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## **RULES OF ORIGIN AND THE USE OF FREE TRADE AGREEMENTS**

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### ***Abstract***

*The main points of this paper were presented at the first Global Conference of the International Network of Customs Universities on May 21-23, 2014 in Baku, the Azerbaijan Republic.*

*One of the key reasons for countries to enter into bilateral or regional Free Trade Agreements (FTAs) is to eliminate tariff- and non-tariff barriers between or among them. Despite the proliferation, however, many companies elect not to utilize FTAs due to the regulatory burdens imposed by FTAs' core provisions, i.e. the Rules of Origin (RoOs). Research on RoOs, however, is in its infancy, and very little has been done in the way of assessing the regulatory and administrative influences of RoOs.*

*This paper briefly considers the broader historical context of the proliferation and the underutilization of FTAs, including how RoOs came to attract researchers' attention. It, then, examines studies on RoOs and the aspects of RoOs that have been the subject of research.*

*Studies have suggested an obvious interconnection among RoOs' design, administration, and the use of FTAs. In this respect, this paper proposes that a new framework of research will complement the existing work in helping us to understand the interconnection from an administrative perspective. In constituting this framework, it is also suggested that adopting the methodologies of trade facilitation studies or tax compliance studies is a good start. By doing so, this paper provides that research into RoOs will enhance our knowledge on the cost side of FTAs.*

*Key words: Free Trade Agreements, Rules of Origin, multilateral trade liberalization, Underutilization of FTA*

### **Introduction**

One of the key reasons countries enter into bilateral or regional Free Trade Agreements (FTAs) is to eliminate tariff- and non-tariff barriers between or among them. The number of FTAs has increased rapidly since the mid-1990s. As of January 2012, the World Trade Organization (WTO) reported that 319 FTAs were in force, and a further 511 FTAs were under negotiation. However, despite this proliferation, many companies either underutilize FTAs or neglect to use them entirely. For example, the average utilization ratio of the North American Free Trade Agreement (NAFTA) was around 64 % in 2000, and in the case of the ASEAN FTA (AFTA), below ten percent was utilized in 2002 (Baldwin, 2006). Researchers have argued that the underutilization of FTAs diminishes the impact of such agreements on worldwide free trade and, as a consequence, undermines the incentive for unaffiliated nations to form new agreements (Baldwin, 2005).

The Rules of Origin (RoOs)<sup>1</sup> are often named as the primary reason why FTAs are

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<sup>1</sup> Rules of Origin (RoOs) are classified as preferential rules and non-preferential rules. Non-preferential RoOs are usually applied to impose quotas, countervailing, or anti-dumping duties. Preferential RoOs set criteria for determining the eligibility of certain trade preferences. In the current research, "RoOs" refer to the preferential RoOs.

underutilized. FTAs liberalize trade on the basis of a product's origin using RoOs, which designate a product's origin in order to determine its eligibility for preferential tariff rates (Brenton & Imagawa, 2005). As FTAs continue to proliferate, these rules are becoming more and more complex, much like a "spaghetti bowl" in which tariffs and rules vary according to a product's origin (Bhagwati, 1995, p. 4). Because of the costs of administering and complying with such complex RoOs, companies often elect not to use FTAs. In addressing the underutilization of FTAs, therefore, it is imperative to understand the detailed regulatory and administrative aspects of the RoOs.

Research on RoOs, however, is in its infancy. Studies on RoOs in the early 1990s were undertaken primarily by researchers from political economic backgrounds, and, consequently, the RoOs were viewed mostly in terms of their being instruments of commercial policy (Falvey & Reed, 1998; Krishna & Krueger, 1995; Krueger, 1993). Since then, studies have been conducted to explore the administrative impact of RoOs, but these have exclusively emphasized the trade policy aspects of RoOs, such as the trade-restricting legal criteria of the rules (Anson et al., 2003; Estevadeordal & Suominen, 2008; Harris, 2007; Piermartini & Budetta, 2006). As a result, very little has been done in the way of assessing and measuring the regulatory and administrative influences of RoOs.

The principal objective of this paper is to make available in a single source a brief overview of research conducted on RoOs. This paper also includes literature on trade facilitation and taxation in order to explore other possible methodologies that could be applied to future research on the administration of RoOs. In so doing, this work will introduce prospective researchers in this area to the issues and research methodologies used.

