

**FREE TRADE AGREEMENTS AND RULES OF ORIGIN: A REVIEW OF THE
APPLIED ECONOMETRIC LITERATURE**

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ABSTRACT: The accelerated proliferation of Preferential Trade Agreements (PTAs) over the last decades and the recent globalization trends, which led to the international integration of production, have increased the use of rules of origin (ROO) in order to identify which goods are eligible for a preferential tariff treatment in PTAs. These rules play a major role in the international trading system. This major research paper aims to provide a conceptual framework to better understand ROO by reviewing some applied econometric literature.

RÉSUMÉ : La prolifération accélérée des Accords commerciaux préférentiels (ACPr) aux cours des dernières décennies et le processus récent de mondialisation, qui ont conduit à l'intégration internationale de la production, ont augmenté l'utilisation des règles d'origine (RO) afin de déterminer quels biens sont éligibles à un traitement tarifaire préférentiel dans les ACPr. Ces règles jouent un rôle majeur dans le système du commerce international. Ce document de recherche vise à fournir un cadre conceptuel des impacts des RO en passant en revue la littérature économétrique.

Key Words: Rules of Origin, Free Trade Agreements, Customs Union, North American Free Trade Agreement.

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LIST OF ABBREVIATIONS

CET: Common External Tariff

CU: Custom Union

FDI: Foreign Direct Investment

FTAs: Free Trade Agreements

HS: Harmonized Commodity Description and Coding System

MFN: Most Favoured Nation

NAFTA: North American Free Trade Agreement

PTAs: Preferential Trade Agreements

ROO: Rules of Origin

WCO: World Customs Organization

WTO: World Trade Organization

1. INTRODUCTION

The current process of globalization connotes a variety of recent developments and trends, and is directly associated with the growing international integration of production. As highlighted by Rodriguez (2001), the combination of reduced barriers to trade and lowered transportation costs, as well as the remarkable ease of cross-border communication in the late 20th century has dramatically increased the growth in trade in intermediate inputs. Falvey and Reed (2002) argue that the growth of international trade in goods that are not, or are only partially, manufactured in one country has brought into prominence the rules that determine the origin of traded products. Governments apply rules to determine the origin of goods for a wide range of reasons, but two broad reasons have caught the interest of economists in particular.

The first reason for governments to use ROO is to distinguish the origin of a good when imports are not to be granted “national treatment”. The domestic content literature broadly addresses this concern and investigates the effects of host government requirements that a foreign-owned subsidiary use a certain proportion of host country inputs in their output in order to be sold in the host market (i.e., be granted national treatment). This has led to a considerable theoretical literature (e.g., Grossman, 1981; Dixit and Grossman, 1982; Mussa, 1984; Davidson, Matusz, and Kreinen, 1985; Vousden, 1987; Krishna and Itoh, 1988; and Richardson, 1991, 1993).

The second reason for a government to use ROO is to define the foreign origin of a good, and in particular, the conditions under which the good will be considered as originating in a tariff preference-receiving country (i.e., a member of a free trade agreement, FTA). The rules, in this second context, serve as gatekeepers of preferential

commerce by automatically eliminating trade deflection, which occurs if a non-member transits goods through the free trade agreement (FTA) member-country with the lowest external tariff and then transships with preferential treatment to the final destination. Thus, ROO can be viewed as a distinctive commercial policy role because they target the input composition of imported products. This type of rule refers to preferential ROO. The literature is here more recent (e.g., Krueger, 1993; Lloyd, 1993; Krueger, 1995; Krishna and Krueger, 1995; Lopez-de Silanes, Markusen and Rutherford, 1996; Falvey and Reed, 2002; Carrère and de Melo, 2004; Krishna, 2005; Thoenig and Verdier, 2006; Cadot, Estevadeordal and Akiko Suwa-Eisenmann, 2006; Georges, 2008a, 2008b and 2010). These studies demonstrate how ROO, while they eliminate trade deflection, also lead to trade diversion, substitution among inputs, differential effects on intermediate versus final goods, implicit export subsidies from highly protective FTA members to other FTA members, rent shifting to FTA member firms from non-member firms, implicit tax on foreign intermediaries and implicit subsidies to capital, labor and intermediaries purchased within the FTA zone. Incidentally, ROO play a role in the application of non-preferential policy instruments or laws relating to trading such as: countervailing duty and safeguard proceeding, anti-dumping measures, quantitative restrictions and tariff quotas, and government procurement, which refer to non-preferential ROO. This master research paper will focus on preferential ROO.

More generally, we can also think of many new approaches and practical applications for ROO, which is an additional reason for deepening our understanding of their functioning. Only when they are better understood can they be better regulated. First, developed countries have been increasingly likely to employ policies that

discriminate among imports not only on the basis of “where” but also “how” they have been produced. This is equivalent to employing ROO that target input composition, and may be justified on the grounds of protecting the environment or discouraging the use of child labor (Falvey and Reed, 2002). Second, interest in determining the origin of services traded internationally has acquired greater salience in the context of the debate over the labor market effects of growing outsourcing for various input services from service providers located in developing countries. Yet, so far little analytical attention has been devoted to the issue of ROO in a services and investment context (Zampetti and Sauvé, 2006).

As mentioned by Georges (2010), preferential ROO are of byzantine complexity, inconsistent across several FTAs, opaque and costly, and although the potential distortions created by ROO have been recognized in the literature, greater analyses need to be done in order to better understand the impact of ROO. Otherwise, as long as the cost of ROO is not made clearly transparent in models, little hope emerges for generating much policy interest in proposals for loosening or liberalizing ROO in the context of alternatives to FTAs, such as customs unions (CUs) or most favored nation (MFN) tariff liberalization at the WTO, which, both, would make ROO lack relevance and impact even if they remained on “the books”.

The purpose of this paper is to summarize and synthesize some work with respect to the applied econometric literature on ROO, noting that ROO generally emerge as a result of different coalitions across borders, as well as lobby across sectors. In this regard, we will review six major econometric studies that analyse the economic impacts of ROO.

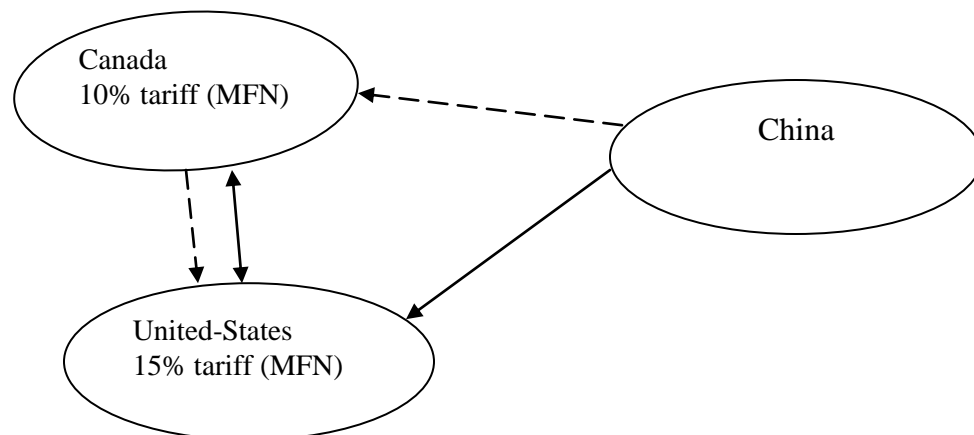
The remainder of this major research paper proceeds as follows. The next section briefly reviews some key features of FTAs, CUs and ROO, and gives some reasons behind the recent backlash on preferential ROO. The third section reviews the applied econometric literature on ROO. Concluding remarks are provided in the final section along with some trade policy options for Canada.

2. FTAs, CUs, and ROO

The purpose of this section is to briefly review some key features of FTAs, CUs and ROO. Georges (2008b) identifies CUs as the second level of regional economic integration following a FTA. As in a FTA, a CU seeks to achieve the eventual elimination of all tariffs (i.e., preferential treatment) between members, but unlike a FTA, a CU also establishes a common external trade policy in particular by adjusting all tariffs external to the CU to a common level. In a FTA, however, members maintain their individual MFN tariffs that they impose on countries outside the agreement. As a result, a CU requires members to establish a common external tariff (CET) with respect to non-member countries, while a FTA allows members to have their own external tariff. In other words, members of a FTA can maintain their own MFN tariffs that they impose to foreign countries. However, FTA members need to establish ROO. ROO achieve a central goal within a FTA in eliminating trade deflection. Trade deflection – a modification of trade flows between the rest of the world and the members of the FTA – occurs when a non-member country transits goods through the FTA member-country with the lowest-external tariff and then transships duty-free (or with preferential treatment) to the final destination.

For example, consider Figure 1, where a Chinese company wishes to export some electronics to the United States (U.S.). If the Chinese company ships directly to the U.S., the Chinese exports will be subject to 15 percent tariff, for instance. In the absence of preferential ROO and without transportation costs between Canada and the U.S., the Chinese company could first ship their electronics to Canada, which has a lower external tariff of 10 percent with regard to final goods. Once in Canada, the company could transship them to the U.S. under the preferential North American Free Trade Agreement (NAFTA) tariff rate. In this regard, a deflection of trade flow appears and the U.S. has lost tariff revenues. The role of ROO is to ensure that only goods that have substantively been produced in Canada are granted preferential treatment when exported to the U.S. In our example, thus, the Chinese goods would not be deemed originating in Canada and would not benefit from the preferential treatment. Therefore, the ROO discourage China from doing trade deflection. Note that ROO would not be required in a CU between Canada and the U.S. because the external tariff between them would be common (e.g., 15%), so that trade deflection would be avoided. Thus, in a CU arrangement, preferential ROO are normally absent and movements of goods within a CU are not based on their originating status but on the principle of free circulation.

Figure 1: Trade deflection



FTAs generate distortionary effects that induce member countries to purchase less input from the rest of the world and more from FTA members in order to fulfill ROO requirements and to get the tariff preference (Krishna and Krueger, 1995). Thus, as suggested by Krueger (1995), CUs are Pareto superior to FTAs because the establishment of a CET in a CU removes the incentives for trade deflection, and eliminates both the need for preferential ROO and their distortionary impact on the economy and competitiveness of firms.¹

For a variety of reasons reviewed in Bhagwati (2008), U.S. trade negotiators started to pursue extensive FTAs negotiation in the 1980s and the 1990s and they looked for particularized benefits they could offer important industries in exchange for their support for these FTAs.² Industries were concerned with finding ways to gain advantage within the new economics of globalization. ROO appeared to be the ideal instrument to meet these needs.³ The success of this strategy can be measured by the overwhelming positive response of foreign leaders, which has resulted in a spread of overlapping FTAs in America and across the world as illustrated in Figure 2. Several countries went beyond

¹ According to Georges (2008b), starting at any FTA, the theorem of Kemp and Wan (1976) ensures that there is a CU that is Pareto superior (to the FTA) if ROO are eliminated, but this requires choosing a CET that does not affect the terms of trade of the union with respect to outside countries and that member countries implement lump-sum transfers so that no individual member is worse off.

