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Preferential Trade Agreements: are Rules of Origin a Protective Device?[1]

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1. INTRODUCTION

The establishment of special trading relationships involving a certain degree of preference for specific partners usually implies proving the origin of the products included in those concessions by meeting certain conditions. These conditions constitute the rules of origin (RoO) – a set of rules that permits determining whether a product is originating or non-originating in the area.

Thus, when preferential trade agreements are established, the RoO define the conditions under which an importing country may consider a product as originating from an exporting member of the economic bloc and, consequently, have a special and discriminatory treatment in relation to those from other countries. These rules are adopted in order to prevent the extension of the concession to other products and/or countries that do not benefit from the preferential treatment.

In the case of free trade areas (FTA), where member countries keep their own external tariffs, the access of goods from a third country would be feasible by importing through the member country with the lowest tariff; from this moment on, its circulation would be allowed all over the FTA territory and new tariffs would not be imposed.

In the case of a customs union, in which member countries share a common external tariff (CET), this transshipment of goods is ineffective, unless it takes place in a transition period in which different rates for specific products still prevail. This is the case of Mercado Común del Sur (Mercosur), which, ten years after the implementation of the Treaty of Ouro Preto, remains as an imperfect customs union.

The main objective of RoO is to assure that products granted the preferential treatment in a FTA really originate in the associated countries. The eligibility for the FTA concessions requires the compliance with certain conditions as, for example, a minimum regional content, particularly benefiting the local producers of intermediate goods and inputs. RoO can also work as non-tariff barriers, offering a higher level of protection to some productive sectors, such as the automobile industry, under both the North American Free Trade Agreement (Nafta) and Mercosur.

This paper has two main objectives. The first one is to evaluate the possible restrictive effects of RoO regimes, through the comparison of three different trade agreements – namely, the Nafta, the

European General System of Preference (EU-GSP) and Mercosur. As second goal, it will be assessed the direct relationship between the role played by the RoO and that of the import tariff rate structure. As it will be investigated later on, more restrictive RoO may be reinforcing and even replacing tariff protection.

The remainder of the paper is divided into three more sections. Section 2 describes the most important features of the RoO and theoretically shows their potential to increase the production costs and, consequently, to reduce trade. This possibility is associated with the stringency of the regime adopted, which is examined for the three cases mentioned above in Section 3. Information on import tariffs is added to the obtained results in order to test the hypothesis of a positive correlation between them. Section 4 summarizes the conclusions of the paper.

2. RULES OF ORIGIN

2.1 RULES OF ORIGIN AND THEIR MAIN COMPONENTS

Discriminatory RoO are based on two basic criteria: "wholly-obtained or produced" and a "substantial transformation" of the product.

The first one requires the commodities to be entirely grown, harvested or extracted from the soil of a member country of the preferential trade area (PTA) and is mainly applicable to live animals (born and bred in the territory of the country), raw foodstuff and mineral products.

The most frequently used criterion of substantial transformation is much more complex and its definition relies on the matching of four conditions, which may be demanded singly or in combination with each other.

The first one requires the product to undergo a change in its tariff classification (CTC),[5] either from a tariff item (8-10 digits) to another subheading (6 digits) or from a subheading to another heading

[5] As a rule, in the Harmonized System (HS) classification, in the chapter (two digits), products are listed according to their degree of processing, changing from six digits at the subheading level to four digits at the heading level. In addition, the order of chapters has been also organized following a similar procedure.

(4 digits) or yet to another chapter (2 digits). In summary, the purpose is to prevent the mere assembly of components to characterize an "originating" product.

The second criterion consists in establishing some exceptions, usually prohibiting the use of certain non-originating components (imported from outside the PTA).

The third criterion refers to the obligation that certain productive processes – or "technical requirements" – must be performed within the PTA.

The fourth criterion actually underlies the previous ones and requires the product to acquire a value content (VC), which specifies a minimum percentage value that must be added in the exporting member country[6]. Such value can be expressed as: a) a minimum regional value content (RVC); b) a minimum difference between the value of the final good and the costs of imported inputs (or import content); c) a minimum value of originating parts.

According to Estevadeordal and Suominen (2003), the requirement of a CTC of a product is the most frequent one in preferential or free trade agreements. In many of them, it is offered the possibility of choosing, for example, between a change of chapter (CC) and a change of subheading (CSH) together with a certain RVC.

The administrative costs imposed by the RoO are certainly high due to the obligation of certification, almost always involving both public and private spheres.[7] However, there is little empirical evidence regarding the costs of documentation of origin requirements.[8]

In addition to administrative costs, RoO may result in losses in terms of trade between countries under an PTA, since they cause an increase in the costs of production of inputs for the producers of final goods in that area, as shown next.

[6] The value content can also be defined in physical terms.

[7] Nafta is an exception, since only a self-certification is required.

[8] Koskinen's estimates are the most widely cited, in which administrative costs for Finnish exporters under the European Free Trade Agreement (EFTA) vary between 1.4% and 5.7% of the export value.