This paper focuses on studies that have been undertaken on RoOs. The first section briefly considers the broader historical context of the proliferation and underutilization of FTAs, including how RoOs came to attract researchers' attention. The second section examines studies on RoOs and is followed by a third section which focuses on aspects of RoOs that have been the subject of research. An analysis of the different methodologies employed in related study areas are dealt with in section four. The concluding section summarizes the major outcomes of these studies and anticipates the future direction of research and research design in this area.

## **1. Historical Context: RoOs and the Underutilization of FTAs**

The primary focus of FTA studies has been on the debate over the desirability of FTAs as instruments of trade liberalization (Panagariya, 1999). Proponents of FTAs often assert that FTAs are intended to be 'WTO-plus' arrangements that seek freer trade among like-minded trading nations. Conversely, multilateralists contend that FTAs are a major departure from the Most-Favoured-Nation (MFN) principle of the General Agreement on Tariffs and Trade (GATT) and detract from true liberalization (Krueger, 1997, p. 10).

Bhagwati (1993), and Bhagwati and Panagariya (1996) describe the proliferation of FTAs as having occurred in two phases: initially, in the first regionalism in the 1960s, and, subsequently, in the second post-1980s regionalism. Panagariya (1999) explains that, until the European Community (EC) and the US started a race toward regionally-based trade liberalization in early 1980s, effective preferential trade agreements, including FTAs, were regarded as limited to the EC. Since then, the race between the two economic giants has initiated the proliferation of FTAs in Africa, Latin America, South and Central Asia, Central and Eastern Europe, and the Baltic Republics.

Bhagwati, Greenaway, and Panagariya (1998) note that studies of the first regionalism have focused principally on analyzing the immediate effect FTAs have on welfare, using the approaches established by Jacob Viner. Viner (1950) concluded that FTAs (or Customs Unions) are more trade-diverting <sub>ENREF\_79</sub> than trade-creating, and that, overall, they are harmful to the world's welfare. However, Lipsey (1960), Wonnacott and Lutz (1989), and Kemp and Wan (1976) who reworked the

Vinerian approach suggest that, for certain countries or in certain types of preferential arrangements, such as in Customs Unions, preferential arrangements can be welfare-enhancing.

Studies on the second regionalism focus on estimating whether the long-term consequences of FTAs should be considered ‘stumbling blocks’ or ‘building blocks’ toward multilateral trade liberalization (Bhagwati, 1993). Krishna (1998), Lim<sup>o</sup> (2006), McLaren (2002) Piermartini and Budetta (2006) contend that FTAs are a stumbling block in the way of multilateral trade liberalization. They suggest that the sway of vested interests, the abuse of bargaining power, or the costs of adjusting the standards under FTAs might lock countries into regional preferential arrangements and thwart further progress into multilateral liberalization. An opposing view is presented by Baldwin (1993), who suggests that the “spaghetti bowl” of proliferating FTAs will ultimately contribute to multilateral liberalization, and that this most likely will result in the rise of incompatible RoOs within a fast-changing and fragmented production environment. The costs of complying with such rules, he contends, will motivate business to force governments to harmonize the rules based on the rules of already-existing FTAs. Thus, he asserts that the currently proliferating FTAs can be building blocks for harmonization and multilateral trade liberalization.

Studies featuring both the ‘building-block’ and ‘stumbling-block’ views suggest that the underutilization of FTAs is the primary hurdle in the realization of freer trade. Baldwin (2005) contends that underutilization reduces the incentives for non-members to enter into new FTAs and thereby delays the expansion of FTAs membership. Bhagwati et al. (1998) and Panagariya (1999) argue that, as FTAs proliferate, the mechanism of FTAs in liberalizing trade, which is based on the origin of product, will become more and more complex, ? la the “Spaghetti Bowl” (Bhagwati, 1993). They explain that the spaghetti bowl of FTAs increases the cost of cutting trade barriers and thereby stymies the full realization of freer trade under FTAs.

