
US-CHILE	4.372	1.607	3
G3	4.936	1.460	2
MEXICO-NICARAGUA	4.770	1.312	3
MEXICO-COSTA RICA	4.770	1.312	3
MEXICO-BOLIVIA	4.964	1.373	3
MERCOSUR	2.000	0.000	1
MERCOSUR-CHILE	2.977	1.845	1
MERCOSUR-BOLIVIA	3.021	1.836	1
CANADA-CHILE	4.608	1.428	3
ANDEAN COMMUNITY	2.000	0.000	1
CARICOM	2.000	0.000	1
CARICOM-DR	4.000	0.000	2
CACM	2.000	0.000	3
ALADI	4.000	0.000	1
AFTA	4.000	0.000	1
ANZCERTA	4.000	0.000	2
SPARTECA	4.000	0.000	2
BANGKOK	4.000	0.000	1
JAPAN-SINGAPORE	4.648	1.080	2
CHILE-KOREA	4.688	1.076	3
SADC	4.676	1.401	2
COMESA	2.000	0.000	1
ECOWAS	3.000	0.000	1
GCC	4.000	0.000	1
US-ISRAEL	3.000	0.000	2
MEXICO-ISRAEL	4.000	0.000	3
CANADA-ISRAEL	4.000	0.000	4
NON-PREF. AVERAGE	3.703	1.403	N/A
NON-PREF. HIGHEST	4.154	1.465	N/A
NON-PREF. LOWEST	3.221	1.631	N/A

Source: Authors' calculations.

IV.   RoO "Innovations": *Ad Hoc* Mechanisms for Flexibility

Stringent product-specific RoO can undercut exporter incentives to seek to qualify for PTA-conferred preferential treatment. However, RoO regimes with the most restrictive and complex RoO tend also to contain regime-wide provisions that instill flexibility to the application of product-specific RoO, potentially counteracting the negative incentives of restrictive RoO. There are further, innovative features in some recent RoO regimes that can alleviate the impact of stringent RoO, and which future RoO regime-builders in particularly North-South PTAs might be well-advised to consider: (1) differential application of RoO due to differences in the partners' development levels, such as phase-in of RoO and more permanent product-specific RoO; and (2) flexibility in the calculation of value content when the partner lacks intermediate product industries. The following two parts present case studies on each of the RoO innovations.

A.   Sectoral "RoO Phase-Ins" and Deviations from the PANEURO Model in EU-Mexico and EU-Chile FTAs

Many FTAs forged between countries with marked differences in development levels have adopted RoO that provide more lenient treatment to the less-developed partner(s). As noted above, drawback is one such provision: for example, Mexico was in NAFTA allowed to perpetuate drawback for seven years into the agreement, while neither Canada nor the United States enjoyed drawback. The RoO of the Andean Community allows the less developed members, Bolivia and Ecuador, to use non-originating components up to 60 percent of the value of the final good, as opposed to only 40 percent for the other members. Similar provisions exist in LAIA and in Chile's bilateral agreements with Ecuador, Colombia, and Venezuela. In MERCOSUR, intra-regional automotive imports from Argentina and Brazil are not allowed to have used drawback; such a provision should help put vehicle producers in Paraguay and Uruguay at a par with the larger MERCOSUR partners, and possibly encourage investment in the automotive sector in these smaller countries. MERCOSUR-Chile FTA provides an adjustment period for Paraguay to phase in the RoO, as does MERCOSUR-Bolivia FTA for Bolivia.

Some regimes have gone beyond these general provisions of leniency to adopt highly detailed product-specific provisions that are applied either on a temporary or more permanent basis. The EU's RoO regimes with Mexico and Chile are perhaps the most notable examples whereby the large, more developed partner acquiesces to depart from its preferred RoO package to provide its partners product-specific (1) transition periods and (2) more permanent adjustment mechanisms.

First, both the EU-Mexico and EU-Chile FTAs contain a number of "RoO phase-ins"—deviations from the EU's standard PANEURO baseline for a certain period of time. In the case of Mexico, these pertain to one whole chapter (knitted apparel) and to 25 headings (or subheadings) in chemicals, textiles, footwear, machinery, and vehicles, and endure from two to six years prior to converging to the benchmark RoO. The most notable exceptions favoring Mexico involve three headings in vehicles (road tractors and semi-trailers; public transport vehicles; and motor vehicles for transport of goods), for which Mexico applies a 55 percent VC for an annual quota of 2,500 units through 2002, followed by a 50 percent VC on the quota through 2006. This contrasts with the 60

percent VC that will be applied otherwise and following year 2006. A similar alleviating exception applies to three other headings in vehicles and two headings pertinent to piston engines in chapter 84, but only through the year 2004. In footwear, the RoO for shoes is more restrictive for the EU than in its other FTAs: same RoO applies as in the FTAs with Chile and South Africa up to a certain quota, while the rest of EU exports to the Mexican market are regulated by much more stringent RoO.[25]

The RoO phase-ins are fewer in the case of Chile and pertain to textiles and bicycles for the first three years of the agreement. For two headings in man-made staple fibers (chapter 55), the rule of origin is more lenient prior to the phase-in. In special woven fabrics (chapter 58), the RoO is stricter prior to the phase-in, whereas in headgear (chapter 65), the initial RoO requires a VC instead of a change in heading. In bicycles (chapter 87), the initial RoO requires a VC rather than an ECTC, which sets in three years into the agreement.

Tables 8(a) and 8(b) list the phase-ins granted to Mexico and Chile in the RoO regimes with the EU.

Table 8(a) – RoO Phase-Ins in EU-Mexico FTA

Sector(s)	Phase-in through
Zea indurate maize	12/31/2002
Chemicals (2914)	06/30/2003
Chemicals (2915)	06/30/2003
Hides and Skins (4104)	12/31/2002
Knitted Apparel (Chapter 61)	12/31/2002
Unknitted Apparel (6201-6209, 6211)	12/31/2002
Unknitted Apparel (6202, 6204, 6206, 6209, 6211)	12/31/2002
Footwear (6402-6404)	RoO applied on Mexican imports From EU within a quota
Nuclear fuel elements (8401)	12/31/05
Engines (8407)	12/31/2004
Engines (8408)	12/31/2004
Vehicles (8701, 8702, 8704)	Mexico to apply a more lenient RoO for an annual quota until 12/31/06
Vehicles (8703, 8706, 8707)	Parties to apply a more lenient RoO for an annual quota until 12/31/04

Source: Appendix ii(a) of the EU-Mexico RoO Protocol.

---

[25] The other RoO phase-outs in the EU-Mexico FTA involve Zea indurate maize (through 2002), organic chemicals (subheadings of headings 2914 and 2915 feature stricter RoO through June 2003); leather (heading 4104 involves change of heading rather than TECH through 2002); knitted apparel (whereby chapter 61, instead of manufacture from yarn, permits a greater number of options through 2002); unknitted apparel (whereby several headings in chapter 62 allow a greater number of options than manufacture from yarn through 2002, and a third alternative RoO will be made available starting in 2003); and nuclear fuel elements (heading 8401involves a looser RoO through 2005).

Table 8(b) – RoO Phase-Ins in EU-Chile FTA

Sector(s)	Phase-in through
Yarn (5509, 5511)	12/31/2005
Non-Woven Labels (5807)	12/31/2005
Felt Headgear (6503)	12/31/2005
Bicycles (8712)	12/31/2005

Source: Appendix ii(a) of the EU-Chile RoO Protocol.

A second means to add leniency to the RoO protocol are product-specific permanent deviations from the single list, PANEURO model. Tables 9(a) and 9(b) present such deviations in the EU-Mexico and EU-Chile FTAs, respectively, at the heading level. Many of the deviations are negotiated at the sub-heading level; the product descriptions define to which precise sub-headings or items the rule applies within a given heading.