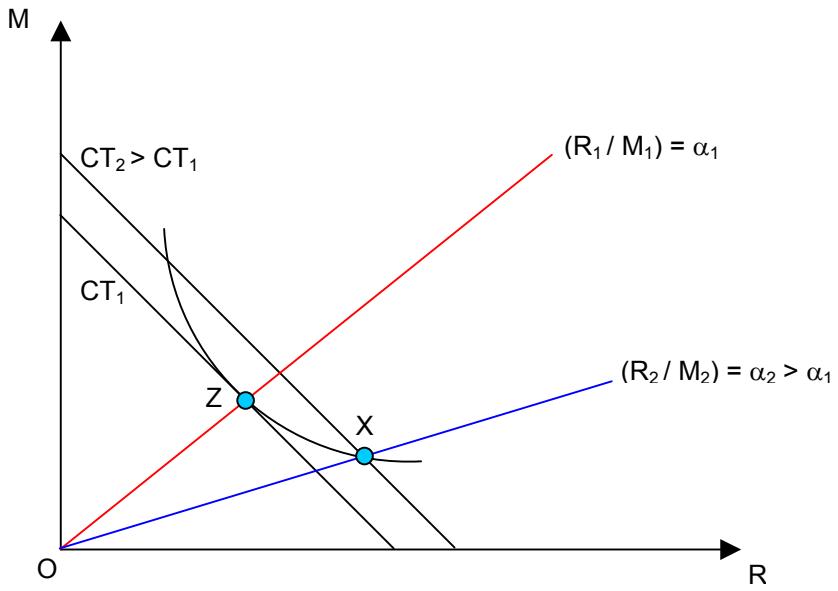
2.2 IMPACTS ON PRODUCTION COSTS

Krishna (2005) analyzes the effects of RoO on production costs, illustrated by an RVC requirement.

Figure 1 shows the unit iso-quant resulting from the combination of regional (R) and imported (M) inputs.[9] At the prices of R and M, firms choose point Z, in which the proportion of those inputs (R1/M1) equals α_1. The introduction of an RVC will lead to the selection of the quotient (R2/M2) in which $\alpha_2 > \alpha_1$ and, consequently, the costs (CT) will no longer be minimized with the input mix at Z, but instead at X. This implies a change from CT_1 to CT_2, where $CT_2 > CT_1$.

Figure 1

COSTS RESULTING FROM A RULE OF ORIGIN (REGIONAL CONTENT)



Source : Adapted from Krishna (2005)

[9] Regional input is the one that is produced in a member country of an economic bloc, whereas imported input is the one produced outside this bloc. Since RoO specify constraints that must be met to obtain origin, they usually imply higher costs.

It can be observed that RoO cause a distortion in the combination of inputs in favor of regional (originating) inputs in the FTA, at any product level. Moreover, the more stringent the regime, the higher the value of α and the average costs of production, AC (α).

The result of imposing an RVC can be understood by the following example (Krishna and Krueger (1995)).

Suppose a PTA consisting of countries A and B. Both import the final product from the rest of the world at the given price P*. Country B also produces the final good at the price P*, which is equivalent to the unit cost of production (C^B), since the tariff in B is equal to 0. Thus, $P^B = P^*$. Country A does not produce this commodity and imposes a tariff on its imports that raises the domestic price to P^A ($P^A > P^B$).

A firm in B willing to sell this product to A has to choose between meeting the RoO and enjoying a zero tariff but having higher costs of production or not complying with the RoO and paying the full tariff. Likewise, a firm in B exporting to A will obtain the revenue P^A – AC (α) or if it ignores the RoO, $P^A - C^B (1 + t^A)$. Thus, as long as AC (α) < $C^B (1 + t^A)$, it will be advantageous for the firm in B to accept the RoO; otherwise, there will not. The price in A will therefore result from the lowest cost: AC (α) or $C^B (1 + t^A)$.

Once the costs under the RoO increase as α rises, and virtually equal those of free trade, for small values of α, there are three possible cases according to the degree of restrictiveness of the rules imposed (see Figure 2):

a) a non-restrictive regime, if $\alpha < \alpha_1$ and AC (α) = C^B;