Interestingly, despite growing concern over the underutilization of FTAs, studies on FTA usage are very limited in scope (Hayakawa, Kim, & Lee, 2012). Such studies typically exploit the utilization ratio of FTAs. This ratio represents “the share of exports from the party countries to the other party countries that are actually granted the preferential tariff rate” (Augier, Gasiorek, & Lai Tong, 2005, p. 576). However, the primary difficulty in studying the use of FTAs is that this ratio is not always available for every FTA (Manchin & Pelkmans-Balaoing, 2007a). To assess utilization, therefore, some researchers have used trade data or Customs records (Athukorala & Kohpaiboon, 2011; Hayakawa et al., 2012; Manchin & Pelkmans-Balaoing, 2007a). Others have conducted firm-level surveys (Hiratsuka, Isono, Sato, & Umezaki, 2008; Kawai & Wignaraja, 2009). For the most part, this research has been undertaken to study the underutilization of Asian FTAs and the General System of Preference (GSP).

From the political economic context, Baldwin (2005) provides a general overview of the factors that have resulted in the underutilization of FTAs in Asia. The high degree of inter-regional trade in parts and components characterizes the manufacturing climate of Asian countries. Due to their high degree of inter-dependence, in the 1990s Asian countries acted unilaterally to cut tariffs on certain parts and components. This voluntary tariff-cut has marginalized the attractiveness of preferential tariffs under the AFTA. Additionally, Baldwin suggests that the cost of complying with RoOs further marginalized the AFTA by making utilizing it less preferable. Manchin and Pelkmans-Balaoing (2007a) also suggest that the preference margin under the AFTA is not sufficient to cover the costs required to generate the preference. Furthermore, even if the AFTA’s RoOs are generally very flexible, they are still very restrictive in terms of the local content ratio of the products that are manufactured in ASEAN countries.

Kawai and Wignaraja (2009), Katsuhide and Shujiro (2008), Athukorala and Kohpaiboon (2011), and Hayakawa et al. (2012) also suggest that insufficient information on FTAs, small

preference margins, delays, and costs associated with the RoOs are the most common reasons for the non-use of FTAs.

Studies on the utilization of the GSP scheme suggest similar reasons for the low utilization. Brenton and Manchin (2003), Francois, Hoekman, and Manchin (2006), and Bureau, Chakir, and Gallezot (2007) have investigated the utilization of the GSP, and contend that the administrative burden of LDCs in proving the origin of products is the major hurdle for realizing the full benefit of the preference. They conclude, “what matters is not just the level of border barriers but the rules that govern the way they are administered” (Brenton & Manchin, 2003, p. 756). Appendix 1 summarizes studies on underutilization of the preferential tariffs mentioned in this section.

Though the evidence from the studies suggests various reasons for the underutilization of FTAs, RoOs are most often named as the primary factor responsible for this outcome. Such arguments have contributed to increased interest in RoOs, both by independent researchers and governments. The degree of coverage has varied. Some political and economic aspects of RoOs have received near comprehensive coverage while other administrative aspects are currently under-researched. This analysis will now turn to the scope and outcomes of studies that have been conducted on RoOs.

## **2. The Scope and Outcomes of Studies on RoOs**

Studies of RoOs have been undertaken by researchers largely from political and economic backgrounds, and these typically support the ‘building-block’ view of FTAs (for example, Estevadeordal, Harris, and Suominen (2007)). Other researchers have noted that approaches to trade facilitation studies can be used to address certain administrative issues of RoOs (Harris & Staples, 2009; Izam, 2003; James, 2006; Messerlin & Zarrouk, 2000). However, there has been no serious study utilizing such approaches, and the administrative issues of RoOs have received less attention from researchers than the political issues have.

Estevadeordal et al. (2007) summarize two key aspects of the RoOs that were the subject of their research: restrictiveness and divergence. While “restrictiveness” refers to the aspect of RoOs that restrict trade under FTAs, “divergence” denotes the divergent RoOs that differ across FTAs and products within an FTA. Though few studies embrace other issues concerning RoOs, most studies have been devoted to assessing these two aspects.