Table 9(a) – Deviations from the PANEURO Model: EU-Mexico FTA (1st RoO only)

Heading (or subheadings thereof)	EU Single List	EU-MEX RoO
4810 (Paper or paperboard, coated on one or both sides with kaolin or other inorganic substances, with or without a binder, and with no other coating, whether or not surface-colored, surface-decorated or printed, in rolls or sheets)	CH	CC + ECTC + TECH
6307 (Other made-up articles, including dress patterns)	VC 60%	CC + ECTC + TECH
6401 (Waterproof footwear with outer soles and uppers of rubber or of plastics, the uppers of which are neither fixed to the sole nor assembled by stitching, riveting, nailing, screwing, plugging or similar processes)	NC + ECTC	NC + multiple ECTC
6402-6404 (Footwear of plastics, leather and textiles)	NC + ECTC	CH + ECTC+ VC 40%[xxi]
8483 (Transmission shafts and cranks; bearing housing and plain shaft bearings; gears and gearing; ball screws, gear boxes and other speed changers; flywheelers and pulleys; clutches and shaft couplings intended for use in vehicles in Ch. 87)	CH + VC 60%	CH + ECTC+ VC 60%
8508 (Electromechanical tools for working in the hand with self-contained electric motor, parts thereof)	CH + VC 60%	CH + ECTC
8509 (Electromechanical domestic appliances, with self-contained electric motor, parts thereof)	CH + VC 60%	CH + ECTC
8516 (Electric ovens, electric heating resistors, electric smoothing irons; parts thereof)	CH + VC 60%	CH + ECTC
8518 ("Other appliances" under the heading microphones and stands thereof, loudspeakers; head-phones; earphones and combined microphone/speaker sets; audio-frequency electric amplifiers; electric sound amplifier sets, parts thereof)	VC 60%	VC 50%
8527 (Radio broadcast receivers not capable of operating without an external source of power, of a kind used in motor vehicles)	VC 60%	CH + ECTC
8544 (Insulated wire, cable and other insulated electric conductors, whether or not fitted with connectors; optical fiber cables, made up of individual sheathed fibers)	VC 60%	VC 50%
8708 (Parts and accessories of motor vehicles of headings 8701 to 8705)	VC 60%	CH + ECTC
9009 (Electrostatic photocopying apparatus operating by reproducing the original image via an intermediate onto the copy)	CH + VC 60%	CH + VC 50%
9022 (Apparatus based on the use of x-rays or of alpha, beta or gamma radiations, not for medical, surgical, dental, or veterinary uses, including radiography and radiotherapy apparatus, parts and accessories thereof)	CH + ECTC	CH + VC 60%
9026 (Instruments or apparatus for measuring or checking the flow, level, pressure or other variables of liquids or gases, excluding instruments and apparatus of heading No. 9014, 9015, 9028, or 9032)	VC 60%	CH

Note: VC hereby implies the minimum originating value of all materials used in the production of the final good of the ex-works price of the final good.
Source: RoO Protocols.

Table 9(b) – Deviations from the PANEURO Model: EU-Chile FTA (1st RoO only)

Heading (or subheadings thereof)	EU Single List	EU-Chile RoO
7601 (Unwrought aluminum)	CS + TECH	CH + VC 50%
8469-8473 (Office machines and parts and accessories thereof)	VC 60%	VC 50%
8481 ("Other appliances" under the heading of taps, cocks, valves and similar appliances for pipes, boiler shells, tanks, vats or the like, including pressure-reducing valves and thermostatically controlled valves)	CH + VC 60%	VC 60%
8504 (Power supply units for automatic data-processing machines)	VC 60%	VC 50%
8509 (Vacuum cleaners, including dry and wet vacuum cleaners; floor polishers	CH + VC 60%	VC 60%
8517 (Electrical apparatus for line telephony or line telegraphy, including line telephone sets with cordless handsets and telecommunication apparatus for carrier-current line systems or for digital line systems; videophones)	CH + VC 60%	VC 50%
8523 (Prepared unrecorded media for sound recording or similar recording of other phenomena, other than products of Ch. 37)	VC 60%	VC 50%

Note: VC hereby implies the minimum originating value of all materials used in the production of the final good of the ex-works price of the final good.
Source: RoO Protocols.

Although the deviations are rather minor, the fact that most of them feature a less stringent rule of origin than that on the PANEURO model suggests, much like the RoO phase-ins do, that both Mexico and Chile achieved some favorable sectoral outcomes in the RoO bargaining with the EU. Notably, in both cases, the divergences apply to industrial products only (i.e., chapters 25-97). For Chile, most deviations are in machinery and mechanical appliances, and electrical machinery and equipment. For Mexico, the bulk of the deviations are in apparel; footwear; machinery and mechanical appliances; electrical machinery and equipment; vehicle parts; and optical instruments. The RoO in these sectors were modified in order to accommodate the lack of raw materials, components, and local production in Mexico (Holbein et al. 2002).[26]

---

[26] Nonetheless, the EU is by and large viewed as the ultimate beneficiary of the RoO packages, particularly after the RoO phase-ins are completed. For instance, Mexico's goal was to keep RoO on car components at 30 percent of the value of the vehicle (Holbein et al. 2002). However, the FTA grants preferential access to the European market for units that have at least 50 percent local content based on value added by Mexican producers; as noted above, after the third year of the FTA, the local content will rise to 60 percent as under the single list. This contrasts with NAFTA RoO, which allows Mexico to claim all the value of an autopart if the imported components to that part have been significantly transformed in Mexico (Holbein et al. 2002). EU is also seen as the winner in perhaps the most contentious issue in EU-Chile RoO negotiations, fishing, which is not defined in the product-specific RoO. Under international agreements, sea products caught within a nation's territory are regarded as originating from that country. However, in the Chile-EU FTA, fish will be considered originating from the country of the ship that catches them; as such, only fish caught by Chilean or EU vessels can enter the EU free of duty four years into the agreement. This means that fish caught by third-country vessels in the territorial waters of either Chile or EU will not meet the RoO. The FTA also provides inroads for Europeans to the Chilean fishing industry by liberalizing investment for the EU in the sector—where foreign direct investment had previously been capped at 49 percent of local

B.   Singapore's RoO Regimes: Facilitating Outward Processing

Singapore's PTAs, as many other RoO regimes, divide products into commodities that are governed by the wholly-obtained rule, and manufactures, which feature RoO for (1) products made from exclusively Singaporean or the respective FTA partner's materials; and (2) products made from Singaporean, the respective FTA partner's or imported materials or a combination of any materials from these sources. With the Singaporean economy geared to high-value final assembly, the vast majority of Singapore's exports belong to this last category.

In order to help the many Singaporean industries that have extensive outsourcing ties to qualify for the preferential treatment provided by its PTA partners, Singapore has introduced two features to its RoO regimes: outward processing (OP) and integrated sourcing initiative (ISI). OP is recognized in all of Singapore's PTAs, while ISI is incorporated in the US-Singapore FTA. The concept of OP enables Singapore to outsource part of the manufacturing process, usually the lower value-added or labor-intensive activities, to the neighboring 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. The process can be illustrated as follows:

<div style="border:1px solid">

Stage1   Stage 2   Stage 3

Singapore → Foreign Country → Singapore → Exported

Conventional RoO → Stage 3 = Local Content

Recognition of OP → Stage 1 + Stage 3 = Local Content

</div>
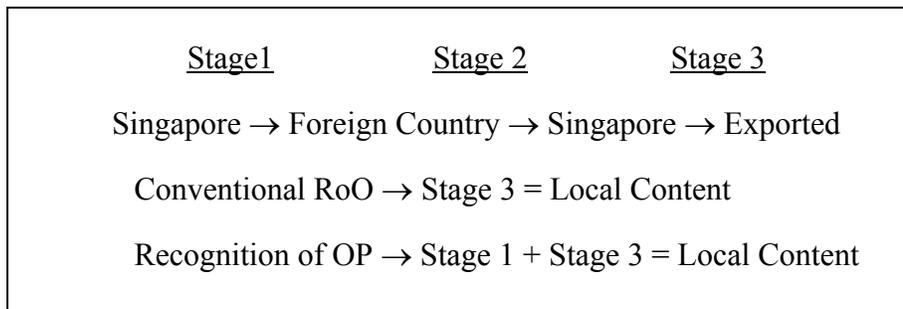
Although the OP concept applies only to products with a value added rule, it is credited to have encouraged higher value activities to be retained in Singapore, while outsourcing labor-intensive and low-value processes.

For its part, ISI operating in the USSFTA 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 FTA. 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.

---

companies. However, the FTA does exclude the EU's original proposal for full access to Chile's fishing waters and ports.

V. The Future of the Global RoO Panorama: Toward a *De Jure* Harmonization of Preferential RoO?

The global RoO panorama is evolving rapidly with the proliferation and expansion of PTAs with divergent RoO regimes around the world, as well as with the on-going tailoring of the non-preferential RoO at the WTO. Against the backdrop of heightening global competition, even subtle the differences between RoO regimes can have important implications to firms' calculations of the most feasible export and outsourcing decisions. When RoO and the differences between RoO regimes discourage the pursuit of least costly strategies, RoO counteract the trade-creating potential of PTAs and ultimately undercut the provision of cheapest, most efficiently produced goods to consumers.

This section strives addresses these concerns in three parts: it (1) lays out a potential evolution of the global preferential RoO panorama; (2) discusses the prospects for harmonizing non-preferential RoO; and (3) proposes to counter the potentially distortionary effects of preferential RoO through harmonizing these RoO at the multilateral level.

A.   Future Global RoO Theater

i.   Preferential RoO: Convergence toward a Bipolar RoO World?

The mosaic of RoO regimes populating the globe will likely undergo three developments in the near future.