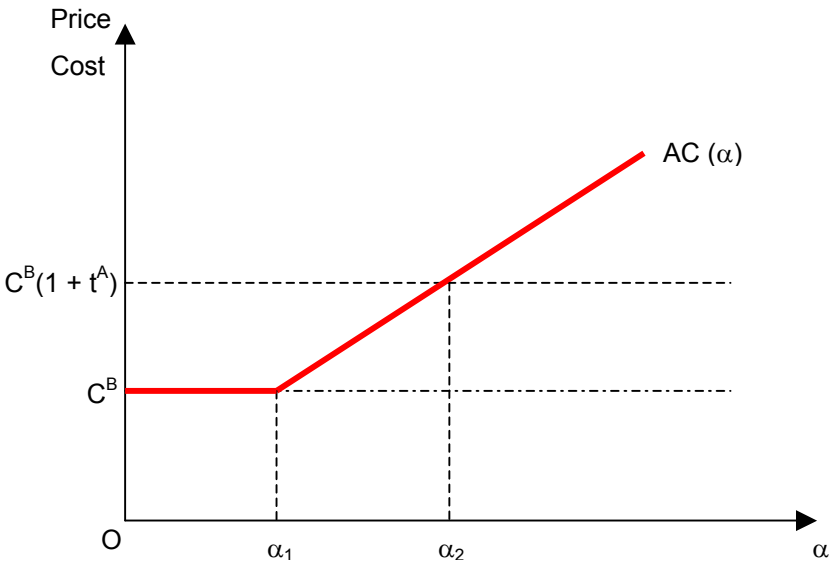
b) a moderately restrictive regime, if $\alpha_1 < \alpha < \alpha_2$ and the costs of the product offered by B to A exceed the international costs, but are lower than the import costs of A from a country outside the PTA; and

c) a restrictive regime, if $\alpha > \alpha_2$ and the costs of the product offered by B to A exceed the import costs of A from a country outside the PTA.

Thus, the degree of restrictiveness of different types of RoO under free trade or preferential trade agreements, such as the EU-GSP, should be evaluated based on the parameters described above, which is in fact not feasible. The alternative found in empirical studies such as those carried out by Estevadeordal and Suominen (2003) and Anson et alii. (2003) has been to create a rank combining the four methods used for the classification of the RoO presented in subsection 2.1, considering that it is positively associated with α.

Figure 2

PRICES AND COSTS UNDER A PTA



Source: Adapted from Krishna and Krueger (1995)

The analysis of the RoO systems under the EU-GSP, Nafta and Mercosur presented in this paper is based on a methodology similar to the one adopted by the previously cited authors. In general, as it will be observed next, the degree of restrictiveness increases according to the magnitude of the RVC required and the scope of demands for the CTC of the product.

3. EMPIRICAL RESULTS

3.1 EVALUATING THE RULES OF ORIGIN: A LITERATURE REVIEW

3.1.1 The European Union

The tariff preferences granted by the European Union in agreements such as the one with the EFTA countries or the Generalized Systems of Preferences are conditioned on the fulfillment of origin requirements by the benefited countries. In 1997, the Pan-European system (Paneuro) was launched, establishing identical protocols for the RoO in the free trade agreements in which the EU takes part. The criteria defined in this single list are broadly the same adopted in the EU-GSP schemes.

The new European GSP, launched in 2002 and scheduled to expire by the end of 2005, simplified the criteria of eligibility for imported goods, which mainly reflect the level of sensitivity of the domestic product. According to the new scheme, “non-sensitive” products have duty-free access and the “sensitive” ones enjoy a 3.5% tariff reduction [on the “most favored nation” (MFN), applied rates to WTO member countries], except for the textile and clothing sectors, for which a 20% tariff reduction applies.

The change in tariff position is the staple in the EU system, used for conferring origin for 58% of all goods (Estevadeordal and Suominen (2003)). However, an RVC requirement is also very common, combined or not with other requirements. According to these authors, the exclusive use of the RVC rule is more usual in the following sectors: optics, transportation equipment and machinery and electrical equipment.

Waer (1994) believes that the complexity of the European system is due to the existence of a series of specific requirements, such as: general value added requirements often associated with additional restrictions like the mandatory use of certain inputs, CTC requirements combined with the restrained employment of inputs of the same tariff heading and technical requirements, among others.

Brenton and Manchin (2002) show the limited use of the EU-GSP by the Balkan countries (Albania, Bosnia and Herzegovina, Croatia and Serbia and Montenegro) in their textile, clothing and footwear

exports to the EU.[10] Between 1994 and 1998, for instance, only 5.9% and 2.2% of the eligible total, respectively, of clothing and footwear exports from Albania to the EU actually benefited from tariff reductions under the EU-GSP.

According to the authors, a possible explanation for these low utilization ratios are the difficulties posed by the RoO rules. Like Waer (1994), they emphasize the role of specific requirements, which are much more restrictive than the CTC. In the case of textile and clothing industries, for example, the product should be manufactured from the yarn stage, so that the originating fabric might be considered eligible.

In order to overcome this stringency, countries in the Balkans and in Central and Eastern Europe (Romania, Bulgaria, Hungary, Czech Republic, Slovakia and Poland) have increasingly opted for the Outward Processing Trade (OPT) system, which encourages the EU firms to process their products in those countries and to import the final goods, which benefit from a tariff reduction on the exported inputs. The evidence presented by Brenton and Manchin (2002) indicates that the proportions of clothing imports from the EU under the OPT, originating from those countries, accounted for more than 50% of the total exported value, in the case of Albania, Croatia and Serbia and Montenegro, in 2000.