Where the research has been on the restrictiveness of RoOs, studies emphasize the ways RoOs function as discriminatory trade regimes and the influence they exert in this capacity. Vermulst (1992) and Krishna and Krueger (1995) state that RoOs employ different methodological discriminations, and these have varying degrees of stringency. Ju and Krishna (1998) contend that restrictive RoOs require firms to use ineffective members’ input for the production of finished goods. Falvey and Reed (1998) postulate the requirements of RoOs as content protection, which means the “constraints imposed on a foreign firm; that it use a certain proportion of domestic input in its total input in order to sell in the domestic market” (p. 219). LaNasa III (1993) argues that countries and trade blocs are exploiting such RoOs as new mechanisms to protect domestic industries and promote the relocation of manufacturing processes within the trade area. As Krueger (1993) contends, RoOs are found to extend protection to the exporters and producers of finished goods “in avoiding competition from producers with access to cheaper intermediate goods” from non-party countries (Pg. 21). Estevadeordal (1999) and Estevadeordal and Suominen (2004) argue that tariffs and the restrictiveness of RoOs are the result of the same political economy. Thus, the greater the preference margin, the stricter the requirements imposed by RoOs.

The complexity that results from the diversity of RoOs has been examined frequently based on the estimated cost of complying with such rules (Anson et al., 2005; Anson et al., 2003; Carrere & De Melo, 2004; Estevadeordal et al., 2007). Anson et al. (2003) suggest that the compliance costs of RoOs largely negate preferential access under FTAs, and that the compliance costs of RoOs amount to

six percent of a product's export value, which is higher than the average preferential margin of four percent (p. 514). Carrere and De Melo (2004) argue that, to compensate for the production and compliance costs caused by the restrictiveness of RoOs, about ten percent of the preference margin would be needed for NAFTA. Cadot, Carrere, De Melo, and Portugal-Perez (2005) estimate that the border price of Mexican apparel product has risen 12 percent to compensate for the cost of complying with NAFTA's RoOs. Cadot, Carrere, De Melo, and Tumurchudur (2006) estimate the trade-weighted compliance costs at approximately 8.0 percent for PANEURO and 6.8 percent for NAFTA.

The fundamental objective of RoOs is often identified as the checking of free-riders who "seek to enjoy the benefits of the FTA without paying the costs associated with FTA membership" (Boadu & Wise, 1991). For this reason, researchers often suggest that the origin certification and verification procedures under the RoOs be made integral to the administration of RoOs. Izam (2003), Brenton and Imagawa (2005), and Estevadeordal et al. (2007) conclude that the procedures for exporters or producers to obtain the certificate often require expensive accounting and inventory systems. The administrative burden in this procedure, they warn, may result in inadequate administrative cooperation, faults, and fraud in the certification of origin process. Manchin and Pelkmans-Balaoing (2007b, p. 14) indicate that the costs and delays in obtaining certification and in proving conformity with their origin requirements depends largely on the stringency of the verification procedures. Harris and Staples (2009, p. 7) suggest that the primary dilemma in this regard is "balancing the rights and obligations of the producer and the importer." While the producer has sufficient knowledge of the origin of his product, the importer is responsible for the payment of tariffs. Therefore, if the producer, either by fraud or by negligence, provides faulty origin details about his product, the importer is liable for non-paid tariffs and penalties. Boadu and Wise (1991), Cantin and Lowenfeld (1993), and Harris and Staples (2009) emphasize the fact that the administration of RoO often results in considerable uncertainty for companies, and this under circumstances in which "procedures are unclear, customs officials lack capacity, or legal provisions are incomplete" (Harris & Staples, 2009, p. 7).

In summary, studies have found the restrictiveness, complexity (or divergence), compliance costs, and uncertainty arising from the administration of RoOs to be factors that influence the full use of FTAs. A summary of the studies conducted on RoOs mentioned in this section is contained in Appendix 2. For each aspect of RoOs, different research methodologies have been devised that attempt to identify influences on the use of FTAs. The next section examines the methodologies that have been applied to the research of RoOs.

### **3. Research Methodologies**

The quantitative paradigm has been utilized predominantly in studies of RoOs. Political economic studies on RoOs typically focus on the restrictiveness of RoOs and their implications. In such studies, the gravity model is often utilized to predict bilateral trade flow under certain RoO restrictions. Augier et al. (2005) use the gravity model to assess the influence of the relaxation of RoOs with a diagonal cumulation. Utilizing dummy variables and synthetic indices, Estevadeordal and Suominen (2004) investigate the effects of RoOs under PANEURO and the NAFTA using the gravity model. Also, Cadot, Estevadeordal, and Eisenmann (2005) explore the influence of NAFTA's RoOs on Mexican market access to the U.S. market.