² As cited in Georges (2010), Bhagwati (2008) gives three motivations underlying the extensive US FTAs negotiations that started in the 1980s. The first motivation is imitation of the European Union hub, which increasingly had a number of spokes through regional FTAs. Some of the US trade negotiators had in mind the spectacle of the spokes voting on GATT issues with the hub, and this might have led to the US abandoning its exclusive embrace of multilateralism in free trade. Secondly, in order to respond to growing pressure from South America for debt relief, the US responded by instead offering trade, and the US became a hub for some spokes. Thirdly, the over-appreciation of the US dollar in the 1980s led to protectionism voices there, and the only way to countervail and contain the protectionists was to mobilize exporting interests by offering them markets abroad. However, the Europeans and the developing countries would not agree to declare a new multilateral Round when the US tried hard to start one in the early 1980s. This led the US to conclude that it was left with no option except to go the bilateral route.

³ For example, Krueger (1993) points out that ROO can effectively extend the protection that the US intermediary industry receives within the US to Canada and Mexico, so that the ROO can be used by the US to secure its NAFTA intermediary market for the exports of its own intermediate products.

forming single PTAs and joined several.⁴ The “spaghetti bowl” of regional FTAs is a well-established culinary analogy to the visual effect of Figure 2. However, one outcome of these overlapping FTAs is the proliferation of ROO around the world.

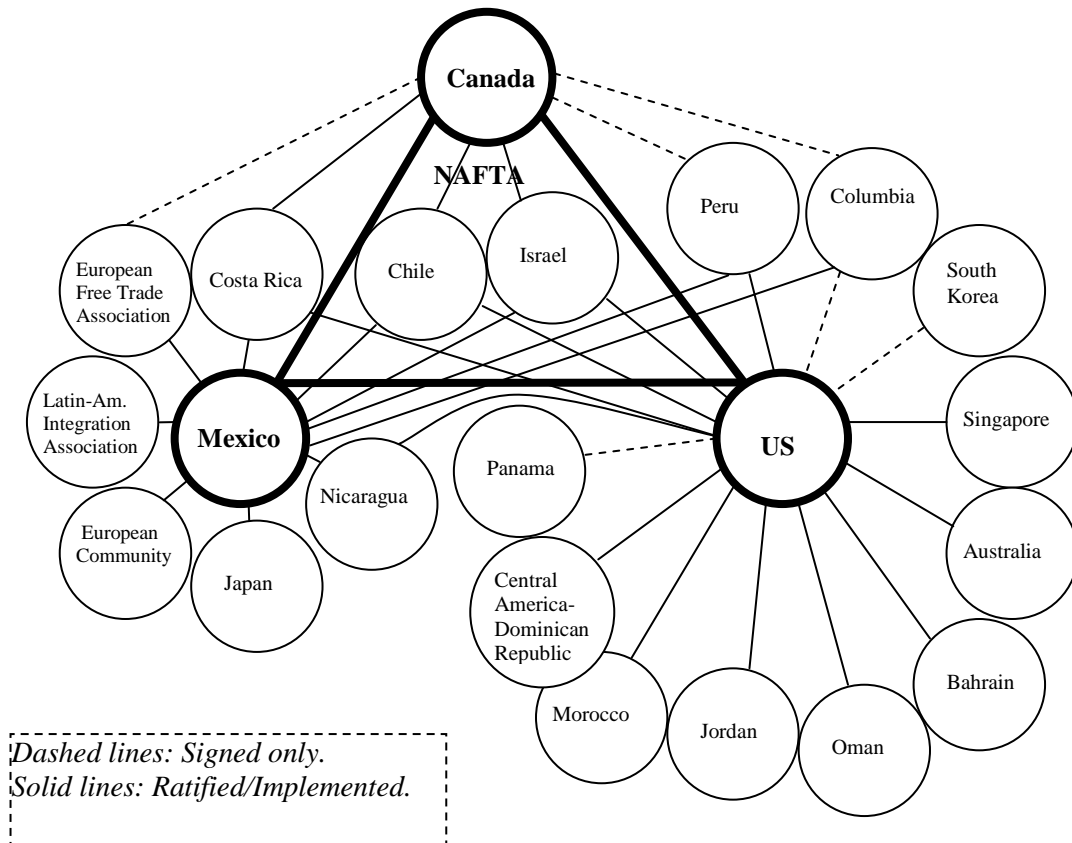
Even if ROO are the gatekeepers of preferential commerce and are required in FTAs, some of their consequences have also been discussed in the literature (Georges, 2010). First, in a study which analyses the restrictiveness of preferential ROO across the world, Estevadeordal and Suominen (2006) find that ROO of NAFTA and European Union (E.U.) are highly restrictive. However, because these two regimes have often been used as a blueprint for new inter-regional agreements, they could transmit their overall high ROO restrictiveness (Garay and De Lombaerde, 2004).⁵ Secondly, Krishna (2005) claims that beyond their economic justification to prevent trade deflection, ROO are increasingly used for protectionist purposes. Given that these rules are negotiated industry by industry and sector by sector, there are enormous gains for well-organized industries to insulate themselves from the effects of a FTA by lobbying for suitable ROO. Thirdly, and complementary to the previous point, preferential ROO have a distortionary impact when they induce firms to substitute cheaper non-originating materials for intermediate goods originating from the FTA area (Krueger, 1995). Fourthly, because ROO favour FTA upstream producers relative to more efficient world producers, they constitute an additional opposition to any moves to globally freer trade. Therefore, the

⁴ According to Pomfret (2007), this positive response reflects that many foreign political leaders appear to take a talk-is-cheap attitude to trade agreements, happy to sign them at summit meetings and leave the details to lower officials who might bury the agreement when unpleasant consequences seem likely or political alliances shift.

⁵ Although the E.U., in principle, does not impose preferential ROO among its members (as it is also a CU), it does have ROO regimes with countries external to the union and which have signed FTAs with the EU.

political economy of FTAs is likely to lead to a stumbling-block in future multilateral trade liberalization (Bhagwati, 1993). Finally, the international segmentation of production, where intermediate inputs are traded and manufactured into more processed intermediate inputs and then moved across borders to the next stage of production, has led to a growing share of parts and components in total exports (World Bank, 2005). Therefore, restrictive ROO in downstream sectors may impede FTA firms in taking advantage of the global production chains. Also, this might generate “ROO-jumping” foreign direct investments (FDI) that are diverted to the FTA member country with the largest market size.

Figure 2: North America’s hub and spoke trade systems



Note: Central-America includes: Costa Rica, El Salvador, Guatemala, Honduras and Nicaragua. Latin-American Integration Association includes: Argentina, Bolivia, Brazil, Chile, Columbia, Ecuador, Paraguay, Peru, Uruguay and Venezuela. European Free Trade Association includes: Iceland, Liechtenstein, Norway and Switzerland.

3. A SURVEY OF THE APPLIED LITERATURE ON PREFERENTIAL ROO

The goal of this section is to review six major studies that analyse and explain in an econometric manner the effects of ROO. By reviewing these studies, we want to better understand ROO. Since the work of Estevadeordal (2000), the econometric literature has typically coded the *ex-ante* restrictiveness of ROO as an independent variable in order to estimate the economic impact of these rules on, for example, trade flows (Estevadeordal and Suominen, 2008), investment flows (Estevadeordal, López-Córdova, and Suominen, 2008) and tariff preference utilization rates (Kunimoto and Sawchuk, 2005). The ROO restrictiveness index presented by Estevadeordal (2000) is the first index in the literature that clearly attempts to measure the restrictiveness of ROO. As all the empirical works we will review in Section 3 are largely based on this index, it is appropriate to start with Estevadeordal's study.

3.1 Estevadeordal (2000)

Estevadeordal (2000) attempts to examine the dynamics and the interdependence among key commercial policy instruments used in negotiating preferential market access in FTAs through the analysis of NAFTA. The author's analysis focuses especially on the negotiations between the U.S. and Mexico. Addressing the issues of the two key instruments in FTAs, which are the preferential tariff phase-out program and the ROO, the author finds two major results. First of all, Estevadeordal (2000) demonstrates that ROO are instruments against trade deflection, and that industry linkages between Mexico and the U.S. play an important role as explanatory factors for the use of ROO in NAFTA.

Secondly, he finds that the origin matters when determining the timing/speed of the preferential liberalization schedule.⁶

To begin, Estevadeordal (2000) analyses the two key instruments used in preferential market access agreements and their negotiation preferential tariff and ROO. With respect to the preferential tariff structure applied to FTA members, he points out two different negotiation stages in the NAFTA model. In the first stage, because the preferential tariff process follows a pre-specified timetable ranging from immediate tariff elimination up to a ten-year phase-out period, members of the FTA have to agree first on a base rate or base level tariff from which the phase-out schedule will start.⁷ In NAFTA for instance, the base rate is the pre-NAFTA MFN applied tariff rate. In the second negotiation stage, members must decide on the phase-out period or the numbers of years for the full tariff liberalization of sectors involved in the agreement. The objective of the phase-out schedule is to set a timeline going from the originated base rate (or base level) tariff to a zero intra-agreement tariff for specific sectors in years to follow the agreement.⁸ These phase-out periods, referred to as staging categories, are, possibly, different for each member and sectors. For instance, Mexico applied for a ten-year phase-out period on tobacco products originating from the U.S., while the U.S. applied for less than two years of phase-out period on tobacco products from Mexico. This can be explained by the political weight of each sector in the agreement.

⁶The timing of preferential liberalization here refers to years of liberalization to achieve zero intra-agreement tariffs.

⁷Generally, this base rate or base level tariff coincides with the MFN tariff rates applied to non-FTA members, and is consistent with previous negotiations on preferential market access under other agreements.

⁸ NAFTA's four main staging categories are: A (immediate), B (five stages), C (10 stages), C+ (15 stages).

Regarding NAFTA's negotiations on ROO, Estevadeordal (2000) indicates that there are three methods to determine the origin of goods. The first method is a change in tariff classification between manufactured goods within the FTA and the inputs used from non-FTA members. The tariff classification is based on the Harmonized Commodity Description and Coding System (HS).⁹ The HS is an international product nomenclature developed by the World Customs Organization (WCO), which contributes to the harmonization of customs and trade procedure.¹⁰ The ROO based on a change in tariff classification, requires a change of tariff heading (CTH) for goods at various levels such as: chapter (CC), heading (CH), sub-heading (CS) or item (CI). The second method is a domestic content or regional value content rule (RVC), which requires a minimum percentage for the local value added in the member country. The third method is a technical requirement (TECH), which takes into account specific manufacturing transformations of goods in the originating country. These three methods have to objective to generate a substantial transformation of non-FTA inputs into the FTA zone.