3.1.2. Nafta

Compared with the European system, the Nafta RoO, which are more focused on the substantial transformation of a product, privileges the CTC criteria (with possible exceptions) and the RVC requirements, followed by far by the requirement of certain manufacturing processes in the country of origin (productive process).

The most frequent occurrence regarding the CTC is the change of chapter, accounting for more than 52% of all products. According to Estevadeordal (2000), the incidence is well above the average in the food (88.6%), textile (70.8%), chemical (65%), and paper (64.1%) industries. However, except for food and paper manufacturing, the other sectors strongly rely on a

[10] Unlike the U.S., the EU includes textiles and clothing in its GSP.

combination of the change of chapter rule and an extra condition, such as the adoption of an exception and/or a RVC, as for textiles (62.2%) and chemicals (60.1%).

Indeed, as observed by Estevadeordal (2000, 7-8), "the Nafta RoO negotiations introduced a highly disaggregated methodology. Aside from the definition of a general rule […], Nafta adopted specific rules at the product level" (usually a 6 digit HS). It could be added that the rules were in fact almost "tailor made" in the case of the most "sensitive sectors"[11], such as autos, electronics[12] and textiles.

For certain highly protected processed agricultural products, in the United States, such as sugar derivatives, orange juice and peanut-containing foods, the negotiators agreed on the stringent requirement of being "wholly obtained or produced," which made them equivalent to "natural" products (of animal, vegetable or mineral origin).

In the case of the automobile industry, the representatives of U.S. companies lobbied hard for a 65% regional value content, in contrast with the 50% threshold of the U.S.-Canada Free Trade Agreement. The intent was to discourage European or Japanese firms from establishing assembly operations in Mexico as a back door to the North-American markets. Finally, a RVC of 62.5% was set. Anyway, these 2.5 percentage points of difference would mean very limited gains, for the MFN tariff was very low.[13]

The American textile industry pursued a curious and successful strategy regarding its survival, as reported by Destler (2004). Despite the long period of special protection, initiated with the imposition of tariff quotas during the Eisenhower's presidential administration, further intensified during the Kennedy's administration and afterwards by the Multifiber Agreement, the industry

[11] In general, the private sector had an intense participation in the negotiations of the Nafta rules. As a result, the interests of the more active ones were rewarded accordingly.

[12] The special stringency regarding electronic products, which included, for instance, the prohibition imposed on assembled integrated circuits, was later relaxed and replaced by the agreement of Nafta's three member countries on a common external tariff for data processing products. Between 1994 and 2004, import tariffs on these products were progressively reduced to zero.

[13] As the U.S. negotiator Jules Katz put it: "We are talking about a 2.5 percentage difference on a 2.5 percent tariff". (Destler, 2004, 11)

proved to be increasingly vulnerable to foreign competition from labor-intensive apparel products since the 1980s. The end of the Multifiber Agreement, negotiated during the Uruguay Round, clearly indicated the poor prospects of survival of most of the small-sized domestic clothing firms. According to Destler (2004), at that time, the American textile industry realized that if a higher amount of clothing items sold in the North-American market had to be imported, it was in its interest that these products should therefore be manufactured with North-American fabrics.

Thus, the "triple transformation test" (also known as the "yarn-forward rule") was introduced. With few exceptions, to have a status of an original product, a piece of apparel should have undergone three basic processes — the making of fiber, then cloth, then clothing — within the Nafta region.

3.1.3. Mercosur

The existence of RoO in Mercosur[14] is mainly due to the fact that member countries temporarily opted for an incomplete customs union.

Initially, tariff differentials were observed in three groups: the first one, composed of capital goods (around 900 tariff lines) and of information technology and telecommunications products (around 200 tariff lines); the other two, called National Lists of Exceptions and the Adaptation Regimes, included products for which a longer period of time was allowed so that they could face the new competition conditions in the region.

After ten years of Mercosur, the first of the three groups remains without a CET and is in fact farther away from this goal than when the integration process was launched. There has been serious disagreement, especially opposing Brazil and the three other partner countries, about this issue. As long as Brazil is the only regional producer of capital goods, the other Mercosur countries have always been concerned with minimizing the "trade diversion" that should arise from the duty-free imports of those Brazilian goods. Apart from the above mentioned exceptions, some times the Mercosur countries made use of deviations from the CET, for specific reasons.[15]

[14] For the description of Mercosur rules of origin, see Kume (1995).

[15] These procedures became known as the "CET drilling".

In the absence of a harmonized system of tariff barriers and some non-tariff barriers among the four countries, it has been necessary to maintain the RoO. It is basically a discretionary mechanism aimed to prevent the preferences exchanged among Mercosur member countries from being captured by third countries, similarly to what occurs in the Nafta and in the EU. Unlike the North American and European blocs, however, the definition of an originating product in the Mercosur does not require the development of a much complex and stringent RoO regime, as in both previously analyzed cases.

Apart from the products automatically classified as "wholly originating" – such as mineral products, live animals, and vegetables – the CTC is the most frequent requirement, followed by a 60% RVC (Mercosur (ACE 18)).[16] For a set of products, characterized by differences between national tariffs and the CET, specific requirements have been determined, such as the change in position with RVC or with exceptions and requirements of certain productive processes.