First, the PANEURO model will not only consolidate its hold in the European theater, but also expand to FTAs forged between the EU (and other PANEURO adherents) with extra-European partners, most immediately with MERCOSUR and the various Southern Mediterranean countries. The PANEURO model itself will likely continue unaltered: although the EU is launching a process to evaluating its RoO regime, as of May 2003, no major retailoring of the model was planned. Minor changes may take place to accommodate changing production patterns in Europe, but these may well be done for instance by adjusting the 10 percent standard *de minimis*, rather than altering the product-specific RoO.

To be sure, developments on the broader political landscape of Europe will have implications to the PANEURO system: the accession of ten new EU members means that the bulk of the FTAs carrying the PANEURO model will disappear, with the partner countries' bilateral trade ties becoming governed by the customs union. The EU plans to subsequently extend the PANEURO system to the Southern Mediterranean countries and Israel through a single convention signed simultaneously by all the participants. The adjustment by many new developing partner countries to the PANEURO system will be smoothened by the fact that the model already applies to them under EU's GSP scheme. Thus, the "formalization" of the PANEURO model in further, extra-regional and inter-continental PTAs will likely work to entrench the existing supply relations with the EU's partners. The attraction of the model to the EU's partner countries is the possibility for eventual accession to the PANEURO system of cumulation. Cumulation in EU's GSP, currently allowed for member states within ASEAN, South Asian Association for

Regional Cooperation (SAARC), Andean Community, and CACM, will be modified to permit cumulation also *between* Andean Community and CACM members.

Second, the Western Hemisphere will likely become covered by a NAFTA-type RoO regime as a result of the Free Trade Area of the Americas-process. Much like in the case of PANEURO, the NAFTA RoO model—which, after all, is not dramatically different from that of the PANEURO model—will undoubtedly affect the shape of RoO regimes in the Asia-Pacific region, given that it is the NAFTA-model adherents (Canada, Chile, Mexico, and the United States) that are the most enthusiastic Western Hemisphere nations to build cross-Pacific FTAs. The Chile-Korea FTA that incorporates NAFTA-type RoO yet is somewhat less complex and restrictive may well presage the type of RoO resulting from the melding of the NAFTA model with the interests of East Asia's thus far foremost engines of inter-continental integration—Japan, Korea, and Singapore.

Third, further integration and renegotiation of prior PTAs in Asia, Africa, and the Middle East can well spawn RoO of greater selectivity, as evinced by SADC and JSEPA. Although such selectivity would likely follow the types and levels of sectoral restrictiveness of RoO in place in Europe and the Americas, the final outcome will likely resemble JSEPA RoO or CACM's revised RoO, with the relatively general change of heading RoO (or VC) being interspersed by some exceptions, combinations with VC (or change of heading), and technical requirements, albeit to a more moderate extent than in the PANEURO or NAFTA models.

In sum, the expanding geographical reach of the PANEURO model; the convergence toward a single FTAA RoO regime in the Americas; the rise of the inter-continental FTAs between European and Western Hemisphere partners on the one hand, and partners in other regions, on the other; as well as third parties' entering in PTAs with one another can be expected to lead to the application of two to three relatively similar RoO regimes on the global level. Indeed, as seen above, the main poles of RoO regimes, NAFTA and PANEURO models, come out rather similar when abstracted to the level of sectoral restrictiveness and regime-wide facilitation index. This potential *de facto* harmonization dynamic, along with (1) the harmonization of the non-preferential RoO at the WTO, and (2) the fact that many RoO regimes particularly in the Asia-Pacific and African PTA theaters are thus far relatively simple, with the same RoO often applying across the board, could facilitate eventual convergence toward a single global preferential RoO regime. Such an outcome of global RoO convergence would be particularly beneficial to the "spoke" countries that implement divergent RoO regimes across their FTA partners, rather than applying a single, uniform RoO regime in operations across partners, as is done by the EU hub and, within the Americas, by the US and Mexico hubs.

ii. Non-Preferential RoO: Awaiting the Final Push for Harmonization

The rapid evolution of the preferential RoO panorama stands in contrast to the glacial progress of the non-preferential RoO negotiations. Although the painstaking and laudable process of tackling the RoO of the about 5,000 products defined in the Harmonized System at the 6-digit level is today nearing in its final stages, the prospects for a rapid conclusion are dimmed by the fact that the remaining issues are also the politically most sensitive ones. The main sticking points as of June 2003 can be divided into three broad

categories: (1) issues going to the very heart of the fundamental differences between the WTO members in the conceptualization of some product-specific RoO, as reflected by the differences between their preferential RoO regimes particularly in machinery; (2) broader differences in trade policy concepts between the members, such as issues pertaining to sanitary and phytosanitary standards, the exclusive economic zone, and trademarks; and (3) disagreements over the application of RoO in anti-dumping actions.[27]

First, the NAFTA and PANEURO models diverge on the RoO for assembled machinery, electrical equipment, vehicles, airplanes, and ships. The NAFTA model assigns basically all RoO a CTC component, whereas the PANEURO model leaves a quarter of RoO without CTC and bases such RoO on a stand-alone VC (or TECH). This difference is particularly prominent in machinery. The United States favors CTC and/or TECH as the most appropriate types of RoO in machinery, while the EC supports a RoO based on value added. Neither type of RoO is without faults. The VC rule is difficult to implement particularly in complex products made of parts from several sources; it also provides for relatively high degrees of subjectivity by the importing country customs when verifying origin. Meanwhile, the CTC rule is straight-forward to implement and thus reduces the margin for administrative error and the likelihood that the implementation of RoO becomes politicized. However and as noted above, CTC, if implemented at the level of tariff heading, is nearly impossible to meet in many machinery products given that the parts and the final good inherently originate from the same tariff heading. For its part, TECH is criticized for lacking clarity and transparency.

Besides assembled industrial products, there are several other contested sectoral RoO involving agricultural and industrial products alike, first and foremost pizzas, refined vegetable oils, fruit juices, wines, cement, pharmaceuticals, leather, and iron and steel. The main issues at stake on these front are two-fold: (1) the type of processing or manufacturing that suffices to confer origin; and (2) the extent to which a given country's input share in a final product suffices to assign origin to that country and not others whose materials are used in the product. The former is the most commonly disputed question; however, the debate on some products such as pharmaceuticals involve both issues.

The second challenge facing the non-preferential talks concerns the relationship of RoO to other international trade policy instruments such as sanitary standards and trademark often governed by their own WTO agreements. There are three main issues. One, the definition of RoO will have implications to the application of many other international trade policy instruments; thus the beneficiaries of the other agreements will have a stake in the harmonization process. Two, RoO negotiators are up against the major task of making RoO as closely compatible with the other WTO agreements as possible. Three, movement on the RoO front can be contingent on movement on issues larger than RoO. There are several such broader issues:

- Trademarks are protected as intellectual property by the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPs). One of the key issues surrounding trademarks and RoO concerns coffee. Colombia is particularly insistent on its trademark "100% Colombian Coffee"; other coffee producers, such as Brazil, oppose the 100% rule

---

[27] The following draws on interviews with WTO and WCO officials and on Thorstensen (2002).

on coffee due to producing blends. This poses a challenge for reconciling harmonization work with the TRIPs Agreement

- Geographic indications, also covered by TRIPs, affect RoO particularly in wines and liquors. As on trademarks, RoO would have to be made compatible with TRIPs.

- Origin marking requirements will be affected by the how origin is defined on the RoO front; yet, the marking requirements tend to be stricter than RoO. Although the purposes of origin markings are distinct from the purposes of RoO, the application of the two sets of rules becomes problematic if they conflict.

- Export subsidies that encourage eligible producers to import raw materials, process them, and subsequently re-export them, subsidized, to the raw material producer countries—a practice that undercuts domestic producers' market share in these countries. The issue is particularly pertinent to refined sugar.

- Sanitary and phytosanitary (SPS) standards. The SPS Agreement stipulates that the health standards for food products should be defined in ways that would not create new barriers to trade. The key question is how to comply with this provision in a world where a given food product may contain inputs from various different countries with differing health standards—and differences in the uses of chemicals, antibiotics, hormones, and genetically modified seeds. Although the objectives of the SPS Agreement and the ARO differ, their provisions should be compatible with each other.

- Codex Alimentarius defines the international norms for food products, informing consumers of the ingredients and processes involved in the production of the final product. It basically defines origin on the grounds of processing. However, the RoO negotiations will complicate the labeling requirements, as they have given rise to several proposals to define origin especially for meat products, such as on the basis of country where the animal was born, raised, or slaughtered, or where the meat was processed.[28]

- Disagreement over the exclusive economic zone (EEZ) in the affects origin definition for fish products. While all countries agree that fish caught within 12 nautical miles from the shore of a country is accorded the origin of that country, the origin of products obtained from the EEZ extending 200 nautical miles from a country's coast is disputed. Most developing countries favor RoO that confers origin to the country in whose EEZ the fish was caught, while the EC supports a RoO that determines origin of fish caught in the EEZ by the origin of the vessel.