As shows in Table 1, which is based on Estevadeordal (2008), the NAFTA tariff preferential phase-out period is correlated with the structure of ROO. For example, a ROO based on a change of chapter (CC) is more restrictive than a ROO based on a

⁹ The HS is structured in chapters, headings, subheadings, tariff items on the basis of economic activity or components. See below for the definition:

Chapter means a chapter of the Harmonized System;

Heading means the first four digits in the tariff classification number under the Harmonized System;

Section means a section of the Harmonized System;

Subheading means the first six digits in the tariff classification number under the Harmonized System; and

Tariff item means the first eight digits in the tariff classification number under the Harmonized System as implemented by each Party.

For more details, please follow the link (annexe 401, specific ROO under NAFTA):

<http://www.international.gc.ca/trade-agreements-accords-commerciaux/agr-acc/nafta-alena/ann-401-09.aspx?view=d>.

¹⁰ Please follow the link below for more details about the HS:

http://www.wcoomd.org/home_hsoverviewboxes_hsharmonizedsystem.htm.

change of item (CI), and more restrictive ROO are associated with a longer phase-out period. From that, we can contend that ROO restrictiveness and phase-out periods are interdependent when negotiating preferential market access. Also, we notice that the speed/timing of the preferential liberalization scheme is different depending on the country of origin. Thus, the origin matters when determining the timing/speed of preferential liberalization scheme, which is one of Estevadeordal’s major findings.

Table 1: Years to Liberalization and Rules of Origin in NAFTA

Rules of origin criteria	Years to liberalization			
	Mexico to United States	United States to Mexico	Mexico to Canada	Canada to Mexico
CI	1.75	1.00	1.75	2.50
CS	2.65	1.21	2.65	1.41
CS & RVC	2.28	0.52	2.28	1.11
CH	4.90	2.28	5.11	4.56
CH & RVC	4.71	1.68	4.79	4.36
CC	4.34	1.72	4.47	6.46
CC & TECH	5.23	4.40	9.61	9.44

Source: Estevadeordal (2008).

To formally establish the relationship between ROO and the phase-out period, Estevadeordal uses an econometric model, where one of the key variables is an ordered categorical variable, that is, the index of ROO restrictiveness. As the real level of ROO restrictiveness is not directly observable, Estevadeordal uses latent variables, which are observables values of ROO, to build an index of NAFTA’S ROO restrictiveness. To construct his index, the author codifies each ROO or set of rules according to the three methods used in NAFTA – CTH, RVC, and TECH – under the following assumption: a change in tariff classification at the chapter level is more stringent than a change at the

heading level, and so on, and a RVC adds more restrictiveness to ROO than does a TECH. The ROO restrictiveness index “ $y1^*$ ” (in Equation (1) below) is assigned an ordered numerical value (from 1 to 7) to each pair of rules at a 6-digit HS level, where 1 represents the least restrictive ROO and 7 the most restrictive:

$y = 1$ if $y1^* \leq CI$,

$y = 2$ if $CI < y1^* \leq CS$,

$y = 3$ if $CS < y1^* \leq CS \& RVC$,

$y = 4$ if $CS \& RVC < y1^* \leq CH$,

$y = 5$ if $CH < y1^* \leq CH \& RVC$,

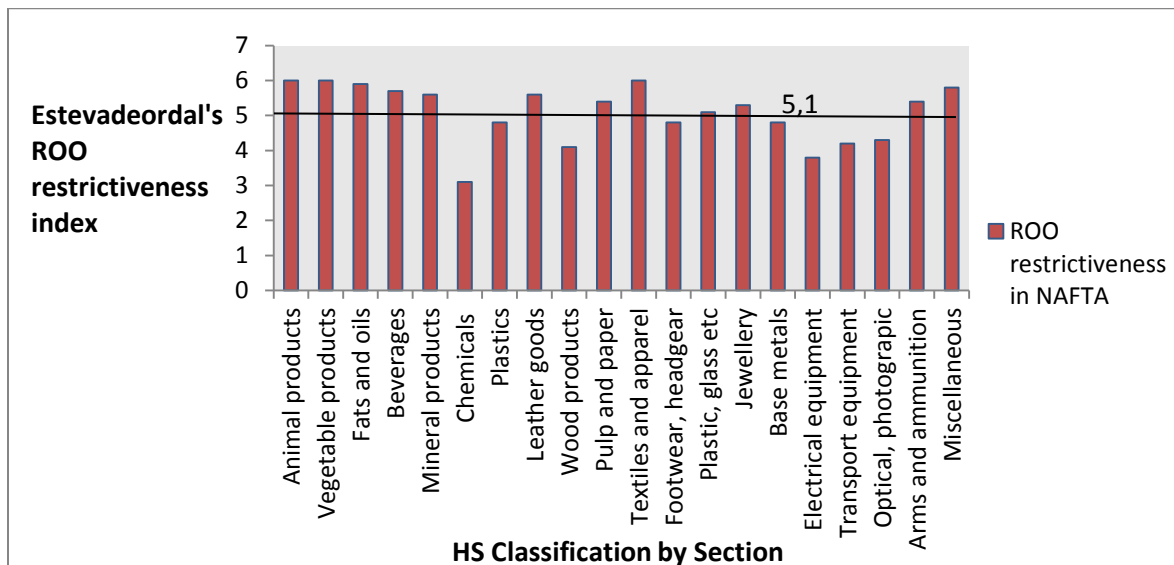
$y = 6$ if $CH \& RVC < y1^* \leq CC$,

$y = 7$ if $CC < y1^* \leq CC \& TECH$.

($y1^*$ is the ex ante level of ROO restrictiveness and y is the ordered numerical value of ROO ranging from 1 to 7).

Figure 3 below illustrates the sectoral restrictiveness of NAFTA according to this index.

Figure 3: ROO Restrictiveness in NAFTA*



* Note: Estevadeordal finds 5,1 as average when he analyses the sectoral restrictiveness of NAFTA ROO according to his index.

Secondly, after obtaining the ROO restrictiveness index, Estevadeordal (2000) constructs the second continuous endogenous variable “ $y2^*$ ” in Equation (2), for the speed of the preferential tariff liberalization, which is coded as the number of years for full intra liberalization. $y2^*$ is assumed to depend on the ROO restrictiveness index and some additional explanatory variables (explained later).

After constructing the ROO restrictiveness index, the author uses a model based on the two equations following:

$$(1) \quad y1^* = \beta1'X1 + v1,$$

$$(2) \quad y2^* = \gamma2iy1^* + \beta2i'X2i + v2i,$$

where $y1^*$ is the variable of the latent level of ROO restrictiveness, and $y2^*$ is a continuous variable measuring the number of years for full intra liberalization. The first equation shows that the categorical ROO restrictiveness index $y1^*$, depends on some explanatory variables $X1$ that represent a series of factors such as: the MFN tariff differential between Mexico and the U.S.; the intra-industry trade between Mexico and the U.S.; the intra-industry trade between Mexico and the rest of the world; and the intra-industry trade between the U.S. and the rest of the world. The hypothesis which is tested is, for instance that, if the MFN tariff differential between Mexico and the U.S. – which measures the absolute value of the spread between each Member’s MFN rates with respect to third-countries – is higher, then the ROO restrictiveness will be higher. As Mexican MFN tariffs were higher than U.S. MFN tariffs in the pre-NAFTA period, members will then impose high levels of ROO in order to avoid trade deflection. According to this assumption, ROO help to avoid trade deflection and are correlated with the MFN tariff differentials.

Then, he uses $y1^*$ as an independent variable in the second equation, which is a country-specific equation that explains the preferential tariff phase-out, where $X2$ is a vector of explanatory variables used by each specific Member in the agreement (e.g., the initial preferential margin of Mexico vis-à-vis the U.S.; the initial margin of the U.S. vis-à-vis Mexico; Mexican imports from the U.S. relative to Mexico's total trade; U.S. imports from Mexico relative to U.S.' total trade; Mexican exports to U.S. relative to Mexico's total trade; and U.S. exports to Mexico relative to U.S.' total trade. $v1$ and $v2$ represent the error terms jointly normally distributed with zero as mean and a positive definite variance.

The author processes with a two-stage estimation in his specification. In the first stage, he estimates Equation (1) using an ordered probit regression for the categorical ROO restrictiveness index. Moreover, having the predicted value for the index of restrictiveness ROO, he estimates Equation (2) using standard ordinary least squares procedures (OLS). With regard to Equation (1), the estimation shows a positive sign and statistically significant coefficient linking MFN tariff differential (between Mexico and the U.S.) and the ROO restrictiveness index. This result confirms that the level of ROO restrictiveness is a function of some trade-related explanatory variables. The higher is the MFN differential tariff between Mexico and the U.S. to third parties, the higher the degree of ROO restrictiveness. This explains the role of ROO in avoiding trade deflection. Estimation of Equation (2) reveals that the degree of ROO restrictiveness index ($y1^*$) is positively and significantly correlated with the speed/timing of the preferential tariff liberalization. This means that sectors with greater ROO are more likely to have longer phase-out periods in the preferential tariff liberalization process.

Estevadeordal (2000)'s conclusion is that both instruments (ROO and spread of tariff liberalization) are primary policy instruments in preferential market access negotiations. Estevadeordal's analysis provides the foundation for subsequent studies.