3.2 METHODOLOGICAL PROCEDURES

This subsection presents the methodology used for the classification of the several RoO requirements, by product (six-digit HS), and defines the indexes that represent the level of import restriction.

3.2.1 Classification of the Rules of Origin

The works by Estevadeordal (2000) and Estevadeordal and Suominen (2003) are among the most important references in recent economic literature about RoO. In their studies, they present a taxonomy based on the requirements contained in the protocols adopted by countries and economic blocs, such as the Nafta and the EU.

However, such a classification does not always reflect the level of requirement actually established for a product to be considered originating.[17] Some examples illustrate certain shortcomings, which

[16] The automobile industry is not regulated by the general rule of origin regime, since regional trade is administered by bilateral agreements between Argentina, Brazil and Uruguay.

[17] Probably, one of the most important cases of discrepancy between the "theoretical" requirement contained in the protocols and the requirements imposed by the real operation of an industry is that of chemical products.

may lead to misinterpretations. In the Nafta, the requirement for a live animal to be considered originating is the change of chapter in the productive process. Since it is impossible to accomplish this requisite, the rule actually demands that the animal be wholly produced, i.e., born and raised in the preferential trade area. With regard to orange juice, the text also requires a change of chapter, but excludes the position 0805, in which fresh oranges are classified. Thus, orange juice will be conferred origin only if it is wholly produced, which precludes its manufacture from the non-originating input (fresh oranges).

According to EU-GSP policies, fat of bovine animals (position 1502) is considered originating if a simple change in heading occurs. However, since the production of this good depends on animal slaughter, it eventually leads to a change of chapter.

In order to prevent this kind of problem, the requirements included in the trade agreement texts were revised product by product. Based on this reinterpretation of requirements, the RoO were later reclassified.

When different rules were specified for the same product, allowing the exporter to make an option, the least restrictive one has always been chosen.[18]

3.2.2 Ordering the Criteria of Rules of Origin

Since it is impossible to quantify the level of restriction to imports in the various types of RoO, Estevadeordal (2000) creates an ordinal index for the Nafta, which varies between 1 (least restrictive) and 7 (most restrictive). This index is based on: a) change in tariff classification (CTC) and b) the RVC and the technical production process (TECH), associated or not with a CTC.

Afterwards, this index incorporated some changes so that a comparison with the European system – Paneuro - was possible. Paneuro is applied by the EU to preferential trade agreements, but it does not always use the CTC criterion.

The new measure introduced two new categories into the local added value – lower than 50% and equal to or greater than 50% - and also established equivalence between each of them and a given

[18] The requirements for specific tariff items (eight digits) were not considered.

CTC. In spite of this, certain inconsistencies in the ranking scheme still remained (Estevadeordal and Suominen (2003)).[19]

In the elaboration of the classification system presented in Table 1 and adopted in the analysis developed in this paper, some difficulties had to be overcome by reducing the number of possible combinations for the requirements.

The principles used to generate the ranking scheme shown in Table 1, for the assignment of values from 1 to 9 according to the increasing degree of restrictiveness of the RoO, were established cumulatively, as follows:

a) the first necessary step is a changing in tariff classification (CTC), which include four possibilities: no change (NC), change of subheading (CSH – six digits), change of heading (CH – 4 digits) and change of chapter (CC – 2 digits); and

b) then, the second condition, that may increase the restrictiveness degree imposed by the change of tariff classification, is the requirement of a RVC or the adoption of an exception[20].

In order to preclude any loopholes in the ranking scheme, each change in a tariff classification associated with a RVC requirement and an exception was considered to being equivalent in its restrictiveness degree as a change to an immediately higher tariff position.

3.3 ANALYSIS OF RESULTS

The classification system depicted in Table 1 will be used to evaluate and compare the RoO of the EU-GSP, Nafta and Mercosur. It is expected that this procedure will be able to keep the uniformity of criteria in the evaluation of the three agreements.

[19] For example, a higher value was attributed to the simple RVC requirement – thus, a higher degree of restrictiveness – than to a certain change in tariff classification combined with RVC requirement.

[20] The requisite of a specific technical process was not explicitly included as a criterion, for the sake of simplicity as well as for being highly concentrated in the textile sector in Nafta and a few ones in the EU-GSP.

TABLE 1

CLASSIFICATION OF RoO ACCORDING TO THE DEGREE OF RESTRICTIVENESS

Requirement	Degree of restrictiveness
NC	1
NC + RVC; NC + exception	2
NC + RVC + exception; CSH	3
CSH + RVC; CSH + exception	4
CSH + RVC + exception; CH	5
CH + RVC; CH + exception	6
CH + RVC + exception; CC	7
CC + RVC; CC + exception	8
CH + RVC + exception; wholly produced	9

Source: Authors` elaboration.