Another broad issue complicating RoO talks is country-specific textile quotas, whereby proving and claiming origin is crucial for obtaining a share of the quota. However, the abolishing of textile quotes in 2005 under the Multifiber Agreement (MFA) will relegate non-preferential RoO in textiles to much reduced importance, as no longer will countries require to prove origin with the purpose of accessing a quota.

---

[28] Moreover, that consumers have recently become more demanding of the information on the origin of meat and the type of processing that can be employed will likely have important implications to the Codex and the definition of RoO alike (Thorstensen 2002).

The third and perhaps the most important question holding up the harmonization process revolves around application of RoO in anti-dumping investigations. ARO states that non-preferential rules are to be the basis for antidumping actions. However, some member countries, such as the United States, Korea, and Japan, argue that the calculation of the margin of dumping—the wedge between the price of the exported good and its value in the domestic market—as per the Agreement on Anti-Dumping is based on the concept of exporting country and not on the country of origin. Should this concept be employed, the determination of origin would be unnecessary: the final exporter of a good that has passed through production in various countries on its way to the importers' market would be the subject of antidumping investigations by the importer. However, since countries would under this notion be able to use their own concept of origin for antidumping investigations without considering the harmonized RoO, they would also be able to define "exporter" in broader terms than allowed by the multilateral non-preferential rules, and hence target every country through which a good has passed with the same antidumping investigation—rather than targeting only the country that RoO define as the country origin. Applying harmonized RoO in anti-dumping actions is resisted also because of the changes that this would require the member to make in their respective domestic anti-dumping legislations.

A related problem is circumvention of anti-dumping actions. It takes place when an exporter, in an effort to circumvent an antidumping measure by an importer, exports dumped components to the importer country's market and produces the final good within the borders of the importer. Alternatively, the exporter ships dumped goods to a third country and proceeds to export from the third country to the importer, thus subjecting the third country to antidumping action by the importer, rather than being itself the subject. Harmonized RoO would allow for resolving numerous cases of circumvention, particularly of goods shipped from Asia to the US or EU markets, and help deter anticircumvention activities (Thorstensen 2002). However, that RoO would do so also gives rise to opposition to harmonizing them.

In sum, that the non-preferential RoO continue contested still today, eight years after the harmonization work was launched, attests to the complexity of interests seeking to affect the definition of origin around the world. Although the CRO has been able to define a RoO for most products, it has been compelled to send the most complex and politically sensitive pending issues—ones that cannot be resolved at the technical level—to the highest instance of the WTO negotiations, the General Council, in order for the member state ambassadors to reach a political solution. Besides raising the profile of RoO talks, various ways are being envisioned at the WTO to facilitate the resolution of the pending issues. The first is to simply devise ambiguous language that leaves some room for subjective interpretations yet establishes an effective regulation. Two, the difference between the EC and the United States in RoO in machinery can be solved by adopting both types of rules as interchangeable alternatives to govern a given product. Third, the Doha Round could help engender solutions to the bigger issues hampering the finalization of the harmonization program, such as antidumping and the definition of trademarks. Fourth, RoO are a particularly prominent area for compromises and logrolling: negotiators can achieve gains in some sectors by yielding in others. A clear prioritization of issues by each member state would help produce a productive give-and-take bargaining process.

B. Harmonizing Preferential RoO: A Boost to Open Regionalism

i.   Problems with the Multi-Regime RoO World

Less well-known than the harmonization of non-preferential RoO are ARO's provisions on preferential RoO enshrined in the Common Declaration with Regard to Preferential Rules of Origin. The declaration spells out the intent by the ARO signatories to bring also preferential RoO under a harmonization program and use the harmonized non-preferential RoO as the blueprint in the process. Thus far, however, preferential PTA RoO have fallen under the responsibility of the WTO Committee on Regional Trade Agreements rather than being dealt with by the CRO. For their part, GSP RoO are the responsibility of the Committee on Trade and Development.

To be sure, some might argue that the entrenchment of the preferential RoO regimes since the mid-1990s, the ostensive *de facto* convergence in RoO regimes, and the overall lowering of tariffs around the world have made harmonization of non-preferential RoO increasingly irrelevant. However, we posit that there are two particularly compelling reasons for pursuing the harmonization of preferential RoO.

First, non-preferential RoO, if used as the benchmark for harmonizing preferential RoO, are, as seen above, less restrictive and complex than any of the main RoO regimes. In forthcoming work, Estevadeordal and Suominen seek to estimate the impact of ROO in trade should all preferential RoO be set at the levels of non-preferential RoO. As such, replacing the existing RoO in most preferential schemes would enhance the prospects for open regionalism around the world.

Second, even subtle differences among RoO regimes can result in the formation of trade- and investment-diverting hubs. Even in a simple world with two main and rather similar RoO regimes, FTAA tailored after NAFTA and PANEURO models, three important differences would continue affecting producers and exporters in both hubs and in particularly in countries that are spokes of both of the hubs.

One, as noted above, a central difference between the PANEURO and NAFTA models is the *type* of RoO governing some manufacturing sectors, particularly machinery, where the PANEURO model employs a stand-alone VC rule, while NAFTA model relies on its staple RoO of CTC, often accompanied by VC. This difference can have important effects on economic decisions. For example, a small Chilean exporter seeking to access both FTAA and EU markets and who lacks, as is often the case for a small country, intermediate products in Chile will likely have to choose between producing to either market rather than to both given the difference in RoO: switching production patterns and outsourcing relations according to the RoO regime may simply be too cumbersome and costly. A major European car company might present another example. Such a company would likely be deterred from the FTAA market should the restrictiveness of RoO rise to levels above 50-60% value content, as the remaining share of outsourcing is done in Europe. Thus, in order to qualify for FTAA-conferred preferential treatment, European car companies would have to create outsourcing linkages in the Americas and/or encourage

their European suppliers to set up shop in the Western Hemisphere; however, both options feature a time lag which can give a crucial foothold to US car companies in the continent.

The second major difference between the two poles is the use of cumulation; the PANEURO model has gained prominence to a great extent thanks to the lure of cumulation, while the PTAs in the Americas—and PTAs based on the NAFTA model— remain disconnected. However, the FTAA will in practice result in one major cumulation zone in the Western Hemisphere. Indeed, this prospect could stir some concerns of bipolar trade diversion—growth in intra-bloc trade within the American and Europe at the expense of the rest of the world—which is a real possibility as long as the pole members have restrictive RoO, positive MFN tariffs vis-à-vis the ROW, and/or are reachable only by paying high transportation costs.

Third, the differences between the PANEURO's two-step certification method and NAFTA's self-certification will likely remain. The EU is planning to facilitate certification by moving to electronically-issued certificates; however, the extra step a potential exporter must take in certifying origin through a governmental entity, particularly in some of the EU's partner countries where the costs of obtaining a certificate are notably high, may not only undercut exporters' incentives to seek PTA-conferred preferential treatment *per se*, but tilt export decisions in favor of PTAs operating on the self-certificate.

ii. Counteracting the Splintering of the RoO Panorama: Possibilities and Prospects

While RoO *per se* in any given RoO regime are not necessarily "bad" for sound economic decisions, restrictive RoO can be. Furthermore, the existing differences in the restrictiveness of product-specific RoO and the regime-wide facilitation mechanisms *between* RoO regimes can and do make a difference in the decisions of economic actors in favor of less efficient outsourcing and investment strategies even in a simplified bi- or tripolar RoO world. But how can the potential frictions created by stringent RoO and by the differences between RoO regimes be reduced? How can entrepreneurs continue importing inputs from the cheapest sources, firms exploit cross-border economies of scale at lowest costs, and multinational companies make sweeping investment decisions based on economic efficiency rather than distortionary policies? What are the best ways to counter the development of trade- and investment diverting hubs in favor of globally free flow of goods, services, and investment?

Abolishing RoO altogether would certainly be the best and simplest means to counteract the impact of RoO. Another way to relegate RoO to irrelevance is by bringing MFN tariffs to zero globally. However, since these options are hardly politically palatable in the near future, a third possibility would be to harmonize preferential RoO at the global level. This would ensure that at least the required production patterns in a given sector would remain similar across export markets.[29] A further measure to accompany the harmonization work

---

[29] Of course, qualifying for preferential treatment would even in the presence of harmonized RoO require tailoring outsourcing relations and production to the demands of the RoO of the PTA conferring the preferences. For example, a Chilean firm faced with a CH requirement in both the EU and US market would have to verify that when exporting to the EU, the CH is met by production in Chile (or in the Chile-EU FTA

is the establishment of a multilateral mechanism to monitor member states' application of preferential and non-preferential RoO alike in order to guarantee to minimize the politicization of RoO and their uses for distributional purposes.