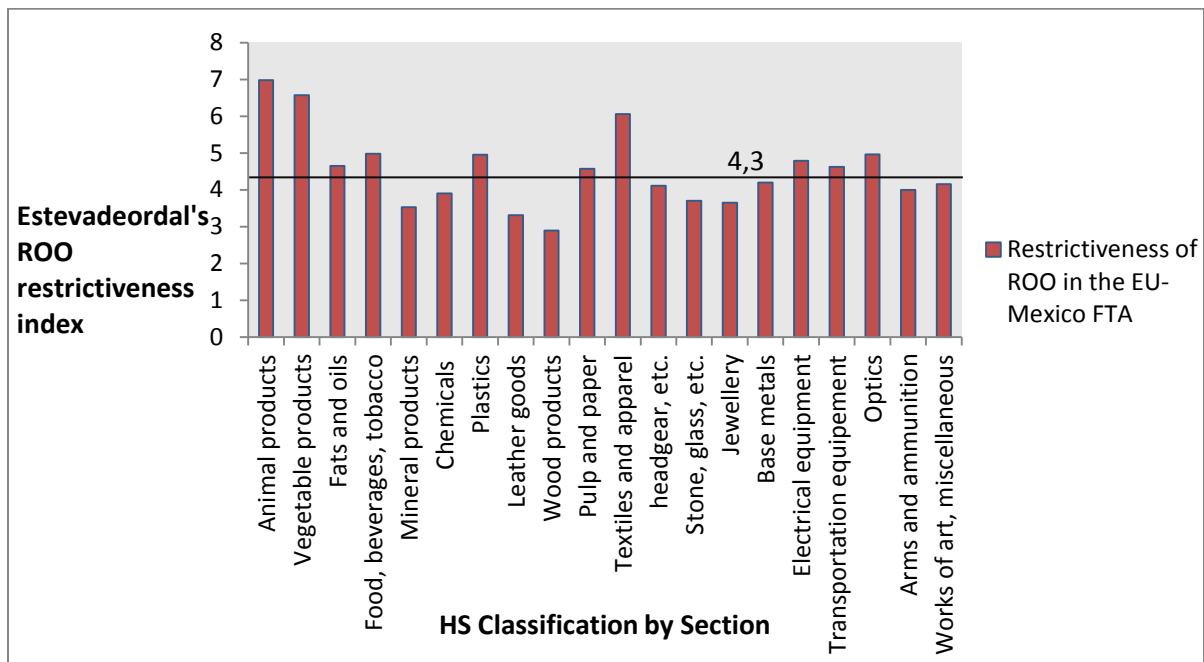
3.2 Suominen (2008)

The objectives of the Suominen (2008) paper are twofold. First, much like Estevadeordal (2000), the paper aims to examine the relationship between ROO restrictiveness and the length of the tariff phase-out schedule within the negotiations of market access provisions in PTAs. Secondly, the author links the restrictiveness of ROO with the occurrence of excluding some sectors/products from the negotiations of PTAs. The preferential tariff phase-out schedule refers to the speed/timing of the preferential tariff liberalization in the PTA from a base rate tariff to a duty free rate, and exclusions refer to sectors or products excluded from the coverage of the PTA. Both objectives are addressed through data of the E.U.-Mexico FTA, which entered into force in July 2000. The author's analysis focuses on two central market access instruments in PTAs, which are: the preferential tariff phase-out schedule and the exclusions. Suominen's (2008) main argument is that ROO play a crucial role in the speed/timing of the preferential tariff liberalization with respect to the phase-out sectoral schedule, and in the frequency of sectoral exclusion in PTAs.

Suominen (2008) makes three assumptions that are tested in the study. First, the author argues that ROO carry some properties that allow governments to use them as substitutes for exclusions of sensitive sectors/products in the PTA coverage with which the ROO are associated. ROO appease sectors relative to the speed of preferential liberalization, which permits to avoid excluding sectors from the PTA's coverage.

Secondly, even if ROO serve as a substitute to exclusions, Suominen (2008) point out that restrictive ROO carry uncertainties that make them imperfect substitutes for exclusion. Based upon that, she mentions that sectors that previously obtained stringent ROO in the negotiation process of the PTA – import-competing downstream and upstream sectors – also have the incentives to lobby more actively for prolonged preferential phase-out schedule. However, sectors with loose ROO present fast liberalization in the preferential tariff phase-out schedule. Thirdly, exclusions, if still present in the PTA, are likely to be in sectors where the pre-FTA tariff (i.e., MFN tariff) or the base rate tariff is so high that even the most restrictive ROO cannot substitute for the tariff, and ROO are unable to help upstream producers to capture markets for intermediate goods. Figure 4 below presents a general view of the ROO restrictiveness index, in the EU-Mexico FTA, by HS sections (i.e., Sectors)

Figure 4: ROO Restrictiveness in the EU-Mexico FTA*



* Note: Suominen finds an average of 4,3 when she analyses the restrictiveness of ROO in the E.U.-Mexico FTA.

Based upon these assumptions, Suominen (2008) distinguishes two testable hypotheses as follows:

H1: The more stringent the ROO, the likelier the preferential phase-out schedule will be prolonged.

H2: Sectors where ROO fall well short of substituting for the MFN tariffs and fail to provide captive markets despite being stringent will be excluded from the PTA.

In sum, rather than having sensitive sectors or products excluded from the coverage of the PTA, governments substitute stringent ROO in order to include these sectors or products in the preferential phase-out schedule of the PTA. Nevertheless, the imperfection of ROO as a perfect substitute for the MFN tariff in protectionism sectors allows producers in sectors that have previously obtained stringent ROO in negotiation process to lobby more actively for prolonged phase-out schedules. Finally, if present, exclusions are likely to be in sectors where the pre-FTA tariff or the base rate tariff is so high and ROO are unable to help upstream producers to capture markets for intermediate goods.

The two dependent variables in Suominen (2008) estimation are the preferential tariff phase-out schedules, and the frequency of excluded products. Both variables vary depending on the economic sectors open in negotiating the FTA. To compute the preferential tariff phase-out schedule, which refers to the years of full liberalization, the author uses data from the E.U.-Mexico FTA treaty at the 8-digit level and aggregates them at the 6-digit level. The other dependent variable, exclusions, is a dummy variable taking a value of 1 if a particular sector is excluded and 0 otherwise. One key independent variable in the analysis is E.U. restrictiveness ROO index (based on the

Estevadeordal ROO restrictiveness index with some differences that take into account the EU ROO structure). Other exogenous factors are used as independent variables in the estimates.

Suominen (2008) estimates Equations (3) and (4) using OLS to test her hypotheses:

$$(3) \quad POUT - EUi = b_0 + b_1ROO - Ri + b_2PRE - MAR - EUi + b_3IMP - RAT - EUi + b_4EXP - RAT - EUi + b_5II - EU - MEXi + b_6IIT - EU - ROWi + b_7P - OUT - MEXi + b_8F(4k)i,$$

where $POUT - EUi$ is years to full liberalization under the EU-Mexico FTA in tariff line i ; $ROO - Ri$ is the ROO restrictiveness index of the EU-Mexico FTA; $PRE - MAR - EUi$ is the absolute preferential margin (the difference between the EU's MFN tariff and the preferential tariff to Mexico in the first year of the agreement); $IMP - RAT - EUi$ is the import ratio (the ratio of imports from Mexico to the EU's total trade) in 1998; $EXP - RAT - EUi$ is the export ratio (the ratio of exports to Mexico to the EU's total trade) in 1998; $II - EU - MEXi$ is the Grubel-Lloyd indice of intra-industry trade of the EU with Mexico in 1998; $IIT - EU - ROWi$ is the Grubel-Lloyd indice of intra-industry trade of the EU with the ROW in 1998; $P - OUT - MEXi$ is the Mexican phase-out schedule; and $F(4k)i$ is the fixed effect per 4-digit industry, as represented by (4k).

$$(4) \quad EXCLi = b_0 + b_1ROO - Ri + b_2EU - MFNi,$$

where $EXCLi$ is a dummy variable taking value 1 if a particular sector is excluded from the PTA and 0 otherwise; and $EU - MFNi$ is the EU's 1998 MFN tariff.

Estimating Equation (3) Suominen (2008) finds that the ROO restrictiveness variable has a positive sign and is a statistically significant variable explaining the

phasing-out period for sectors under the E.U.-Mexico FTA. ROO restrictiveness and phase-out schedule move in the same direction so that the more restrictive the ROO, the greater the political economic pressure will be for a prolonged phase-out schedule. Sectors with restrictive ROO are marked by long phase-out schedules, and sectors with loose ROO generally have short phase-out schedules or fast liberalization tariffs because of their high level of competitiveness, which renders protection less important. This is Suominen's first finding that the more stringent the ROO, the more prolonged the preferential phase-out schedule will be. This finding supports the first hypotheses of the study. In addition, Suominen acknowledges that because of the high levels of intra-industry trade, E.U. sectors with the least protectionist measures are sectors with important international trade links that want to pursue fast liberalization with Mexico. Finally, the positive and statistically significant sign for the parameters associated with the ROO restrictiveness variable and the E.U. MFN tariff in the estimation of Equation (4) allows Suominen to draw the second finding in the study, that sectors where the MFN tariff is particularly high and that fail to provide captive markets are more likely to be excluded from the PTA. Exclusions are generally chosen in sectors where ROO is an imperfect substitute for the MFN tariff. Suominen (2008) argues that sectors/products are more likely to be excluded from the PTA the higher the ROO restrictiveness and the MFN tariff.

3.3 Estevadeordal and Suominen (2008)

Estevadeordal and Suominen (2008) estimate the effects of ROO on aggregate trade flows of final goods and intermediate goods. To do so, they use a modified gravity model based on two key independent variables: the Estevadeordal's index of ROO

restrictiveness (as explained in Section 3.1) and an ROO facilitation index (FACIL). By adding this facilitation index, the authors extend Estevadeordal's (2000) paper for a better understanding of the impact of ROO on trade flows. Five economic sectors are included in the analysis: chemicals, machinery, textiles, television and radio transmitters, and vehicles. One hundred fifty-five countries and almost 100 PTAs around the world are covered in the analysis. Four main conclusions are drawn from Estevadeordal and Suominen's analysis. First, the restrictiveness and sectoral variability of ROO have a negative impact on aggregate trade flows¹¹. Secondly, a particular set of regime-wide ROO provisions boosts aggregate trade flows. Thirdly, restrictive ROO, as well as the variability of ROO at the sectoral level for final goods clearly increase trade in intermediate goods. Finally, exporters and producers learn over time to conform to restrictive ROO, which results *ex post* in a decrease in the relevance of ROO, and reduces ROO interference.

Before going into more details with the empirical estimates, it is worth explaining the ROO facilitation index, which is one of the key variables in the analysis. Although, the Estevadeordal (2000) index of ROO restrictiveness is a sectoral index, the ROO facilitation index, FACIL, is based on regime-wide ROO provisions. Table 1 below describes the product-specific and regime-wide ROO provisions. The FACIL index is based on five components of the regime-wide ROO provisions: *De Minimis*, *Diagonal Cumulation*, *Full Cumulation*, *Drawback*, and *Self-certification*, which are defined in some detail in Table 1. Each of these provisions is indirectly present as dummy variables in the econometric equation characterizing all FTAs included in the study. The dummy

¹¹ Sectoral variability refers to the variation of the restrictiveness of ROO in final goods among FTAs. It also refers to ROO that vary in type within a particular ROO provisions.

variable for De Minimis is set at 0 if it is below 5 percent, and at 1 if it is 5 percent or above. The other four dummy variables are set at 1 if the PTA allows for any of them and 0 otherwise. The FACIL index is eventually built by summing the values of the five components. It is set at 0 between sets of countries not part of a common PTA, and can take a value from 1 to 5 between sets of countries part of a common PTA.