In analyzing the different levels of restrictiveness of RoOs, many studies have adopted Estevadeordal (1999)'s Restrictiveness Index (RI). The RI provides observation rules for the legal texts of RoOs using a seven point scale, defining the rules with a rating of one as less strict than those with a rating of two. For example, a higher RI is applied to a rule requiring a change at the section level (2-digit HS Code) than a rule requiring a change at the heading level (4-digit HS Code). A rule requiring both a change at the tariff heading level (CTH) and a certain level of Regional Value Content (RVC) is classified at a higher RI than a rule requiring a simple tariff change rule.

Estevadeordal and Suominen (2004) assessed the structure of RoOs in selected FTAs in Europe, the Americas, and the Asia Pacific region using the RI. Augier et al. (2005) adopted this index in devising their gravity model. Using the index, Estevadeordal et al. (2007, pp. 22-23) analyzed the restrictiveness and complexity of RoOs of FTAs around the world.

In applying the indices, Estevadeordal et al. (2007, p. 22) explain the restrictiveness of RoOs in these terms: “the capacity of RoOs to affect economic decisions depends on the degree to which they restrict the options of economic actors and the size of the tariff preference to which compliance with these rules give access”. They emphasize that the restrictiveness observed through the indices may differ from the real restrictiveness that firms face when utilizing preferential tariffs. Rather, they note that ‘real’ or effective restrictiveness depends on the availability of efficient input supplies from the FTA member countries.

The complexity or divergence of RoOs has often been assessed by estimating the compliance costs the RoOs entail. Following Herin (1986), the costs are assessed by estimating the upper and lower bounds on the costs of RoOs. In this approach, for sectors with utilization rates close to 100%, the preference margin is assumed as the upper bound of compliance costs, while for sectors with zero utilization rates, the preference margin is assumed to be the lower-bound of the costs. For sectors with a utilization ratio between zero and 100%, the average rate of tariff preference for the remaining sectors is assumed to equate to the costs. Based on this approach and the RI, Anson et al. (2003) computed compliance costs of RoOs. Carrere and De Melo (2004) attempted to apply the RI for measuring the production and the administrative costs resulting from RoOs under NAFTA. In a similar vein, Cadot, Carrere, et al. (2005) analyzed the effects of production costs on the price of final and intermediate goods. Cadot et al. (2006) compare trade-weighted compliance costs of PANEURO FTAs with those of NAFTA.

Though the administration of RoOs has been discussed in a number of papers, only limited numbers of systematic methodologies have been applied to measure the specific issues related to this administration. Some studies have been conducted based on the case study method. Boadu and Wise (1991) investigated administrative problems associated with implementing RoOs under the first three FTAs of the US. Cantin and Lowenfeld (1993) explored the disputes between Canada and the U.S. in interpreting the value-added requirements for the Honda Civic under the Canada-U.S. FTA. The Commission of the European Communities (2003) investigated the difficulties developing countries face in managing the administrative procedures of RoOs under the E.U.’s GSP regime.

Some researchers suggest that trade facilitation studies can be attempted as an approach to future research on the administration of RoOs (Hamanaka, Tafgar, & Lazaro, 2010; Harris & Staples, 2009; Maur, 2008). Trade facilitation studies have a wide scope in terms of subject area. J.S. Wilson, Mann, and Otsuki (2005) explain that by observing actual practice, such as documentation or the logistics of goods, trade facilitation studies seek to relate actual practice to implications for reforms of the trade interface. Wilson, Mann, and Otsuki (2003) stipulate that most trade facilitation studies have been conducted based on the computable general equilibrium (CGE) model and the gravity model, using data from already existing survey results. Especially, in the study of customs administration, Wilson, Mann, Woo, Assanie, and Choi (2002) have exploited “the Enabling Trade Index” and “the Global Enabling Trade Report.” However, the authors of the report, Doherty, Hanouz, Geiger, Lawrence, and Herrera (2010) have recently argued that currently available measures in trade facilitation studies do not include any measure for RoOs.