What are the prospects for harmonization of preferential RoO? To be sure, harmonization would be no simple endeavor given the differences in the types of RoO around the world: even slight differences can be difficult to overcome due to political resistance by sectors benefiting from *status quo*. Meanwhile, it is not clear that a similarly strong exporter lobby would materialize to voice demands for harmonization. Perhaps most importantly, both the EU and the US would likely in principle be reluctant to adopt each other's RoO. Both would also hold the practical concerns of the counterpart's seeking RoO that would allow it to transship via the common PTA partners, such as Mexico, to the other party's market.

However, the adoption of a globally uniform preferential RoO regime might not be as daunting as it might initially seem. There are four sources of optimism. First, the WTO members have already been able to sit down and compromise on harmonized non-preferential RoO—which not only evinces the existence of at least some reservoir of political will to tackle RoO, but also provides an immediately available and globally agreed RoO blueprint for harmonizing preferential RoO. And not only are non-preferential RoO negotiated and readily available as a model, but they make a good model: overall, they are less restrictive of commerce and less complex to implement than either the NAFTA- or PANEURO-type RoO. Some non-preferential RoO might, to be sure, require tightening if translated into preferential RoO in order for products to remain sufficiently differentiated for keeping PTAs what they are constructed to be, geographical areas of selective liberalization where deeper trade preferences are conferred to the partner countries than to the rest of the world. Moreover, loosening RoO markedly in some sectors to the levels of non-preferential RoO could risk a political backlash against PTAs by sensitive sectors. The handful of such potentially necessary sectoral exceptions notwithstanding, the ready availability of globally harmonized and relatively loose RoO should be fully exploited for harmonization of preferential RoO.

The second reason why harmonization of preferential RoO might not be farfetched is that preferential RoO would likely prove simpler to agree on than non-preferential RoO. Non-preferential RoO involve tracking down the production process all the way to the party where the good originates (i.e., it is not enough to establish whether the exporter country is the country of origin or not as on the preferential RoO front), and can thus involve a great number of interested parties for a given rule in the negotiation process. Preferential RoO, meanwhile, have implications only to the exporter and the PTA partner: the good either originates in the PTA partner or it does not, with the "true" and ultimate origin in the latter case being immaterial. Moreover, unlike non-preferential RoO that are employed

---

area). Similarly, should the product be governed by a 60%RVC rule, Chilean firm would need to ensure that the 60% arises from the EU-Chile FTA area when exporting to the EU, and from the Chile-US FTA area when exporting to the US. The requirements would nonetheless be identical; hence, should all inputs and processes originate in Chile to begin with, the exporter would not have to make any adjustments according to the export market—as he/she would in the face of different RoO in the two markets. Meanwhile, harmonization would also reduce the time and effort required to learn about the RoO specific to a given export market.

for the application of numerous other trade policy instruments, preferential RoO have few purposes beyond arbitrating markets access of goods to the PTA space. As such, their negotiation would unlikely involve as much consideration of the other WTO agreements as the harmonization of non-preferential RoO does.

Third, the growing attention at the WTO on PTAs and preferential RoO should propel constructive proposals for RoO that are most conducive to the march toward globally unfettered flow of commerce. For the first time in its history, the WTO Committee on Regional Trade Agreements has decided to consider RoO a "systemic" issue, as opposed both to individual PTA-issues such as prior considerations of the PANEURO system, and to issues that—whether systemic or individual—are not being prioritized by the CRTA. The concomitant growing interest by policy analysts and academia in RoO will add to the understanding of the operation and effects of different types of RoO.

Fourth, advances in Trade-Related Investment Measures (TRIMS) can help advance the harmonization of RoO, should RoO be considered, as they rightfully can and should be, as policies affecting investment decisions (Thorstensen 2002). Like TRIMS, RoO can be employed strategically as an incentive to attract investment and encourage exports—*and* exports with high local value. A sturdier multilateral regulatory framework on investment policies could help curb the strategic, trade- and investment-distorting uses of RoO.

In sum, harmonization of preferential RoO would be the most attainable means at present to counteract RoO's distortionary impact on trade and investment flows. Political will to negotiate preferential RoO will not be easy to muster in light of the entrenchment of RoO regime models and the interests supporting them, and simply due to the very full agendas of the WTO members. Of course, less problematic would be a lack of political will stemming from major advances in the reduction of tariffs at the multilateral level that would render preferential RoO increasingly irrelevant as arbitrators of trade and investment flows.

VI.   Conclusion

This paper has sought to cast light on the state and the future evolution of global RoO panorama, and to present ways to compare RoO regimes by their levels of restrictiveness. We have argued that multilateral approaches to harmonize preferential RoO are increasingly pressing in the face of (1) the proliferation of PTAs, each with somewhat distinct RoO; and (2) the recent empirical evidence suggest strongly that restrictive RoO can and do divert trade and undermine the trade-creating potential of PTAs; and (3) the potential breach by the various RoO regimes of the tacit prohibition of "other restrictive regulations of commerce" put forth by Article XXIV of the GATT.

The negotiators of the Doha Trade Round should decisively tackle RoO as a distortionary trade and investment policy instrument, and to do so in four concrete ways. First, they should provide a forceful push for completing the task of harmonizing non-preferential RoO. Completing the harmonization process is all the more compelling in the face of growth of global commerce and the increasing fragmentation of global production, both of which would thrive under clear and uniform set of rules. Second, the Doha negotiators

should launch the process of *de jure* harmonization of preferential rules of origin. The relatively high levels of restrictiveness of the main existing RoO regimes and the differences between them pose unnecessary policy hurdles to rational economic decisions and limit the potential of exporters to benefit from operating on multiple trade front simultaneously. As such, RoO hamper consumers access to the best goods at the lowest prices. Third, the Round should forge in a multilateral mechanism to monitor and enforce the transparent application of preferential and non-preferential RoO alike. And fourth, RoO should be incorporated in the TRIMs negotiations.

Preferential RoO matter only as long as there are MFN tariffs. Thus, the key to undercutting preferential RoO's negative trade effects lies ultimately in the success of multilateral liberalization. Should the multilateral trade rounds result in deep MFN tariff lowerings and the proliferation of PTAs engender a dynamic of competitive liberalization worldwide, the importance of preferential RoO as gatekeepers of commerce would automatically begin to fade.

References

Appiah, Alex Jameson. 1999. "Applied General Equilibrium Model of North American Integration with Rules of Origin." PhD Dissertation. Simon Fraser University (Canada).

Asociación Latinoamericana de Integración (ALADI). 2002. *Inventario sobre Regímenes de Origen*. Montevideo: Secretaría General (julio).

Augier, Patricia, Michael Gasiorek, and Charles Lai-Tong. 2004. "The Impact of Rules of Origin on Trade Flows." In Cadot, Olivier, Antoni Estevadeordal, Akiko Suwa-Eisenmann, and Thierry Verdier, eds. *The Origin of Goods: A Conceptual and Empirical Assessment of Rules of Origin in PTAs*." Washington: IADB- and CEPR.

Bergsten, C. Fred. 1997. "Open Regionalism." In C. Fred Bergsten, ed. *Whither APEC: The Progress to Date and Agenda for the Future.* Washington: Institute of International Economics.

Brenton, Paul. 2004. "Integrating the Least Developed Countries into the World Trading System: The Current Impact of EU Preferences under Everything but Arms." In Cadot, Olivier, Antoni Estevadeordal, Akiko Suwa-Eisenmann, and Thierry Verdier, eds. *The Origin of Goods: A Conceptual and Empirical Assessment of Rules of Origin in PTAs*." Washington: IADB- and CEPR.

_____ and Miriam Manchin. 2002. "Making EU Trade Agreements Work: The Role of Rules of Origin." CEPS Working Document No. 183. Brussels: Centre for European Policy Studies (March).

Cadot, Olivier, Antoni Estevadeordal and Akiko Suwa-Eisenmann. 2004. "An Assessment of Rules of Origin: The Case of NAFTA." In Cadot, Olivier, Antoni Estevadeordal, Akiko Suwa-Eisenmann, and Thierry Verdier, eds. *The Origin of Goods: A Conceptual and Empirical Assessment of Rules of Origin in PTAs*." Washington: IADB- and CEPR.

Cadot, Oliver, Jaime de Melo, Antoni Estevadeordal, Akiko Suwa-Eisenmann and Bolormaa Tumurchudur. 2002. "Assessing the Effect of NAFTA's Rules of Origin." Mimeo.

Devlin, Robert and Antoni Estevadeordal. 2001. "What's New in the New Regionalism in the Americas?" In Victor Bulmer-Thomas, ed. *Regional Integration in Latin America and the Caribbean: The Political Economy of Open Regionalism*. London: ILAS.

Driessen, Bart and Folkert Graafsma. 1999. "The EC's Wonderland: An Overview of the Pan-European Harmonised Origin Protocols." *Journal of World Trade* 33, 4.

Duttagupta, Rupa. 2000. "Intermediate Inputs and Rules of Origin: Implications for Welfare and Viability of Free Trade Agreements." PhD Dissertation, University of Maryland, College Park.