Table 1: Sectoral Product-Specific and General Regime-Wide ROO Provisions

Sectoral Product-Specific ROO		General Regime-Wide ROO
<i>Wholly obtained or produced criterion</i>	<i>Substantial transformation criterion</i>	
Production of goods involves only inputs from one country from where these goods originated.	<p>Production of goods involves more than one country's inputs and the origin is conferred based on a substantial transformation which is defined in four main components:</p> <p>CTC: A change in tariff classification in the HS code between manufactured goods and the inputs from an extra-PTA party used in the production. Meeting this goal requires a modification of a product chapter, heading, subheading or item of any non-originating inputs from the output.</p> <p>ECTC: An exception from a particular CTC which prohibits the use of non-originating materials from a certain chapter, heading or subheading of the HS.</p> <p>VC: A good has to acquire a certain minimum of local value content, most of the time between 30 and 60 percent in the country, in order to meet ROO requirements.</p> <p>TECH: A good must undergo certain manufacturing operations in the originating</p>	<p>Certification: This provision is the method used for certifying origin of goods in PTAs. The main methods for certifying origin are self-certification by exporters, certification by the exporting-country government or a private group to which the government has delegated the task of certification, and a combination of private self-certification and public governmental certification.</p> <p>Cumulation: This provision allows the use of materials in the production of one good by one PTA member from the other PTA members, without the loss of the preferential status of the final good to this member.</p> <p>Drawback: This provision precludes a PTA member from refunding tariffs paid by another PTA partner on non-originating inputs that are subsequently included in a final product that is exported to the first PTA member.</p> <p>De Minimus: This provision allows the use of a certain amount of non-originating materials without affecting the granting of origin to a country. It makes it easier for a good using a non-originating input to be qualified as originating under substantial transformations.</p> <p>Roll-up or Absorption: This provision allows materials to be considered originating, noting that they have to meet a specific processing requirement, when used as an input for subsequent transformations.</p>

	country to have the origin from that country.	
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Source: Based on Estevadeordal, Harris and Suominen (2008); Tapp (2007); and Estevadeordal and Suominen (2006).

The model employed by Estevadeordal and Suominen (2008) to demonstrate the effects of ROO on trade flow is consistent with the more general literature on gravity models, which tries to predict trade flows between countries. Generally, the gravity model is used to explain bilateral trade flows between countries based on several independent variables such as: the countries' GDP, the geographical distance between them and a dummy variable representing whether or not they are part of a common PTA.

In this general context, the authors first explore the impact of ROO on aggregate bilateral trade flows, more specifically on aggregate imports by partners for each of the 155 countries included in the study. Regarding independent variables, Estevadeordal and Suominen (2008) either construct them or use data from the World Bank, the International Monetary Fund and the Centre d'Études Prospectives et d'Informations Internationales (CEPII). They estimate the following gravity equation using OLS:

$$(5) \ln(V_{ij}) = \beta_1 \ln(GDP_i) + \beta_2 \ln(GDP_j) + \beta_3 \ln(GDPPC_i) + \beta_4 \ln(GDPPC_j) + \beta_5 \ln(DIST_{ij}) + \beta_6 (BORDER_{ij}) + \beta_7 (COMLANG_{ij}) + \beta_8 (COL_{ij}) + \beta_9 (COMCOL_{ij}) + \beta_{10} (PTA_{ij}) + \beta_{11} \ln(ROO - R_{ij}) + \beta_{12} (FACIL_{ij}) + \varepsilon,$$

where V_{ij} are imports of country j from country i ; GDP_i is the exporter's GDP; GDP_j is the importer's GDP; $GDPPC_i$ is the GDP per capita ratio of i ; $GDPPC_j$ is the GDP per capita ratio of j ; $DIST_{ij}$ is the distance between the capitals of two countries and serves to approximate transportation costs; $BORDER_{ij}$ is a dummy variable taking the value 1 if countries i and j share a border or 0 otherwise; $COMLANG_{ij}$ is a dummy variable that accounts for cultural affinities and take the value 1 if countries i and j speak the same

language and 0 otherwise; COL_{ij} is a dummy variable taking the value 1 when one country has been colonized by the other and 0 otherwise; $COMCOL_{ij}$ is a dummy variable taking the value 1 if the two countries have been colonized by the same colonial power and 0 otherwise; PTA_{ij} is a dummy variable taking the value 1 when two countries are part of the same PTA and 0 otherwise; $ROO - RI_{ij}$ is the aggregate (across sectors) restrictiveness index of ROO from the PTA regulating trade between the two countries (taking values from 1 to 7); $FACIL_{ij}$ is the facilitation index of the PTA regulating trade between the two countries (taking values from 1 to 5); and ε is the error term normally distributed.

Estimating Equation (5) using OLS, the authors find that the ROO restrictiveness index coefficient has a negative sign (negative effects on trade flows) and is statistically significant at the 1 percent level, while the FACIL index has a positive effect on aggregate trade flows and is also statistically significant. In addition to that, the positive sign of the PTA coefficient means that PTA have a positive effect on aggregate trade flows, which can be explained by the fact that ROO increase the incentives for intra-PTA trading of inputs among producers, as they want to benefit from the preferential treatment. This clearly demonstrates that restrictive product-specific ROO obstruct aggregate trade flows and are key instruments to boost intra-PTA trade flow.¹² This is the first main conclusion of Estevadeordal and Suominen (2008).

From the positive effect of the FACIL index on aggregate trade flows, they draw their second conclusion, that the combined effect of various regime-wide ROO

¹² To account for the ROO restrictiveness variation across products/sectors – ROO regimes with high levels of sectoral selectivity or regimes with homogeneous tariff – they replace $ROO - RI$ by $ROO - SD$ in Equation (5), where $ROO - SD_{ij}$ is the standard deviation of $ROO - RI$ within a regime. The negative coefficient of $ROO - SD$ allows them to conclude that high levels of sectoral selectivity in ROO also have a negative impact on aggregate trade flows.

provisions, such as Self-cumulation or Drawback, encourages aggregate trade flow. Finally, when Estevadeordal and Suominen disaggregate the FACIL index in its five components, the estimate reveals that all five components have a positive and statistically significant impact on aggregate trade flows. They state that the negative effect of product-specific ROO (ROO restrictiveness index) can be compensated for by the positive effect of permissive regime-wide ROO (FACIL index). These different effects across ROO regimes can reduce or boost opportunities for diversifying markets.

In the second part of their study, Estevadeordal and Suominen (2008) examine the impact of ROO on trade in intermediate goods, noting that stringent ROO affect the input composition of goods. They estimate the effect of restrictive product-specific ROO on intermediate goods by taking into account trade in intermediate goods in five manufacturing sectors: chemicals, machinery, textiles, television and radio transmitters, and vehicles. The total value of imports in intermediate goods used intensively in the production of final goods in each sector is used as a dependent variable here. They estimate Equation (6) below:

$$(6) \quad \ln(INPUT_{ijs}) = \beta_1 \ln(GDP_i) + \beta_2 \ln(GDP_j) + \beta_3 \ln(GDPPC_i) + \beta_4 \ln(GDPPC_j) + \beta_5 \ln(DIST_{ij}) + \beta_6 (BORDER_{ij}) + \beta_7 (COMLANG_{ij}) + \beta_8 (COL_{ij}) + \beta_9 (COMCOL_{ij}) + \beta_{10} \ln(ROO - RI - FINAL_{ijs}) + \beta_{11} (FACIL_{ij}) + \varepsilon,$$

where $INPUT_{ijs}$ is the total value of intermediate imports into country j from country i in sector s ; and $ROO - RI - FINAL_{ijs}$ is the restrictiveness of ROO in the PTA between i and j for the final goods in sector s . The other independent variables are already defined above. The results show that the two key independent variables ($ROO - RI - FINAL_{ijs}$

and *FACIL_{ij}*) pull in the same direction. They have a positive and statistically significant effect on trade in intermediate goods. This can be explained by the fact that all intermediate goods used in the analysis are intensively employed in the production of the final goods. Indeed, in the presence of stringent ROO, intra-PTA member use intra-PTA intermediate goods in the production of their final goods. This is the third conclusion of Estevadeordal and Suominen. The basic idea is that restrictive ROO in final goods increase trade in intermediate goods in the PTA area by inducing a shift to intermediate inputs sourcing from the ROW to intra-PTA members. Additionally, this result is the evidence that ROO, by increasing trade in intermediate goods in the PTA area, lead to trade diversion from the ROW to PTA members. As first defined by Jacob Viner (1950), trade diversion is the process of shifting purchasing sources from lower cost suppliers to higher cost suppliers – from more efficient suppliers to lesser ones – in the presence of PTAs or CUs.¹³

Finally, to encounter for the use of ROO over time, the authors add year-by-year dummy variables from 1982 to 2001, which are constructed by interacting *ROO – RI* and *FACIL*. The authors estimate Equation (5) twice, by adding respectively *ROO – RI * YEARI_{ij}* and *FACIL * YEARI_{ij}* as independent variables. *ROO – RI * YEARI_{ij}* is the interaction term for *ROO – RI* with a given year from 1982 to 2001, and *FACIL * YEARI_{ij}* is the interaction term for *FACIL* with a given year. After estimation, they come up with their last conclusion in the study, that the *ROO – RI * YEARI_{ij}* variables have a negative coefficient in the model but decrease over time. This reduction over time of the impact of product-specific ROO suggests that exporters and producers learn how to deal

¹³ The estimation also highlights the fact that a high level of sectoral variability in ROO restrictiveness in final goods has a positive impact on intermediate trade flow.

with ROO over time and alter their production strategies to meet ROO requirements. Incidentally, this also explains the decrease of the relevance of ROO over the long term on aggregate trade flows. Another explanation for this phenomenon is that the multilateral lowering of tariffs and nontariff barriers within the WTO may reduce the relevance of ROO because exporters may rather apply for the MFN tariff (which is declining) instead of the preferential tariff (costly) that requires documents on the origin of a good. In addition, the coefficient for $FACIL * YEAR_{ij}$ is positive and increasing over time. From that, Estevadeordal and Suominen (2008) claim that exporters and producers, by learning how to circumvent restrictive product-specific ROO over time, adjust their production strategies in order to take advantage of the permissive regime-wide ROO provisions.