Indeed, the results presented in Table 2 indicate some similarities in the three schemes:

a) group 1, that comprehends the less restrictive criteria and goes from no change to a change in subheading (levels 1 to 3), is practically irrelevant; both in the EU and in the Nafta, it represents approximately 2% of the total;

b) in the cases of the EU-GSP and Nafta, group 2 (levels 4, 5 and 6) and group 3 (levels 7, 8 and 9) together include the majority of products, especially the last one, in which respectively 53.1% and 55.8% of all goods are classified, in the European and the Nafta agreements;

c) according to Mercosur rules, most products belong to the intermediate group (56.4%), the remaining fitting the stricter group 3; and

d) the most remarkable difference between the EU and the Nafta schemes is related to the RVC requirement, which is much more frequent in the former (32.6%) than in the latter (20.5%).

TABLE 2

DISTRIBUTION OF PRODUCTS (HS6) ACCORDING TO THE TYPE OF RoO

Requirement	EU		Nafta		Mercosur		Degree of Restrictiveness
	No HS6	(%)	No HS6	(%)	No HS6	(%)	
1.1 NC	0	0.0	14	0.3	0	0.0	1
1.2 NC + RVC	43	0.8	1	0.0	2	0.0	2
1.3 NC + exception	1	0.0	0	0.0	0	0.0	2
1.4 NC + exception + RVC	0	0.0	0	0.0	0	0.0	3
1.5 CSH	66	1.3	100	1.9	0	0.0	3
1. Subtotal	**110**	**2.1**	**115**	**2.2**	**2**	**0.0**	
2.1 CSH + RVC	593	11.3	502	9.6	733	14.0	4
2.2 CSH + exception	4	0.1	48	0.9	22	0.4	4
2.3 CSH + exception + RVC	0	0.0	15	0.3	0	0.0	5
2.4 CH	745	14.3	488	9.3	1,625	31.1	5
2.5 CH + RVC	618	11.8	484	9.3	480	9.2	6
2.6 CH + exception	379	7.2	659	12.6	85	1.6	6
2. Subtotal	**2,339**	**44.8**	**2,196**	**42.0**	**2,945**	**56.4**	
3.1 CH + exception + RVC	0	0.0	55	1.0	0	0.0	7
3.2 CC	1,072	20.5	1,461	28.0	1,456	27.9	7
3.3 CC + RVC	447	8.6	14	0.3	370	7.1	8
3.4 CC + exception	549	10.5	713	13.6	25	0.5	8
3.5 CC + exception + RVC	4	0.1	0	0.0	0	0.0	9
3.6 Wholly produced	703	13.5	670	12.8	426	8.1	9
3. Subtotal	**2,775**	**53.1**	**2,913**	**55.8**	**2,277**	**43.6**	
4. TOTAL	**5,224**	**100.0**	**5,224**	**100.0**	**5,224**	**100.0**	

Sources: ECA (18, 44), USITC (2005) and Secex/MDIC (2004). Authors` estimates.

Therefore, Mercosur RoO stand out as the least restrictive regime, which confirms the secondary role it plays in the trade relations of the Southern bloc, comparing with the European and North American ones. The most frequent requirements in Mercosur RoO structure are a CH (31.1% of the total), followed by a CC (27.9%).

The interpretation of the terms of the protocols of the RoO regimes obtained from the methodology procedures adopted above points out some important aspects. As a consequence, the discrepancies found in the European case and in Mercosur amounted, respectively, to 82% and

95% of the total of the 5,224 products. The reinterpreted rules were more restrictive both for Mercosur (83%) and for the EU (61%). In the case of the Nafta, changes were also significant, although at a lower degree than in the other two. There were changes in the rules in 53% of the products, which meant an increase in the degree of restrictiveness for only 36% of them.

Tables 3, 4 and 5 summarize the following:

a) the distribution of products[21] into four tariff rate intervals, in increasing order;

b) the median[22], the minimum and maximum values of the indexes of the RoO, associated with each of the four tariff ranges; and

c) a list of the most representative products that form each of the previously described groups.

[21]Products enjoying duty-free tariffs in the U.S and in the EU were excluded, as well as those with tariff rates lower than 2% in Mercosur. In addition, those with total import values equal to zero were also excluded, since the rule of origin is irrelevant to them. Specific tariffs have been transformed into ad valorem equivalents.

[22]According to Siegel (1956), the most appropriate descriptive statistics for ordinal values is the median, which remains the same with the change in index values.