Duttagupta, Rupa and Arvind Panagariya. 2001. "Free Trade Areas and Rules of Origin: Economics and Politics." Seminar Paper.

Estevadeordal, Antoni. 2000. "Negotiating Preferential Market Access: The Case of the North American Free Trade Agreement." *Journal of World Trade* 34, 1 (February).

Estevadeordal, Antoni and Eric Miller. 2002. "Rules of Origin and the Pattern of Trade between U.S. and Canada." Washington, DC: Integration, Trade and Hemispheric Issues Division, Inter-American Development Bank.

Estevadeordal, Antoni and Kati Suominen. 2003. "Rules of Origin in FTAs in Europe and in the Americas: Issues and Implications for the EU-Mercosur Inter-Regional Association Agreement." In Valladão, Alfredo G.A. and Roberto Bouzas, eds. *Market Access for Goods & Services in the EU-Mercosur Negotiations*. Paris: Chaire Mercosur de Sciences Po.

_____. 2004. "Rules of Origin: A World Map and Trade Effects." In Cadot, Olivier, Antoni Estevadeordal, Akiko Suwa-Eisenmann, and Thierry Verdier, eds. *The Origin of Goods: A Conceptual and Empirical Assessment of Rules of Origin in PTAs*." Washington: IADB- and CEPR.

Falvey, Rod and Geoff Reed. 2000. "Rules of Origin as Commercial Policy Instruments." Research Paper No. 2000/18. Centre for Research on Globalization and Labor Markets, University of Nottingham.

Flatters, Frank, and Robert Kirk. 2004. "Rules of Origin as Tools of Development? Some Lessons from SADC." In Cadot, Olivier, Antoni Estevadeordal, Akiko Suwa-Eisenmann, and Thierry Verdier, eds. *The Origin of Goods: A Conceptual and Empirical Assessment of Rules of Origin in PTAs*." Washington: IADB- and CEPR.

Flatters, Frank. 2002. "SADC Rules of Origin: Undermining Regional Free Trade." Paper prepared for the TIPS Forum, Johannesburg, 9-11 September.

Francois, Joseph. 2004. "Rules of Origin and the Pattern of Production." In Cadot, Olivier, Antoni Estevadeordal, Akiko Suwa-Eisenmann, and Thierry Verdier, eds. *The Origin of Goods: A Conceptual and Empirical Assessment of Rules of Origin in PTAs*." Washington: IADB- and CEPR.

Garay, Luis and Rafael Cornejo. 2002. "Metodología para el Análisis de Régimenes de Origen: Aplicación en el Caso de las Américas." INTAL-ITD-STA Documento de Trabajo 8. Washington, DC: Inter-American Development Bank.

Garay, Luis Jorge and Antoni Estevadeordal. 1996. "Protection, Preferential Tariff Elimination and Rules of Origin in the Americas." *Integration and Trade* 1.

Graham, Edward M. and Christopher Wilkie. 1998. "Regional Economic Agreements and Multinational Firms: The Investment Provisions of the NAFTA." In Hafiz Mirza, ed.

Global Competitive Strategies in the New World Economy. Cheltenham, UK; Northampton, MA: Edward Elgar.

Herin, Jan. 1986. "Rules of Origin and Differences between Tariff Levels in EFTA and in the EC." EFTA Occasional Paper No. 13. Geneva (February).

Hirsch, Moshe. 2002. "International Trade Law, Political Economy and Rules of Origin: A Plea for a Reform of the WTO Regime on Rules of Origin." *Journal of World Trade* 36, 2 (April).

Inama, Stefano. 2004. "Rules of Origin in GSP and ACP." In Cadot, Olivier, Antoni Estevadeordal, Akiko Suwa-Eisenmann, and Thierry Verdier, eds. *The Origin of Goods: A Conceptual and Empirical Assessment of Rules of Origin in PTAs*." Washington: IADB- and CEPR.

James, William. 2004. Rules of Origin, Tariff Discrimination and Trade Diversion: A Case Study of Asian Textiles and Apparel Exports." In Cadot, Olivier, Antoni Estevadeordal, Akiko Suwa-Eisenmann, and Thierry Verdier, eds. *The Origin of Goods: A Conceptual and Empirical Assessment of Rules of Origin in PTAs*." Washington: IADB- and CEPR.

Jensen-Moran, Jeri. 1996. "Trade Battles as Investment Wars: The Coming Rules of Origin Debate." *The Washington Quarterly* 19, 1 (Winter).

Ju, Jiandong and Kala Krishna. 1998. "Firm Behavior and Market Access in a Free Trade Area With Rules of Origin." NBER Working Paper No. 6857. Cambridge, MA: NBER.

Koskinen, Matti. 1983. "Excess Documentation Costs as a Non-Tariff Measure: An Empirical Analysis of the Effects of Documentation Costs." Working Paper. Swedish School of Economics and Business Administration.

Krishna, Kala and Anne O. Kruger. 1995. "Implementing Free Trade Areas: Rules of Origin and Hidden protection." In Alan Deardorff, James Levinsohn and Robert Stern, eds. *New Directions in Trade Theory.* Ann Arbor: University of Michigan Press.

Krishna, Kala. 2004. "Rules of Origin: Economic Perspectives." In Cadot, Olivier, Antoni Estevadeordal, Akiko Suwa-Eisenmann, and Thierry Verdier, eds. *The Origin of Goods: A Conceptual and Empirical Assessment of Rules of Origin in PTAs*." Washington: IADB- and CEPR.

Krueger, Anne O. 1993. "Free Trade Agreements as Protectionist Devices: Rules of Origin." NBER Working Paper No. 4352. Cambridge, MA: NBER.

_____. 1995. "Free Trade Agreements versus Customs Unions." NBER Working Paper No. W5084. Cambridge, MA: NBER.

Lloyd, Peter J. 1997. "Towards a Framework of Trade and Competition Policy." *Asia-Pacific Economic Review* 3, 2 (August).

_____. 2001a. "Rules of Origin and Fragmentation of Trade." In Leonard K. Cheng and Henryk Kierzkowski, eds. *Global Production and Trade in East Asia*. Boston, MA: Kluwer Academic Publishers.

_____. 2001b. "Country of Origin in the Global Economy." Paper delivered at PECC XIV, Hong Kong, 28-30 November 2001.

Organization for Economic Cooperation and Development (OECD). 2002. "The Relationship between Regional Trade Agreements and Multilateral Trading System: The Role of Rules of Origin." Working Party of the Trade Committee (19 June).

Reyna, Jimmie V. 1995. *Passport to North American Trade: Rules of Origin and Customs Procedures under NAFTA*. Colorado Springs: Shepard's/ McGraw-Hill, Inc.

Rodriguez, Peter. 2001. "Rules of Origin with Multistage Production." *The World Economy* 24, 1.

Roos, Alfred. 1996. "Rules of Origin in the EC Context: The Origin(al) Approach of the EC Commission." In Kees Jan Kuilwijk and Robert Wright, eds. *European Trade and Industry in the 21st Century: Future Directions in EC Law and Policy*. Beuningen, the Netherlands: Nexed Editions.

Scollay, Robert. 1997. "Preferential Rules of Origin, Regional Trading Arrangements and APEC." *Asia-Pacific Economic Review* 3, 2 (August).

Soloaga, Isidro and Alan Winters. 2001. "Regionalism in the Nineties: What Effect on Trade?" *North American Journal of Economics and Finance* 12.

Stephenson, Sherry. 1997. "The Economic Impact of Rules of Origin in the Asia-Pacific Region." *Asia-Pacific Economic Review* 3, 2 (August).

Thoening, Mathias, and Thierry Verdier. 2004. "Rules of Origin: IO Perspectives." In Cadot, Olivier, Antoni Estevadeordal, Akiko Suwa-Eisenmann, and Thierry Verdier, eds. *The Origin of Goods: A Conceptual and Empirical Assessment of Rules of Origin in PTAs*." Washington: IADB- and CEPR.

Thorstensen, Vera. 2002. "Regras de origem: as negociações e implicações para a política de comércio exterior." *Revista Brasileira de Comércio Exterior* 15, 73 (outubro-dezembro).

Wonnacott, Paul. 1996. "Beyond NAFTA—The Design of a Free Trade Agreement of the Americas." In J. Bhagwati and A. Panagariya, eds., *The Economics of Preferential Trading Agreements*. Washington, D.C.: the AEI Press, pp. 79-107.

World Trade Organization (WTO). 2002a. "Rules of Origin Regimes in Regional Trade Agreements." Committee on Regional Trade Agreements (5 April).