3.4 Estevadeordal, López-Córdova and Suominen (2008)

Estevadeordal, López-Córdova and Suominen (2008) investigate the potential effects of restrictive ROO on foreign direct investment (FDI) flows through the analysis of NAFTA's product-specific ROO provisions in 122 manufacturing industries (e.g., textiles, food and beverages, chemicals and chemical products, basic metals, etc.) in Mexico from 1994 to 2000. The Trade-FDI nexus has been explored extensively, while the ROO-FDI nexus – according to which ROO might independently encourage inefficient FDI and reallocation of stages of production among FTA members and between members and non-members – is relatively new in the literature.¹⁴ Estevadeordal,

¹⁴ The traditional explanation of the Trade-FDI nexus is that FDI is tariff-jumping: multinational corporations move to produce in the host country in order to avoid the high tariff and to service the host market directly from within. FDI thus flows to industries most protected by tariffs, with trade and capital mobility becoming substitutes (Mundell, 1957; Cokden, 1967; Johnson, 1967; Brecher and Diaz Alejandro,

López-Córdova and Suominen (2008) is the first study analyzing the investment effects of ROO. The authors claim that both restrictive and flexible ROO can attract investment flows because restrictive ROO encourage investment in particular upstream sectors and protectionist downstream sectors, while flexible ROO attract FDI in globalized sectors – sectors involved in the multinational chains of production, where producers expect to rely on global sourcing strategies.¹⁵ Restrictive ROO here refer to ROO that constrain producers to get inputs or produce within the PTA area, rather than from the globally most efficient source. The main finding of the study is that restrictive NAFTA ROO have discouraged FDI in Mexico. Instead, FDI in Mexico has flowed in sectors with flexible ROO post-NAFTA – sectors that have allowed flexibility in sourcing patterns, rather than tying investors to purchasing intermediates or performing production processes in the NAFTA region. Also, they find that the presence of flexible ROO in downstream industries encourages investment in upstream industries.

To begin with, Estevadeordal, López-Córdova and Suominen (2008) provide explanations on the number of ways in which product-specific ROO can affect the incentives to invest in a particular FTA area. Table 3 below presents a non-exhaustive typology of several possible cases.

1977; Bhagwati and Brecher, 1980). The second traditional explanation is that FDI is of the efficiency-seeking rather than the tariff-jumping type, and thus geared to producing at lower costs in the host in order to export subsequently to third markets. Under this assumption, FDI flows to industries with low production costs and to industries with low barriers to trade in intermediaries if these have to be imported to the host from abroad. As such, trade and investment would be complementary (Swedenborg, 1979; Lipsey and Weiss, 1981; Markusen, 1983, Blomstrom, 1988; Head and Ries, 1999; Bloningen, 2000; Donnenfeld and Weber, 2000; Baldwin and Ottaviano, 2001).

¹⁵ Upstream industry refers to an industry that produces or supplies intermediate goods, while downstream industry is an industry that produces or supplies final goods, using intermediate goods.

Table 3: Typology of the ROO-FDI Nexus

Types of ROO	FDI in upstream sectors	FDI in downstream sectors
Restrictive ROO in downstream sectors.	(1) FDI flows from non-FTA country into upstream sectors in FTA country because of higher capital rents in FTA intermediate sectors as a result of restrictive ROO in downstream sectors.	(2) FDI flows from outside the FTA or from small FTA country to large FTA country to serve the largest market without having to fulfill ROO requirements.
Flexible/loose ROO in downstream sectors.	(4) FDI flows from non-FTA country into FTA upstream sectors as flexible ROO in downstream sectors suggest very competitive sectors with a potentially strong demand for upstream sector goods.	(3) FDI flows from non-FTA country to FTA country because ROO are flexible enough to continue to source intermediaries from cheapest world sources.
Flexible/loose ROO in upstream sectors.		(5) FDI flows from non-FTA country into FTA downstream sectors as flexible ROO in upstream sectors suggest very competitive sectors, which will provide a cheap source of intermediaries.

Source: Estevadeordal, López-Córdova and Suominen (2008).

Notes to Table 3:

(1) Restrictive ROO in downstream sectors provide FTA-based producers of intermediate goods higher capital rents, which in turn should attract foreign intermediate producers to locate in the FTA. As well, ROO can modify the margins of comparative advantage between a FTA member and a non-FTA member, expanding the range of intermediate goods produced in the FTA (Rodriguez, 2001) and attracting further FDI.

(2) This is consistent with ROO-jumping FDI that is diverted to a FTA country with a large market size and which originates from both non-member or from FTA members with small market size. Firms would continue to source intermediaries from the cheapest world source without complying with ROO, as their objective is now to service the (large) market from within instead of applying for tariff preference and export to the other (small) members of the FTA.

(3) Flexible and non-binding ROO in downstream sectors will be conducive to investment in downstream industries that source inputs from around the world, but who also want to qualify for preferential status when exporting to another FTA member.

(4) Flexible ROO in downstream sectors may signal to upstream producers the presence of dynamic, globalized and competitive sectors – and then high demand in downstream sectors – whereas strict ROO in downstream sectors may communicate the presence of a dying industry with low prospect for sustained demand. This should induce FDI to the upstream sectors in the FTA.

(5) Non-FTA downstream industries have incentives to invest in a FTA when the ROO governing the upstream industries that supply them are flexible. Indeed, downstream investors may see stringent ROO upstream as a proxy for high external tariffs in upstream industries, that is, an additional signal of the existence of inefficient suppliers. This would eventually complicate the downstream investors' possibilities for tapping into cheap and efficient supplies outside the FTA.

In this general context of table 3 with regard to the effects of both restrictive and flexible ROO on investment flows, it is hardly clear whether restrictive ROO are more conducive to FDI than flexible ROO. Estevadeordal, López-Córdova and Suominen (2008), in the second part of their study make an empirical specification to analyse the effects of ROO on Mexican investment through the estimation of the following equation using OLS:

$$(9) \quad \ln FDI_{it}^{MX} = \beta_0 + \beta_1 \ln(TARIFF_{it}^{MX}) + \beta_2 (FDI-GLOBAL_i^{US}) + \beta_3 (SALARY-DUM2_i^{MX}) + \beta_4 (SALARY-DUM3_i^{MX}) + \beta_5 (PREFERENCE_{it}^{US}) + \beta_6 (FDI-CAP_i^{MX}) + \beta_7 \ln(ROO-RI_i) + \varepsilon_{it},$$

where FDI_{it}^{MX} is the FDI flows in Mexico in industry i in time t ; $TARIFF_{it}^{MX}$ is Mexico's weighted average tariff applied on its FTA partners; $FDI-GLOBAL_i^{US}$ is US FDI flows to the world; $SALARY-DUM2_i^{MX}$ is a dummy variable, which refers to the second tercile of salary levels in Mexico (measured as the level of remunerations/number of workers); $SALARY-DUM3_i^{MX}$ is a dummy variable, which refers to the highest tercile of salary levels in Mexico; $PREFERENCE_{it}^{US}$ is the preferential margin granted by the US to Mexico (measured as the absolute difference between the US tariff to the rest of the world and the US preferential tariff to Mexico); $FDI-CAP_i^{MX}$ is Mexico's imposed ceiling on sectoral FDI inflows under NAFTA (measured as the percentage of ownership by foreign investors that is allowed in a sector); $ROO-RI_i$ is the Estevadeordal ROO restrictiveness index; and ε_{it} is the normally distributed error term. The key independent variable is the Estevadeoradal's NAFTA ROO restrictiveness index, which capture the effects of ROO restrictiveness on the dependent variable, the FDI flows into Mexico. The other independent variables are control factors that can influence FDI.

The authors' estimation reveals that the NAFTA ROO restrictiveness index coefficient has a negative sign (negative effects on investment flows) and is statistically significant. Indeed, NAFTA has played an important role in the location of FDI in Mexico because investments flowed to sectors enjoying deep preferences from the U.S. and few restrictions on FDI under NAFTA in Mexico. The main finding of Estevadeordal, López-Córdova and Suominen (2008) is that restrictive NAFTA ROO have discouraged FDI in Mexico and that FDI in Mexico have flowed into sectors with flexible ROO post-NAFTA – sectors that allow flexibility in sourcing patterns, rather than tying investors to purchasing intermediates or performing production processes in the NAFTA region. In addition, results for the control variables add further light on the ROO-FDI nexus. For instance, the authors point out that the positive and statistically significant sign on the highest salary tercile ($SALARY-DUM3_i^{MX}$) suggests that investment has sought out skilled labor.

Secondly, noting that NAFTA ROO restrictiveness could be a function of the depth of preferences offered by the U.S. to Mexico, the authors use a variation of Equation (9) to explore this hypothesis. To do so, they add another independent variable ($ROO-RI * PREFERENCE_{it}^{US}$) that is the interaction term of the ROO restrictiveness index and the US preferential margin in Equation (9). The positive and statistically significant coefficient of this new independent variable indicates that ROO restrictiveness and tariff preferences do not operate independently. As upstream sectors have an interest in the ROO governing downstream sectors, downstream sectors also have incentives to consider ROO governing upstream sectors. This leads to the second result of the study

that investors are more willing to bear the potentially heightened production costs entailed by stringent ROO when the lure of tariff preference for doing so is strong.

In addition, using another variation of Equation (9) in order to demonstrate that downstream sectors are concerned about restrictive ROO in upstream sectors, they find a negative and statistically significant sign for the ROO-RI-DOWN_{*i*} variable.¹⁶ This result suggests that upstream investors located in Mexico have entered sectors whose downstream investors have flexible ROO, and not because they want to benefit from stringent ROO in downstream sectors. This suggests that the upstream suppliers are efficient and able to competitively supply downstream customers that have the option to supply outside the NAFTA region. They also claim that flexible ROO in downstream sectors may signal to upstream producers the presence of dynamic, globalized, and competitive sectors – and then high demand for downstream sectors – whereas strict ROO downstream may communicate the presence of a dying industry with low prospect for sustained demand.

3.5 Kunimoto and Sawchuk (2005)

The purpose of Kunimoto and Sawchuk's (2005) study is to examine the determinants of NAFTA preference utilization rates and the impact of NAFTA ROO on these utilization rates for the period 1989 to 2003. They use a revealed preference approach to approximate the costs of NAFTA ROO (administrative and compliance costs) in the Canada-U.S. bilateral trade. Administrative costs are costs incurred by governments in administering, implementing and monitoring the ROO system. Compliance costs are costs associated with filling out forms to meet customs

¹⁶ ROO-RI-DOWN is the restrictiveness of ROO in downstream sectors that industry *i* supplies.

requirements or the monetary costs committed by producers, exporters or importers in order to satisfy ROO requirements and to obtain the preferential treatment. The study focuses on compliance costs and tries to explain the determinants of NAFTA preference utilization rates, as well as MFN tariff utilization rates on US imports from Canada. Kunimoto and Sawchuk's (2005) main finding is that the higher the MFN tariff rates, the greater is the use of NAFTA preference utilization rates; contrarily, the more restrictive NAFTA ROO, the lower the NAFTA preference utilization rates.

The authors mention that earlier studies, which attempt to measure the compliance or administrative costs of ROO, are based on pre-computer technology procedures or paper-intensive systems in order to estimate the costs to meet ROO requirements.¹⁷ One such study by Herin (1986) estimates the compliance costs of the ROO of the European FTA (EFTA) to be 3 to 5 percent of the price of the good. However, Herin's study introduces for the first time a revealed preference approach also used by Kunimoto and Sawchuk (2005) to determine the compliance cost of ROO. As explained by Tapp (2007), a revealed preference approach uses the compliance costs of firms or importers to infer ROO costs. More specifically, Cadot et al. (2002) and Carrère and de Melo (2004) specify (in the case of NAFTA) the overall compliance cost to import the *ith* good, *ci* to be:

$$(7) \quad ci = i + \sigma i ,$$

where *i* is NAFTA ROO compliance costs and σi is associated with the non-ROO costs.