TABLE 3

TARIFF RATES AND INDEXES OF RULES OF ORIGIN: EU-GSP

Tariff (%)	Number of products	RO median	Main products (number of products)	Minimum RoO	Main products (number of products)	Maximum RO	Main products (number of products)
0.1 to 5	2,081	6	Machinery, appliances and equipment (158), instruments and apparatus (50), iron, steel and articles thereof (139), copper and other base metals (60), cotton and other textiles (57), transport equip. (35), paper (10) and chemicals (5)	2	Articles of base metals (7), transport equipment (5), instruments and apparatus (5) and machinery and mechanical appliances (2)	9	Edible fruits (14), edible vegetables (8), petroleum gases (7), meats and meat offals (4), fish and crustaceans (4), live animals (3), animal or vegetable fats and oils (2)
5.1 to 10	1,291	7	Chemicals (203), animal or vegetable fats and oils (9), textiles and textile articles (56), sports footwear (9), ceramic products (7) and slide fasteners (3)	2	Watch straps, bands and bracelets (2)	9	Fish and crustaceans (30), edible fruits (19), edible vegetables (11), plants and flowers (8), animal or vegetable fats and oils (7)
10.1 to 15	409	8	Textiles and textile articles (268) and processed meat (2)	3	Sugar (1)	9	Fish and crustaceans (34), edible vegetables (24), edible fruits (10), meats and meat offals (7) and cereals (5)
> 15	224	9	Meats and meat offals (33), fish and crustaceans (11), processed meat (10), dairy products (19), cereal and products of the milling industry (31), preparations of fruits and vegetables (10), tobacco (3), glucose and fructose (3) and live animals (3)	5	Residues of fatty substances or waxes (1)	9	Meats and meat offals (33), fish and crustaceans (11), processed meat (10), dairy products (19), cereal and prod. of the milling ind. (31), preparations of fruits and vegetables (10), tobacco (3), glucose and fructose (3) and live animals (3)
Total	4,005	7		2		9	

Source: Authors` elaboration.

TABLE 4

TARIFF RATES AND INDEXES OF RULES OF ORIGIN: NAFTA

Tariff (%)	Number of products	RO median	Main products (number of products)	Minimum RO	Main products (number of products)	Maximum RoO	Main products (number of products)
0.1 to 5	2,230	7	Chemicals (166), iron, steel and articles thereof (74), machinery, appliances and equip. (113), instruments and apparatus (28), paper (45), parts of vehicles (14), articles of stone and ceramic products (28), tools and parts thereof of base metals (40), processed meat (17) and products of the milling ind. (22)	3	Chemicals (16), tanning or dyeing extracts, pigments and varnishes (7), lubricating prep. (4) and other metals (7)	9	Live animals (12), meat (22), fish and crustaceans (16), edible fruit (29), cereals (12), oil seeds and oleaginous fruits (20), raw hides and skins and leather (9), wool and its yarns and fabrics (13)
5.1 to 10	812	7	Tools and parts thereof of base metals (22), iron, steel and articles thereof (12), chemicals (19), clocks and watches and parts thereof (14) and footwear (10)	3	Tanning or dyeing extracts, pigments and varnishes (8) and chemicals (8)	9	Edible vegetables (10), poultry (4),nuts and figs (3), textiles and textile articles (4)
10.1 to 15	288	8	Textiles and textile articles (158) and articles of leather (2)	4	Cathode tubes (1), telescopic sights (1) and slide fasteners (1)	9	Edible vegetables (10) and edible fruits and nuts (8)
> 15	220	8	Textiles and textile articles (97), ethyl alcohol (2) and soya-bean oil (1)	5	Chocolate (3), sugar confectionery (1)and animal feed (1)	9	Meat (7), dairy products (17), edible vegetables (6), fruit juices (5) and tobacco (6)
Total	3,550	7		3		9	

Source: Authors` elaboration

TABLE 5

TARIFF RATES AND INDEXES OF RULES OF ORIGIN: MERCOSUR

Tariff (%)	Number of products	RO median	Main products (number of products)	Minimum RoO	Main products (number of products)	Maximum RoO	Main products (number of products)
2.1 to 5	278	6	Machinery, appliances and equipment (7) and hydraulic cement (2)	4	Mineral products (12), machinery, appliances and equip. (10), instruments and apparatus (7), pulp of wood (5) and rubber (4)	9	Live animals (5), cereals (9), oil seeds and oleaginous fruits (13) and mineral products (41)
5.1 to 10	1,089	6	Machinery, appliances and equipment (30), textiles (9) and iron, steel and articles thereof (3)	2	Machinery for the manufacture of felt or nonwovens (1)	9	Meat (3), fish and crustaceans (23), edible vegetables (21), coconut, Brazil nuts and edible fruits (4), coffee, maté and spices (27)
10.1 to 15	1,337	5	Chemicals (169), plastics (74), paper (35), textiles and textile articles (34), glass and glassware (16), iron, steel and articles thereof (55), articles of copper (38), of nickel (9) and of aluminum (16)	2	Machinery and apparatus for isotopic separation, and parts thereof (1)	9	Tobacco (2) and milk (2)
> 15	1,839	7	Processed meat (20), sugars (11), cereal and products of the milling industry (18), miscellaneous edible preparations (11), articles of leather (22), textiles and textile articles (331), iron, steel and articles thereof (37), tools (55) and machinery, appliances and equipment (48)	4	Machinery, appliances and equipment (127), instruments and apparatus (38)	9	Milk (5) and waters (2)
Total	4,543	6		2		9	

Source: Authors` elaboration

Note: Tariffs for machinery, equipment and tools are those used in Brazil. Tariffs with rates between 0% and 2% in Mercosur apply for goods not produced regionally.