_____. 2002b. "Compendium of Issues Related to Regional Trade Agreements." Negotiating Group on Rules (August).

_____.2003. "Rules of Origin." Various Documents. http://www.wto.org/english/tratop_e/roi_e/roi_e.htm

APPENDIX I

Estevadeordal's (2000) observation rule yields a RoO index as follows:

y = 1 if y* ≤ CI
y = 2 if CI < y* ≤ CS
y = 3 if CS < y* ≤ CS and VC
y = 4 if CS and VC < y* ≤ CH
y = 5 if CH < y* ≤ CH and VC
y = 6 if CH and VC < y* ≤ CC
y = 7 if CC < y* ≤ 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 he level of tariff item (8-10 digits), CS is change at the level of sub-heading (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.

There are a number of modifications to the observation rule in the case of those EU RoO for which no CTC is specified. 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 non-originating inputs is below 50 percent, as well as when an import content criterion is combined with a technical requirement. Second, RoO featuring an exception alone is assigned value 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.

The observation rule is admittedly somewhat crude for accounting for the subtleties of the EU RoO as it does not account for the "soft" CTC criterion used by the EU. However, it does allow for comparing the EU and NAFTA RoO regimes.

In the case of the non-preferential RoO, a RoO that requires change in item or a change in item and an exception and/or TECH is coded as 1. When a change in item plus VC is required, a 2 would be assigned; however, empirically, there are no such cases.

In subheadings where an agreement on the RoO has yet to be reached, up to four RoO proposals are taken into account and the averages formed on the basis of these; in the handful of categories where there are more than four proposals, the four proposals included into the calculations are selected so as to capture the range of different proposals and restrictiveness values.

APPENDIX IIa
PTAs Included in the Study, by Year of Entry into Force and Full Name

PTA	ENTRY YR	FULL NAME/TYPE
CACM	1961	Central American Common Market
CARICOM	1973	Caribbean Community
EU-ICELAND	1973	
EU-NORWAY	1973	
EU-SWITZERLAND	1973	
BANGKOK AGREEMENT	1976	
LAIA	1981	Latin American Integration Association
SPARTECA	1981	South Pacific Regional Trade and Economic Cooperation Agreement
ANZCERTA	1983	Australia-New Zealand Closer Economic Relations Trade Agreement
GULF CC	1983	Gulf Cooperation Council
US-ISRAEL	1985	
ECOWAS Trade Liberalisation Scheme	1990	Economic Community of West African States
NAMIBIA-ZIMBABWE	1992	
EFTA-CZECH REPUBLIC	1992	PANEURO
EU-CZECH REPUBLIC	1992	PANEURO
EU-HUNGARY	1992	PANEURO
EU-SLOVAK REPUBLIC	1992	PANEURO
EFTA-SLOVAK REPUBLIC	1992	PANEURO
EFTA-TURKEY	1992	PANEURO
EU-POLAND	1992	PANEURO
EU-BULGARIA	1993	PANEURO
AFTA	1993	ASEAN Free Trade Area
CEFTA	1993	Central European Free Trade Area/PANEURO
EFTA-BULGARIA	1993	PANEURO
EFTA-ISRAEL	1993	PE
EFTA-HUNGARY	1993	PANEURO
EFTA-POLAND	1993	PANEURO
EFTA-ROMANIA	1993	PANEURO
EU-ROMANIA	1993	PANEURO
BAFTA	1994	Baltic Free Trade Agreement/PANEURO
COMESA	1994	Common Market for Eastern and Southern Africa
EEA	1994	European Economic Area/PANEURO
NAFTA	1994	North American Free Trade Agreement
GEORGIA-RUSSIA	1994	
G3	1995	Group of Three
EFTA-SLOVENIA	1995	PANEURO
EU-LATVIA	1995	PANEURO
EU-LITHUANIA	1995	PANEURO
EU-ESTONIA	1995	PANEURO
MEXICO-BOLIVIA	1995	
MEXICO-COSTA RICA	1995	
ROMANIA-MOLDOVA	1995	
KYRGYZ REPUBLIC-KAZAKHSTAN	1995	
EFTA-ESTONIA	1996	PANEURO
EFTA-LATVIA	1996	PANEURO
EFTA-LITHUANIA	1996	PANEURO
SLOVENIA-LATVIA	1996	PANEURO
MERCOSUR-CHILE	1996	
GEORGIA-UKRAINE	1996	
GEORGIA-AZERBAIJAN	1996	
CZECH REPUBLIC-LITHUANIA	1997	PANEURO
POLAND-LITHUANIA	1997	PANEURO
SLOVAK REPUBLIC-ISRAEL	1997	PANEURO
SLOVENIA-ESTONIA	1997	PANEURO
CZECH REPUBLIC-ISRAEL	1997	PE
CZECH REPUBLIC-LATVIA	1997	PANEURO
SLOVAK REPUBLIC-LATVIA	1997	PANEURO
SLOVAK REPUBLIC-LITHUANIA	1997	PANEURO
SLOVENIA-LITHUANIA	1997	PANEURO
TURKEY-ISRAEL	1997	PE
CANADA-CHILE	1997	
CANADA-ISRAEL	1997	
MERCOSUR-BOLIVIA	1997	
CZECH REPUBLIC-ESTONIA	1998	PANEURO
HUNGARY-TURKEY	1998	PANEURO
ROMANIA-TURKEY	1998	PANEURO
SLOVAK REPUBLIC-ESTONIA	1998	PANEURO
SLOVAK REPUBLIC-TURKEY	1998	PANEURO
TURKEY-LITHUANIA	1998	PANEURO
CZECH REPUBLIC-TURKEY	1998	PANEURO
HUNGARY-ISRAEL	1998	PE
POLAND-ISRAEL	1998	PE
SLOVENIA-CROATIA	1998	PE
SLOVENIA-ISRAEL	1998	PE

PTA	ENTRY YR	FULL NAME/TYPE
MEXICO-NICARAGUA	1998	
EU-TUNISIA	1998	
GEORGIA-ARMENIA	1998	
EU-SLOVENIA	1999	PANEURO
POLAND-LATVIA	1999	PANEURO
CHILE-MEXICO	1999	
TURKEY-BULGARIA	1999	
EFTA-MOROCCO	1999	
GEORGIA-KAZAKHSTAN	1999	
HUNGARY-LITHUANIA	2000	PANEURO
POLAND-TURKEY	2000	PANEURO
TURKEY-LATVIA	2000	PANEURO
TURKEY-SLOVENIA	2000	PANEURO
HUNGARY-LATVIA	2000	PANEURO
TURKEY-SLOVENIA	2000	PANEURO
EU-ISRAEL	2000	PE
SADC	2000	Southern African Development Community
EU-MEXICO	2000	
EU-SOUTH AFRICA	2000	
MEXICO-ISRAEL	2000	
EU-MOROCCO	2000	
NEW ZEALAND-SINGAPORE	2001	

PTAs not included in the gravity model (due to entering into force later than 1 January 2001)

PTA	ENTRY YR	FULL NAME/TYPE
US-JORDAN	2001	
EFTA-MEXICO	2001	
HUNGARY-ESTONIA	2001	PANEURO
EFTA-CROATIA	2002	PE
EU-CROATIA	2002	PE
CACM-CHILE	2002	
JSEPA	2002	Japan-Singapore Economic Partnership Agreement
CHILE-COSTA RICA	2002	
CANADA-COSTA RICA	2002	
SAFTA	2003	Singapore-Australia Free Trade Agreement
EU-CHILE	2003	
EFTA-SINGAPORE	2003	
CHILE-SOUTH KOREA	2003	
US-CHILE	2003	

PTAs treated as "Perfect " CUs

PTA	ENTRY YR	FULL NAME/TYPE
EC/EU	1958	European Community/European Union
EFTA	1960	European Free Trade Area
EU-MALTA	1971	
EU-CYPRUS	1973	
EU-TURKEY	1996	
FSRs	1999	CU of four Former Soviet Republics

Notes: 1. The PANEURO system was launched in 1997. RoO protocols of FTAs forged prior to that by the EU were revised to be compatible with the PANEURO model.

2. PE indicates RoO protocols that are basically identical to the PANEURO model in product-specific RoO, but diverge from the PANEURO model in some regime-wide provisions, most notably by not being part of the PANEURO system of diagonal cumulation.

Entry dates obtained from the World Trade Organization and the Organization of American States.