If NAFTA preference utilization rates (U_i) are 100% for the *ith* good, it means that the NAFTA tariff preference or the preference margin is “revealed” larger than the overall

¹⁷ The compliance costs can be estimated as the percentage of the pre-computer technology procedures on the total value of PTA-members exports; or the percentage of the value of the paper-intensive system transactions on the price of an imported good by a PTA-member.

compliance costs. Therefore, the preference margin is used to provide the upper-bound estimate of the overall compliance costs.¹⁸ However, if NAFTA utilization rates (U_i) are 0%, the compliance costs are “revealed” higher than the NAFTA tariff preference and this provides the lower-bound estimate for the compliance costs.

$U_i = 100\%$ if $MFN\ tariff - PTA\ tariff > ci = i + \sigma i$. (Preference is higher than compliance cost and exporters apply for PTA tariff instead of MFN tariff and document origin of the goods).

$U_i = 0\%$ if $MFN\ tariff - PTA\ tariff < ci = i + \sigma i$. (Preference is lower than compliance cost and exporters apply for MFN tariff instead of PTA tariff and do not bother to document origin of the goods).

The basic idea here is that exporters in the intra-PTA area will apply for the PTA tariff rates and document the origin of the good they are shipping if the compliance costs are less than the preference margin, while they will prefer the MFN tariff rate if the compliance costs – especially ROO compliance costs – are greater than the preference margin. Having the upper bound estimate of the overall compliance costs – derived from the preference margin – and the non-ROO costs, it is easy to obtain the NAFTA ROO costs, which are assumed equal to the (upper bound) overall compliance costs minus the non-ROO compliance costs.

Based on this approach, Kunimoto and Sawchuk (2005) approximate the upper bound of NAFTA ROO compliance costs on imports from Canada to the U.S. in 2003. They find that the overall compliance costs are 5.3% of the price of the imported goods, and the non-ROO costs associated are 4.3%. From that, they estimate that the NAFTA ROO compliance costs equal 1.0% (5.3% - 4.3%) of the price of imported goods from

¹⁸ The utilization rate is derived from the percentage of the total trade that occurs between PTA members on a preferential basis. The tariff preference is the MFN tariff minus the PTA tariff for good i .

Canada to the U.S. They do so in order to demonstrate that NAFTA ROO are costly, which can alter the expected benefits of NAFTA if traders decide not to apply for preferential tariffs.

Furthermore, Kunimoto and Sawchuk (2005) examine the evolution in the U.S imports from Canada under NAFTA preference tariff rates versus MFN tariff rates by examining the size of duty-free and dutiable imports over fifteen years (1989 – 2003). With regard to U.S imports from Canada, they show that in 1998, 68% of total U.S. imports from Canada entered under NAFTA tariff utilization rates, while 32% used MFN tariff rates. However, they point out that in 2002, 54% of total US imports from Canada entered under NAFTA utilization rates, while 45% entered at the MFN tariff rates. The authors also report that the year 1998 witnessed the start of accelerated growth in U.S. imports from Canada under MFN tariff rates, while US imports under NAFTA preference utilization rates started to decline. After a decrease from 68% in 1998 to 54% in 2002, NAFTA preference utilization rates stabilized around that level. Secondly, when they disaggregate US imports from Canada under NAFTA preference into dutiable and duty-free imports, Kunimoto and Sawchuk (2005) find that although the NAFTA duty-free component was initially the smaller, the duty-free component has risen quickly, so that by 1997, U.S. imports from Canada under NAFTA preference were almost exclusively duty-free. This pattern of NAFTA dutiable and duty-free imports is thus a reflection of the phasing-in of the NAFTA tariff reductions between Canada and the U.S. – that started in 1989 with the Canada-U.S. FTA.

Regarding the pattern of MFN/NAFTA utilization rates between 1998 and 2002, this can be explained by the fact that while most of NAFTA tariff rates were already

duty-free by 1997, MFN tariff rates continued to be reduced in accordance with the phasing out calendar of the Uruguay Round measures, supporting the erosion of NAFTA preference utilization rates over time, especially after 1997. To explain the economic impact of tariff preference erosion, Kunimoto and Sawchuk (2005) introduce tariff preferences, together with the ROO index of *ex ante* restrictiveness based on Estevadeordal (2000), as independent variables to explain tariff preference utilization rates. Kunimoto and Sawchuk's (2005) estimation equation is as follows:

$$(8) \quad \ln U = \beta_0 + \beta_1 \ln \tau + \beta_2 \ln r + \delta D,$$

where U is NAFTA utilization rates; τ is the tariff preference rate calculated as $(t^{\text{MFN}} - t^{\text{NAFTA}}) / (1 + t^{\text{NAFTA}})$ where t is the tariff rate; r is Estevadeordal ROO restrictiveness index of the i th good; and D is a sector dummy variable. The sector dummy variable is included in order to capture the heterogeneity within certain sectors. Using HS section level data, the results reveal a positive and statistically significant coefficient associated with tariff preference rates. This means that tariff preference rates have a positive effect on NAFTA preference utilization. This finding tells us that the greater the tariff preference (high MFN tariff rate), the larger the use of NAFTA tariff rates. Indirectly, we can say that the lower the tariff preference (low MFN tariff rate), the greater the use of MFN tariff rates. This is Kunimoto and Sawchuk's (2005) main finding, and, as mentioned above, this result explains why utilization rates have fallen since 1998, as tariff preference was reduced due to the phasing out of Uruguay Round measures, which made NAFTA less attractive to Canadian exporters.

In addition, as the Estevadeordal ROO index was not significant in the estimation, the authors employ a chapter change dummy variable (CC dummy) as an alternative,

which takes the value of 1 if $r \geq 6$ and 0 otherwise. The coefficient of the CC dummy variable shows a negative sign. This change allows Kunimoto and Sawchuk (2005) to state that a change in tariff classification at the chapter level as a ROO criterion reduces NAFTA utilization rates. This is another finding of the study, but while it means that the more restrictive are NAFTA ROO, the less are NAFTA utilization rates, the coefficient of the CC dummy variable is not statistically significant in the study.

3.6 Kerry Chase (2007, 2008)

The objective of Chase's (2007, 2008) papers is to investigate the influence at the industry level of ROO restrictiveness in a political economy manner. As indicated by Tapp (2007), the political economy approach treats ROO as an outcome of industry lobbying and/or voting process. Industries attempt to influence the outcome of FTAs through lobbying for stringent or lenient ROO. In the case of NAFTA ROO, Chase (2007, 2008) argues that there are three main factors that can explain the motives for organized industry groups to lobby in order to influence ROO: the size of returns to scale, the multi-stage production and the external trade protection. Using a two-stage Tobit model and controlling for other pre-existing barriers to trade, the author examines the way that U.S. industries conditioned ROO in NAFTA. He finds that the more restrictive the ROO, the higher the external trade protection and the larger the returns to scale; and the more permissive the ROO, the greater the participation in offshore production and involvement in foreign sourcing.

The author begins his analysis by acknowledging that given the complexity and technical nature of ROO, there are three major reasons explaining why industry groups try to influence the structure of ROO. First, to gain support from the industry, trade

negotiators for a FTA have to carefully negotiate product-specific or regime-wide ROO provisions that please FTA producers, in order to avoid products or sectors being excluded from the coverage of FTAs. Industries have the incentives to press for ROO that match their needs. Secondly, if trade negotiators lack sufficient technical background – expertise in the process of originating a product and relevant knowledge of the HS system – they will rely on industries for advice, which, in turn, will push for ROO that fit with their position. Thirdly, because of information asymmetries, those who have a strong stake in how ROO are designed (e.g., industries) lobby to favor their interests, while those who have weak knowledge of ROO (e.g., average citizens) and are marginally affected do not influence the determination of ROO.

Chase (2007, 2008) presents a theory and three testable hypotheses that can explain the motives for organized lobbying by industries to influence the design of ROO. The objective of the author is to provide a theoretical framework to identify conditions under which industries push for either restrictive or permissive ROO, and then to provide empirical estimates. Chase (2007, 2008) distinguishes three main factors that may explain industries' influence on ROO: the returns to scale in production, the multi-stage production and the external trade protection.

With regard to the returns to scale in production, the author states that gains of a FTA are correlated with the size of the economies of scale, noting that FTA producers benefit from an enlarged opened market with barriers against competition from non-FTA imports that is beneficial for them. To explain producers' economies of scale in a FTA, the author argues that the elimination of tariffs between members of the FTA creates incentives for firms to concentrate production for the entire FTA market at one or fewer

locations. This is the case because consolidating fragmented operations as well as expanding output reduces unit costs that can generate economies of scale. Indeed, industries with large returns to scale gain more from a FTA in the presence of prohibitive ROO because these rules restrain entry of foreign rivals in the FTA market. Entry of foreign rivals can reduce the opportunity for FTA producers to concentrate in the production and can fragment the market. The author contends that the marginal benefit of additional restrictiveness of ROO increases with large returns to scale. This leads to the first hypothesis, which is:

H1: The larger the returns to scale in production, the more restrictive the ROO for which industry groups will lobby

Regarding the multi-stage production or the multinational supply chains, where different stages across national borders are involved in the production, Chase (2007, 2008) indicates that FTA producers that import and use non-originating inputs in their production risk losing free trade privileges. In fact, the more FTA producers employ non-originating inputs in production, the harder it is to differentiate their goods from non-FTA goods. Therefore, restrictive ROO may disrupt the offshore procurement of FTA producers. In addition, if FTA producers face higher production costs because they produce within multinational supply chains and their inputs cannot obtain the preferential advantages, then they will lobby for lenient ROO. The author argues that FTA producers with multi-stage production are likely to seek less restrictive ROO. From this evidence, Chase's (2007, 2008) second hypothesis is that:

H2: The greater the dependence on multi-stage production, the more permissive the ROO for which industry groups will lobby, especially when stages of production are located outside the FTA.

Finally, concerning the external trade protection, the author argues that there are two reasons that explain how external trade protection influences industries to lobby for ROO. The first reason is related to tariff barriers to trade. He states that highly protected industries have incentives to seek restrictive ROO in order to prevent non-FTA imports entering via the lowest tariff country in the FTA area (i.e., in order to prevent trade deflection). High tariffs can generate rents for both intermediate and final goods producers within the FTA. The author also claims that final goods producers, in the presence of stringent ROO, are encouraged to shift procurement for intermediate goods from low-cost sources outside the FTA to high cost FTA producers in order to meet ROO requirements. This increases demand and raises prices for FTA intermediate goods. The second reason is related to non-tariff barriers to trade. Chase indicates that industries that are protected from import competition such as quotas, safeguards or antidumping and countervailing duties, lobby for restrictive ROO in order to deter non-FTA industries from investing and therefore producing inside the FTA as a way to evade non-tariff barriers. The third hypothesis is thus:

H3: The higher the level of external trade protection, the more restrictive the ROO for which industry groups will lobby.