The results obtained for both EU-GSP and Nafta (Tables 3 and 4) present a very similar pattern:

a) there is a positive correlation between the degree of restrictiveness of the RoO, represented by the median values, and the tariff rate levels; for Nafta, the concentration of textile and

apparel products with tariffs exceeding 10% and with the highest median value of the RoO (level 9) suggest the proportions of the protection afforded to those industries. In the EU-GSP scheme this position is fulfilled mostly by the agricultural sector;

b) looking at the statistical values of medians, the less stringent RoO include products such as machinery, equipment, tools and appliances, chemicals, among other manufactured products; in the EU-GSP, these products are mainly grouped into levels 6 and 7, representing 84% of the total, whereas in the Nafta they account for 63% of the total products (level 7);

c) at the bottom of the RoO median column, the highest degrees of restrictiveness can be identified in textiles and clothing (level 8) as well as agricultural and animal products and their derivatives (level 9), in the EU-GSP, whereas in the Nafta, most of the products consist of textile and clothing products; and

d) in both regimes, the column containing the main products with the maximum degree of restrictiveness in terms of RoO (level 9) is completely filled with agricultural and animal products.

The results obtained for Mercosur (Table 5) are not strictly comparable to the previous ones, simply because the RoO is not so relevant. Statistics regarding the median reveal that the lowest degree of restrictiveness of RoO (level 5) are mostly related to chemicals, steel and other metal products, while the highest degree (level 7) includes textile and clothing and agricultural products.

Products showing the maximum value for that index, shown in the last column, consist mostly of products belonging to the “wholly obtained” category, such as mineral resources and live animals, for which, by definition, the highest degree of restrictiveness should be assigned.

The configuration presented by Mercosur differs from that of the other blocs due to the fact that only a relatively small group of products does not share a common external tariff (capital goods and information technology and telecommunications products). The need of real functional RoO does not in fact apply to the rest of the goods traded by the member-countries. In sum, for Mercosur, no positive correlation apparently exists between tariff levels and the degree of restrictiveness of RoO.

4. CONCLUSIONS

The disseminated use of discretionary RoO is justified by the growing formation of free trade (FTA) and preferential trade areas (PTA), in which member countries apply their own trade policies to third countries, including differentiated import tariff rates. In order to ensure that only the countries entitled to the special treatment receive it, it is necessary to prevent the transshipment of goods produced in third countries, through the exportation to the member partner that maintains the lowest tariffs.

RoO seek to assign origin to products that benefit from concessions granted among PTAs paving the way back from the process of globalization of productive processes. Nevertheless, the potential burden of their utilization should not be minimized.

First, RoO induce the firms in a PTA to use a greater and often more expensive amount of regional inputs, so that they can sell duty-free in the preferential market. This option diminishes the potential liberalizing effects of free trade: the high costs of intermediate goods affect the production of final goods, reducing their demand and afterwards the demand for local inputs.

Therefore, it is a mechanism that induces trade diversion. It is common knowledge that the magnitude of the diversion is directly proportional to the difference between the most-favored-nation tariffs and the preferential tariffs. Thus, it is extremely important for such a difference to be as small as possible, which is easier to occur when the MFN tariffs are low.

The increase in the production costs is worsened by the burden of the administrative costs related to the certification of origin of the goods, which are imposed on the exporters and, in many times, on importers and on government agencies.

Secondly, an extremely negative aspect consists on the possibility of using RoO as a “hidden protection” mechanism, replacing other trade and non-trade barriers, such as tariffs and quotas, which are increasingly criticized in multilateral forums. As observed, the incidence of more stringent criteria for determining origin is more easily detected in sensitive sectors of developed countries, which often display the highest tariffs, such as agricultural products, processed food, textiles, clothing, and footwear. The results obtained reveal that preferential tariffs, granted unilaterally or in

trade agreements, may be totally or partially neutralized by a growing number of requirements, which may combine various criteria to characterize a “substantial transformation” of a commodity.

Considering that the negotiations of RoO in preferential trade agreements are carried out on an “industry-by-industry” or “sector-by-sector” basis, the chances of “rent-seeking” are much more favorable for the most powerful and influential productive sectors. The analysis performed in this paper confirms that those organized private groups seldom miss these opportunities.

Given the inexorability of free trade areas and similar associations, a basic suggestion to reduce the observed distortions would be the adoption of limits on the content of RoO and of a future single rule for all products, like a certain percentage of value added.

An additional measure in favor of a more effective trade liberalization between preferential partners that preserve their own external tariffs would be, as pointed out, to reduce the tariffs applied to the trade with third countries.

Finally, even though Mercosur is still an incomplete customs union, it has been proved that the adoption of a CET helps to discourage the use of RoO in order to increase the protection level of certain productive segments.

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