APPENDIX IIb
Selected PTAs by Member States

PTA	MEMBERS
AFTA	Brunei, Darussalam, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand, Vietnam
ANZCERTA	Australia, New Zealand
BAFTA	Estonia, Latvia, Lithuania
BANGKOK AGREEMENT	Bangladesh, China, India, Republicublic of Korea, Laos, Sri Lanka
CACM	Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua
CARICOM	Antigua and Barbuda, the Bahamas, Barbados, Belize, Dominica, Grenada, Guyana, Haiti, Jamaica, Montserrat, St. Lucia, St. Kitts and Nevis, St. Vincent and the Grenadines, Suriname, Trinidad and Tobago
CEFTA	Bulgaria, Czech Republic, Hungary, Poland, Romania, Slovak Republic, Slovenia
COMESA	Angola, Burundi, Comoros, Democratic Republicublic of Congo, Djibouti, Egypt, Eritrea, Ethiopia, Kenya, Madagascar, Malawi, Mauritius, Namibia, Rwanda, Seychelles, Sudan, Swaziland, Uganda, Zambia, Zimbabwe
EEA	EU, Iceland, Liechtenstein, Norway
EFTA	Iceland, Liechtenstein, Norway, Switzerland
ECOWAS	Benin, Burkina Faso, Cabo Verde, Ivory Coast, Gambia, Ghana, Guinea, Guinea Bissau, Mali, Liberia, Niger, Nigeria, Senegal, Sierra Leone, Togo, Namibia, Zimbabwe
FSRs	Belarus, Kazakhstan, Kyrgyz Republic, Russia
G3	Mexico, Colombia, Venezuela
GULF CC	Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, United Arab Emirates
JSEPA	Japan, Singapore
LAIA	Argentina, Bolivia, Brazil, Chile, Colombia, Cuba, Ecuador, Mexico, Paraguay, Peru, Uruguay, Venezuela
MERCOSUR	Argentina, Brazil, Paraguay, Uruguay
NAFTA	US, Canada, Mexico
SADC	Angola, Botswana, Lesotho, Malawi, Mauritius, Mozambique, Namibia, South Africa, Swaziland, Tanzania, Zambia, Zimbabwe
SAFTA	Singapore, Australia
SPARTECA	Australia, New Zealand, Cook Islands, Fiji, Kiribati, Marshall Islands, Micronesia, Nauru, Niue, Papua New Guinea, Solomon Islands, Tonga, Tuvalu, Vanuatu, Western Samoa

Notes for tables:

---

[i] Ex-works price means the price paid for the product ex works to the manufacturer in the Member States in whose undertaking the last working or processing is carried out, provided the price includes the value of all the materials (the customs value at the time of importation of the non-originating materials used, or the first ascertainable price paid for the materials in the Member State concerned) used, minus any internal taxes which are, or may be, repaid when the product obtained is exported.

[ii] The PE model that is separated here for analytical purposes essentially involves the same product-specific RoO as PANEURO, while diverging somewhat from the PANEURO in the regime-wide RoO. It applies to some 15 FTAs, particularly to those forged by the EU and East European countries with Israel (WTO 2002).

[iii] The transaction method is

RVC = (TV - VNM/TV) x 100
where
RVC is the regional value content, expressed as a percentage;
TV is the transaction value of the good adjusted to a F.O.B. basis; and
VNM is the value of non-originating materials used by the producer in the production of the good.
The net cost method is
RVC = [(NC – VNM)/NC] X 100
where
RVC is the regional value content, expressed as a percentage;
NC is the net cost of the good; and
VNM is the value of non-originating materials used by the producer in the production of the good.

[iv] The build-down method is

RVC = [(AV B VNM)/AV] x 100;
the build-up method is:
RVC = (VOM/AV) x 100,
where RVC is the regional value content, expressed as a percentage;
AV is the adjusted value;
VNM is the value of non-originating materials used by the producer in the
production of the good; and
VOM is the value of originating materials used by the producer in the production
of the good.

[v] The initial VC for chs. 28-40 is 40 percent for the first three years, 45 percent during the fourth and fifth years, and 50 percent starting in year six. For chs. 72-85 and 90, VC is 50 percent for the first five years, and 55 percent starting year six.

[vi] The MERCOSUR RoO is 60 percent RVC, and, additionally, change in tariff heading (Garay and Cornejo 2002). When it cannot be determined that a change in heading has taken place, the CIF value of the non-originating components cannot exceed 40 percent of the FOB value of the final good. Special RoO apply to selected sensitive sectors, including chemical, some information technology, and certain metal products.

[vii] The requirement is that the CIF value of the non-originating materails does not exceed 40 percent of the of the FOB export value of the final good.

[viii] A 50 percent MC rule applies to Colombia, Peru and Venezuela; products from Bolivia and Ecuador are governed by a 60 percent MC rule.

[ix]. The value added test and is based on the formula: Qualifying Expenditure (Q/E) / Factory Cost (F/C)
where
Q/E = Qualifying expenditure on materials + qualifying labor and overheads (includes inner containers); and
F/C = Total expenditure on materials + qualifying labor and overheads (includes inner containers).
The factory or works cost are essentially the sum of costs of materials (excluding customs, excise or other duties), labor, factory overheads, and inner containers.

[x] Th agreement requires the value added ensuing from their production in Member States be not less than 40% of their final value "at the termination of the production phase". In addition, Member States citizens' share in the ownership of the producing plant is not to be less than 51%.

xi The MC criterion is calculated from CIF and FOB as follows: NOM= MCIF/FOB *100, where NOM is the value content of non-originating materials, MCIF is the CIF value on non-originating materials, and FOB is the free on board value payable by the buyer to the seller.

xii The origin protocol requires that either the cif value of non-originating materials does not exceed 60 percent of the total cost of the materials used in the production of the goods; or that the value added (the difference between the ex-factory cost of the finished product and the cif value of the materials imported from outside the Member States and used in the production) resulting from the process of production accounts for at least 35 percent of the ex-factory cost (the value of the total inputs required to produce a given product) of the goods.

xiii Besides the 40 percent RVC rule, member states' citizens' share of the plant that produced the product must be at least 51 percent.

xiv The RVC is calculated as the sum of (i) the cost or value of the materials produced in the exporting Party, plus (ii) the direct costs of processing operations performed in the exporting Party. It cannot be less than 35 percent of the appraised value of the article at the time it is entered into the other Party. The cost or value of materials produced in a Party includes: (i) the manufacturer's actual cost for the materials, (ii) when not included in the manufacturer's actual cost for the materials, the freight, insurance, packing, and all other costs incurred in transporting the materials to the manufacturer's plant, (iii) the actual cost of waste or spoilage   (material   list),   less   the   value   of recoverable scrap, and (iv) taxes and/or duties imposed on the materials by a Party, provided they are not remitted upon exportation. Where a material is provided to the manufacturer without charge, or at   less   than   fair   market   value,   its   cost   or   value   shall   be   determined   by   computing the   sum   of: (i)   all   expenses   incurred   in   the   growth,   production,   or   manufacture   of the material, including general expenses, (ii) an amount for profit, and (iii) freight, insurance, packing, and all   other   costs   incurred   in   transporting   the   material   to   the   manufacturer's   plant. Direct costs of processing operations mean those costs either directly incurred in, or which can be reasonably allocated to, the growth, production, manufacture, or assembly, of the specific article under consideration. Such costs include, for example, (i) all actual labor costs involved in the growth, production, manufacture, or assembly, of the specific article, including fringe benefits, on-the-job training, and the cost of engineering, supervisory, quality control, and similar personnel, (ii) dies, molds, tooling and depreciation on machinery and equipment which are allocable to the specific article, (iii) research, development, design, engineering, and blueprint costs insofar as they are allocable to the specific article; and (iv) costs of inspecting and testing the specific article.

xv Drawback   not   mentioned   in   Hungary-Israel,   Poland-Israel,   Slovenia-Croatia,   Slovenia-FYROM. Drawback allowed for the first two years in EU-Palestinian Authority, two and one half years in EFTA-Palestinian Authority, three years in EFTA-FYROM, one year in Bulgaria-FYROM, 3 months in Turkey-FYROM, and two years in Israel-Slovenia.

xvi The Revised Treaty of Chaguaramas Establishing the Caribbean Community, including the CARCIOM Single Market and Economy stipulates that any member state needs to justify the need to apply an export drawback Council for Trade and Economic Development (COTED); COTED will review the use of drawback by members on an annual basis.

xvii When products from the South Pacific Islands that are exported to New Zealand are cumulated with Australian inputs, a minimum of 25 percent of "qualifying expenditure" from South Pacific Islands is required.

xviii Requires the expenditure on goods produced and labor performed *within the territory of the exporting* Member State in the manufacture of the goods to not less than fifty per cent of the ex-factory or ex-works cost of the goods in their finished state (emphasis added).

xix Singapore's FTAs, including JSEPA, incorporate the outward processing (OP) principle tailored to accommodate Singapore's unique production pattern. The principle acknowledges that part of the manufacturing process (usually the lower value-added or labor intensive activities) may be outsourced to neighboring countries after the product has received initial processing in Singapore without the initial processing being discarded when calculating the final Singaporean content. That is, if in stage 1, production takes place in Singapore, in stage 2 in a foreign country, and in stage 3 again in Singapore; value of production acquired in both stages 1 and 3 will be counted as Singaporean content. Conventional RoO, in contrast, would not allow the activities in Singapore prior to outward processing to be counted towards the local content.

[xx] Both OP and the integrated sourcing initiative (ISI) operate in the US-Singapore FTA. ISI 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 FTA. 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.

[xxi] NC + ECTC applies to EC imports to Mexico to a limit set by a quota.