In the tradition of studying customs administration, tax studies have provided a useful framework. In tax studies, the complexity of customs administration is assessed based on tax compliance costs. Sandford, Godwin, and Hardwick (1989) and Shekidele (1999) examined the compliance costs of excise duties in the UK and in Tanzania respectively. Based on compliance costs surveys, Eland (1995) examined the benefit of a Common Customs Tariff of duties that has been

introduced with a Single European Market. Another aspect of customs administration that has been studied alongside the methodologies of the tax studies is the uncertainty caused during customs administration. Bhagwati (1964) surveyed Turkish trade data to investigate the gap between export invoice price and import customs value to assess the issue of import control. Using quasi-experiment research, Yang (2008) explored customs reform in the Philippines in order to analyze the impact of enforcement on the evasion of customs duty. Using trade data from China and India respectively, Fisman and Wei (2004) and Mishra, Subramanian, and Topalova (2008) surveyed the relationship between tariff rate and the evasion behavior of traders. Studies such as these suggest that the framework of tax studies are generally applicable to the issues of customs administration.

To summarize, in studying RoOs, research methodologies have been developed to explore the restrictiveness and the compliance costs of RoOs. However, there is very little evidence that researchers have considered other possible methodologies, such as the methodologies of trade facilitation studies or tax studies. In sum, there has been a paucity of studies on the administration of RoOs.

### **Summary and concluding remarks**

The literature suggests that RoOs result in restrictions, higher costs, and compliance burdens for companies using FTAs, and that the initial neglect of RoOs and the underuse of FTAs still persists. Therefore, in designing RoOs, there should be a clear recognition of the impact of the proposed design on the administration of RoOs, as well as on the compliance burdens that are imposed on companies using FTAs. The greatest contribution that future research into the administration of RoOs can make is to ensure that countries that formulate RoOs are properly informed as to the compliance burden implications of their actions.

While the amount of research is increasing, the scope and the methodological approach of this research is still limited. In particular, the use of FTAs cannot be measured in many cases without available utilization ratio data and measures for restrictiveness. Furthermore, the complexity of RoOs are established by observing the legal text of RoOs, which may differ from the real restrictiveness and costs in actually using FTAs. In the absence of such data, only a few studies can provide a useful reference for the administration of RoOs.

Studies have suggested an interconnection among RoOs' design, administration, and the use of FTAs. In this respect, this literature review proposes that a new framework of research will complement the existing work in helping us to understand the interconnection from an administrative perspective. In constituting this framework, it is also suggested that adopting the methodologies of trade facilitation studies or tax compliance studies is a good start. In doing so, this review suggests that research into RoOs will enhance our knowledge on the cost side of FTAs.

**Summary of Major Studies of the Use of FTAs**

Table 1

**Determinants of Utilization of Preferential Tariffs**

Author	Preference Scheme	Utilization Rates	Determinants of utilization
Baldwin (2005)	AFTA	5%	Preference margin Compliance costs of RoOs
Manchin and Pelkmans-Balaoing (2007a)	AFTA	5%	Preference margin Restrictiveness of RoOs
Kawai and Wignaraja (2009)	FTAs in six Asian countries	-	Information on FTAs Preference margin Compliance cost of RoOs
Katsuhide and Shujiro (2008)	Japan's FTAs	12.2%~ 32.9%	Trade volume with FTA partners Compliance costs of RoOs Information on FTAs Preference margin
Athukorala and Kohpaiboon (2011)	TAFTA	60 ~ 70%	Preference margin Restrictiveness of RoOs Compliance costs of RoOs
Hayakawa et al. (2012)	KAFTA	49.9%	Average export value Preference margin Restrictiveness of RoOs
Brenton and Manchin (2003)	Preference regime of the E.U.	45%	Restrictiveness of RoOs Compliance costs of RoOs
Francois et al. (2006)	Preference regime of OECD countries	-	Compliance costs of RoOs
Bureau et al. (2007)	Preference regime of the E.U. and the U.S.	89%	Compliance costs of RoOs Predictability of the regime