In sum, the author's hypotheses are: the larger the returns to scale in production, the more restrictive are ROO; the more industries depend on multi-stage production, the more

permissive are ROO; and the higher the level of external trade protection, the more stringent are ROO.

The author tests these hypotheses by analysing U.S. industries' influence in negotiated NAFTA ROO. The dependent variable is NAFTA Origin Rule, which is derived from the Estevadeordal's (2000) ROO restrictiveness index (see Section 3.1). Based on the hypotheses drawn in the theoretical section, Chase (2007, 2008) generates three crucial independent variables. To compute the returns to scale variable, he calculates value added variations per worker in plants of different sizes to estimate the slope of industry cost curves. Values of measurement near or at zero indicate constant returns to scale, while negative values indicate diseconomies of scale and positive values indicate economies of scale. Secondly, imports under the Offshore Assembly Program (OAP) as a share of total shipments, are used to measure the multi-stage production, and this permits to generate the Offshore Assembly variable. OAP measures the multi-stage production because it includes subcontracting between offshore outsourcing and trade between affiliated firms. Thirdly, to account for the level of external trade protection, the author employs both tariffs and non-tariff barriers, and creates two independent variables named MFN tariffs and NTB coverage.¹⁹ Because of a potential endogeneity problem that may occur if MFN tariffs and NTB coverage are used to directly estimate NAFTA Origin Rule, the author implements a two-stage tobit model estimation.²⁰ In the first

¹⁹ MFN tariffs are duties collected divided by U.S imports for all countries that are not part of a FTA with the United States. NTB coverage is a coverage ratio measuring the percentage of industry imports that are subject to a non-tariff barrier in the U.S market.

²⁰ A potential endogeneity problem occurs because some of the factors that condition restrictiveness ROO also influence tariffs and non-tariffs barriers. To correct for this endogeneity that can bias the estimate of NAFTA Origin Rule, exogenous factors that influence MFN tariffs and NTB coverage but not NAFTA Origin Rule are used as instruments in the first stage of the empirical estimates. Then, the predicted values of MFN tariffs and NTB coverage are used in the second stage of the estimate in order to analyse the effects on NAFTA Origin Rule.

stage, he uses instrumental variables (e.g., intermediates imports, finished imports, hourly wage, R&D employment and capital-labor ratio) to predict the values for MFN tariffs and NTB coverage. The basic idea here is to produce unbiased estimates for the dependent variable, NAFTA Origin Rule, by using exogenous factors that affect MFN tariffs and NTB coverage, but are not relevant and not directly related to NAFTA Origin Rule in the first stage of estimates. Using the predicted values of key independent variables, together with other control variables Chase estimates NAFTA Origin Rule in the second stage. MFN tariffs and NTB coverage are added one at a time (as instrumented variables), in order to estimate NAFTA Origin Rule in the second stage. The control variables included in the model in order to capture organizational and institutional influence of industries are: Industries Concentration, which refers to the share of total shipments by the four largest firms; Geographic Concentration that refers to geographical concentration of industries; Electoral Concentration, which is Herfindhal's index of industry concentration through electoral districts; Industry Size, which is the total employment in the industry; Large, Decentralized Industries refers to an interactive term, which is the inverse of Electoral Concentration divided by Industry Size; and the Democratic Leadership and Republican Leadership variables, which refer to the number of democratic and republican representatives to the Committee of Ways and Means in the U.S. Congress who have industries located in their districts.²¹

Chase (2007, 2008) finds that the returns to scale variable has a positive sign (positive effects on NAFTA ROO), and is a statistically significant variable explaining NAFTA Origin Rule. Therefore, the larger the returns to scale in production, the more

²¹ This information is obtained by matching industry location by city and country, and only industries with 250 or more employees in a district are taken into account.

restrictive the ROO are. This is the first main conclusion of the author. In addition, the negative and statistically significant sign of the Offshore Assembly coefficient means that the multi-stage production motivates industries to lobby against restrictive ROO. Therefore, Chase's second conclusion is that industry groups will lobby more actively for permissive ROO the greater the dependence on multi-stage production, especially when stages of production are located outside the FTA. Finally, both instrumented variables MFN tariffs and NTB coverage have a positive and statistically significant coefficient, which reveals that industries with higher tariffs and non-tariff barriers favor restrictive ROO. This is Chase's third conclusion, that industry groups will lobby more actively for restrictive ROO the higher the level of external trade protection.

4. CONCLUSION

The ongoing spread of PTAs around the globe, as well as the growing importance of contingent and selective trade measures indicate that ROO will grow in importance in the future. Often presented as gatekeepers of preferential trading, the diversity of ROO across PTAs and the compliance costs faced by exporters who apply for the tariff preference can limit trading benefits. The aim of this major research paper has been to examine the economic impact of ROO in FTAs through reviewing some of the most important econometric literature in this regard.

Using an ordered probit model, Estevadeordal (2000) builds the NAFTA ROO restrictiveness index and recognizes that ROO under NAFTA are the most restrictive among other FTAs. In line with other studies, he demonstrates that ROO are used as a policy instrument against trade deflection. Suominen (2004) finds that ROO play a crucial role in the speed/timing of the preferential tariff liberalization with respect to the

phase-out sectoral schedule and in the frequency of sectoral exclusion in PTAs. Estevadeordal and Suominen (2008) employ a gravity model to point out four major results that: the restrictiveness and sectoral variability of ROO have a negative impact on aggregate trade flows; a set of regime-wide ROO boosts trade flows; restrictive ROO, as well as the variability of ROO at the sectoral level for final goods increase trade in intermediate goods; and exporters and producers learn over time to conform to restrictive ROO, which results *ex post* in a decrease in the relevance of ROO. Estevadeordal, López-Córdova and Suominen (2006) reveal that restrictive NAFTA ROO discourage FDI in Mexico and that the presence of flexible ROO in downstream industries encourages investment in upstream industries. Kunimoto and Sawchuk (2006) use a revealed preference approach to approximate the cost of NAFTA ROO and arrive at the conclusion that the higher the MFN tariff rates, the greater the use of NAFTA preference utilization rates; contrarily, the more restrictive the NAFTA ROO, the lower the NAFTA preference utilization rates. Finally, as ROO are the results of different coalitions across borders and active lobby across sectors, Chase (2007, 2008) argues that the more restrictive the ROO, the higher the external trade protection and the larger the returns to scale; and the more permissive the ROO, the greater the participation in offshore production and involvement in foreign sourcing.

As we can notice through the review, NAFTA ROO are costly, complex and differ from one FTA to another. In this general context, Georges (2010) has reviewed the position of various economists. Some economists call for simplification or harmonization of NAFTA ROO between sectors and across PTA.²² Others propose taming ROO by

²² It seems reasonable enough to suggest an across the-board standard instead of the current heterogeneous rules across sectors (e.g., NAFTA triple transformation test in the textile/apparel sectors or the 62.5% test

binding or capping their restrictiveness, and then progressively reducing their restrictiveness to an appropriate level that allows the rules to continue their essential role of gatekeepers of preferential trading. For instance, Hirsch (2002) proposes harmonizing the methods that determine the origin of goods by converting tariff shift and technical tests into a local content percentage rate, a procedure that will be equivalent to the process of tariffication applied on non-tariff barriers at the WTO. Indeed, the WTO agreement on ROO, which covers only non-preferential ROO, aims for the harmonization of non-preferential ROO under the HS. While the agreement on ROO requires WTO members to ensure that their rules of origin are transparent and are administered in a consistent, uniform and reasonable manner based on a positive standard, the long and ongoing work on the harmonization of non-preferential ROO may suggest that the harmonization of preferential ROO could be difficult to manage in practice.

What are the trade policy options for Canada as the restrictiveness of ROO erodes NAFTA benefits? The first trade policy option could be for Canada to move from a FTA to a CU with the U.S. Dymond and Hart (2005) mention that pursuing a North American CU is viable for Canada and would generate major economic benefits. As mentioned in Section 2, a FTA requires preferential ROO to prevent trade deflection, while a CU does not. The harmonization of external trade policies and the negotiation of a CET with non-members would eliminate trade deflection, and thus the need to employ preferential ROO. Moreover, Georges (2008b) argues that, interest of welfare measures NAFTA ROO liberalization matters more than a CET for Canada, noting that negotiating a CU

in the automobile sector). In practice, however, as argued by Destler (2006), harmonization across sectors would be difficult to achieve on a large scale simply because these rules resulted from hardly-disputed sector-specific negotiations, and their current settings matter a great deal to producers. ROO should not be viewed as a deal between nations, but instead as a deal between private business interests and governments that is needed to obtain their support in the legislative battle.

with the U.S. would be long and challenging, but feasible.²³ The second trade policy option for Canada could be a multilateral approach to trade liberalization at the WTO. Indeed, WTO negotiations for free trading through the lowering of MFN tariffs remain, in theory, the best way for Canada to maximize its gain from trade. As Bhagwati (2008) states, the cure to the PTAs pandemic is to progressively reduce the MFN tariff to zero, a situation which would eliminate the preferences in PTAs and make them worthless. Canada should not neglect the importance of the multilateral trading system at the WTO, and should continue to work hard toward the success of the multilateral round of negotiations. In the end, Georges (2010) demonstrates that a CU is a second best option for Canada, and that the multilateral approach at the WTO remains the first best option for Canada, with the largest economic gains in terms of GDP and welfare. Understanding the economic cost of ROO in FTAs, as well as the cost of trade-unrelated issues (e.g., domestic environment issues, intellectual property or labor standards) imposed by some countries, is the necessary condition for a strong policy guidance that will ensure all countries come back to the WTO table of negotiation, in order to renew MFN tariff liberalization and eliminate the perverse effects of preferential trading, especially restrictive ROO.

²³ The first technical challenge within the negotiation of a North American CU is the harmonization of trade policies among NAFTA members. This is not only related to selecting a CET or to liberalizing NAFTA ROO; rather, it requires the eventual reconciliation of the ROO used in each FTA NAFTA members are part of, which can be difficult regarding the numerous FTAs involved in the region. For instance, acknowledging that Canada is currently negotiating many FTAs around the world, the harmonization process that will occur in the presence of a CU could be long and costly. The second challenge moving from a FTA to a CU involves dealing with interest groups who intensively lobby against ROO liberalization, and therefore, against the agenda for a North American CU that would make ROO redundant.

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