**Summary of Major Studies of Rules of Origin**

Table 2

**Influences of RoOs**

Author	Preference Scheme	Influences of RoOs
Vermulst (1992)	Preferential / Non-preferential	Different methodological discrimination of RoOs restricts the scope of eligible preferences under FTAs
LaNasa III (1993)	NAFTA	RoOs are often formulated to protect domestic industry and to promote relocation of manufacturing processes to within the trade area
Krueger (1993)	Preferential	RoOs restrict efficient sourcing for inputs of production. This extends protection for exporters to protection for producers from the competition with producers who use cheaper third countries' inputs
LLoyd (1993)	Preferential	All or nothing approach in determining the origin under FTAs can cause protective and trade diverting influences in the highly globalized production
Krishna and Krueger (1995)	Preferential	Differences in percentage rules of RoOs can exert a significant influence on the welfare and FDI
LaNasa III (1996)	Preferential / Non-preferential	Overly restrictive RoOs can engender uncertainty on firms' purchasing, investment, and manufacturing strategies.
Falvey and Reed (1998)	Preferential	RoOs take the form of domestic content rules and influence on production.
Bhagwati et al. (1998)	Preferential	Arbitrary specification of content rules, and the complexity in computing the origin causes a myriad of problems in globalized production.



**Aspects of RoOs Influencing the Use of FTAs**

Aspects of RoOs	Author	Measures Applied	Findings
Restrictiveness of RoOs	Ju and Krishna (1998)	Impact of restrictive RoOs on the production costs and trade flows	Restrictive RoOs undermine trade of both the finished goods and the inputs
	Estevadeordal (1999)	Differences in the restrictiveness of RoOs under NAFTA	The greater the preferential margin, the stricter the requirements imposed by RoOs
	Estevadeordal and Suominen (2004)	The restrictiveness of RoOs in FTAs in Europe, the Americas, and Asia Pacific	The restrictiveness of PANEURO RoOs is less than the NAFTA rules, and FTAs in the Asia Pacific have the most generous RoOs
	Estevadeordal et al. (2007)	The restrictiveness and complexity of RoOs in FTAs around the world	The restrictiveness within regimes and divergence across regimes increase transaction costs and uncertainty in international trade
Complexity and Costs of RoOs	Anson et al. (2003)	Compliance costs estimated based on the utilization ratio, the preference margin and the RI	Compliance costs of 6% of trade amount, which is higher than average preferential margin of 4%
	Carrere and De Melo (2004)	Compliance costs	Approximately 10% preference margin is required to compensate the compliance costs of the Mexican exporters
	Cadot, Carrere, et al. (2005)	The impact of compliance costs of RoOs on the border price of textile and apparel products	The border price of Mexican products has risen 12% to compensate the compliance costs of RoOs under NAFTA
	Cadot, Carrere, De Melo, and Tumurchudur (2006)	Compliance costs	Approximately, the compliance costs of PANEURO's RoOs is 8.0% and that of NAFTA is 6.8% of trade amount
Aspects of RoOs	Author	Measures Applied	Findings
Uncertainty of RoOs	Boadu and Wise (1991)	Case study: US-Israel FTA, US-Canada FTA, NAFTA	Considerable degree of freedom in interpreting the rules causes uncertainty in business sectors.
	Cantin and Lowenfeld (1993)	Case study: US-Canada FTA, NAFTA	Unclear rules or inconsistent interpretation of the rules cause uncertainty
	Commission of the European Communities (2003)	Case study: EU's GSP scheme	Ambiguity of the rules, strict audit, and resulting compliance costs cause uncertainty
	Harris and Staples (2009)	Case study: FTAs in the Latin America/Caribbean and Asia/Pacific	Unclear rules, inconsistent interpretation, the unclear division of the rights and obligations of the producer and the importer cause uncertainty

Table 4

**Issues from the Administration of RoOs**

Author	Key Administrative Procedures	Issues
Izam (2003)	Certificate of Origin	Selection of the issuing authorities
	Origin Verification	Unclear procedures for dispute settlement Effectiveness of verification visits, Administrative costs
Brenton and Imagawa (2005)	Certificate of Origin	Compliance costs
	Origin Verification	Administration costs in terms of labor requirements
Estevadeordal et al. (2007)	Certificate of Origin	Administration costs and compliance costs
Manchin and Pelkmans-Balaoing (2007b)	Origin Verification	Compliance costs Stringency of verification procedures
Harris and Staples (2009)	Certificate of Origin Origin Verification	Uncertainty as for the compliance with RoOs that is caused due to the unclear division of the rights and the obligation of the producers and the importers

**Endnotes**

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