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Global Value Chains and Rules of Origin

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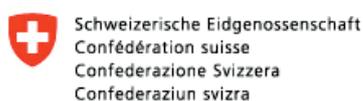
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ABSTRACT

The international fragmentation of production has contributed to the growth in global value chains (GVCs), and this is opening up opportunities for developing countries to participate in activities that were not available in the past.

However, international production networks are mainly confined to East Asia, Europe, and North America. The regional bias of GVCs is problematic for many developing countries. Apart from distance, and differences in languages and cultures, which are some of the hindrances that periphery countries face in joining GVCs in other regions, the regional bias is also driven by the existence of regional trade agreements (RTAs).

Such agreements create major limitations for countries outside a trading block due to their rules of origin (RoO). There is, therefore, a compelling argument in favor of the simplification and harmonization of customs procedures and expansion of cumulation of RoO to reduce the implicit costs faced by active and potential participants in international production networks.

While the multilateral system catches up with the modern trends in production fragmentation, alternative policies can be derived to minimize the shortcomings of the regional approach, particularly of those induced by the existence of RoO.

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LIST OF ABBREVIATIONS

ASEAN	Association of Southeast Asian Nations
CACM	Central American Common Market
DR-CAFTA	Dominican Republic-Central America Free Trade Agreement
EU	European Union
GVCs	global value chains
ITA	Information Technology Agreement
ITC	information and communications technology
MFN	most favored nation
NAFTA	North American Free Trade Agreement
PTAs	preferential trade agreements
RoO	rules of origin
RTAs	regional trade agreements
TPP	Trans-Pacific Partnership
TRIPS	Trade-Related Aspects of Intellectual Property Rights
TTIP	Transatlantic Trade and Investment Partnership
US	United States
WTO	World Trade Organization

INTRODUCTION

During the last two decades the world economy has seen an increasing trend in international production fragmentation—the geographic separation of activities involved in producing a good or a service across two or more countries. This has substantially increased interdependencies among economies around the globe, leading to a fast growing trade in intermediate inputs and services (Yeats 2001; Hummels et al. 2001; UNCTAD 2004, 2013; WTO-IDE-JETRO 2011).

The rise of global value chains (GVCs) has been fueled by the continuing removal of various obstacles that had been restraining the extent to which the production of a good could be unbundled internationally. The most significant trends in this regard have been the fall of tariff barriers; the drop in freight rates; the emergence of globally oriented logistics services; the massive increases in computing power; the Internet; a range of inexpensive information transmission capabilities; and improvements in the protection of intellectual property rights, particularly the World Trade Organization (WTO) agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS).

The international fragmentation of production is opening up opportunities for developing countries to participate in activities that were not available in the past. The process of fragmentation tends to eliminate the need to gain competency in all aspects of the production of a good and allows countries to enter into a network of cross-border production sharing by specializing in just one or a few stages involved in the making of a final good. Participation in international supply chains is also frequently associated with rapid learning, technology transfers, and knowledge spillovers that emanate from global firms to local suppliers (Gereffi 1999; Humphrey and Schmitz 2002; Sturgeon and Linden 2011).

Despite the clear benefits of joining international production networks, they have not spread evenly across the world and are mainly confined to East Asia, Europe, and North America. The regional bias of GVCs is problematic for many developing countries that find it hard to take advantage of production-sharing schemes in order to advance industrialization and development. Distance, and differences in languages and cultures, are some of the hindrances that periphery countries face in joining GVCs in other regions, but the regional bias is also driven by the existence of regional trade agreements (RTAs). Regional trade agreements have been a driving force behind the formation of many GVCs, but they also create major limitations for countries outside a trading block due to their rules of origin (RoO). The complexity and variety of RoO that exist today represents a challenge for many firms seeking to participate in production networks spanning various trade agreements. In this piece we discuss the relationship between trade agreements, RoO, and

the formation of GVCs, and we advance some ideas on how to address the challenges that RoO create for the formation of international production networks.

STATE OF PLAY

While trade in general tends to be regionalized, evidence suggests that this is particularly so for trade flows associated with supply chains (Baldwin and Lopez-Gonzalez 2012). International production networks have largely evolved in three regions—North America, East Asia, and Europe—and these networks have been driven mainly (but not solely) by the fragmentation of production led by firms in the United States (US), Germany, and Japan, respectively. Recent studies show that trade associated with production networks is more sensitive to distance than trade in final goods (Gamberoni et al. 2010; Lopez-Gonzalez 2012); therefore, the regional character of GVCs is in part related to the importance of proximity. But proximity does not tell the whole story. Casual evidence and econometric studies also suggest that the “regionality” of supply chains is intrinsically related to certain agreements and/or arrangements that occur across countries. For instance, before the 1965 US-Canada Auto Agreement, trade in auto parts between these two countries did not exist. After the 1965 agreement reduced tariffs to zero, trade soared igniting a successful US-Canada auto supply chain in which 60 percent of US auto exports to Canada are engines and parts, while 75 percent of Canadian auto exports to the US are finished cars and trucks (Hummels et al. 1998).

Casual evidence of the role of trade agreements on value chain formation is also supported by more systematic analyses. For instance, Orefice and Rocha (2011) examine the effects of preferential trade agreements (PTAs) on trade in parts and components and find that countries with PTAs trade on average 51 percent more in parts and components than countries without PTAs. Hayakawa and Yamashita (2011) also provide results showing a positive impact of PTAs on trade in parts and components. The authors find that while the contemporaneous effect of a PTA is nil, there is a positive impact that emerges over time, which is still present after six to nine years of its formation, a result that makes intuitive sense as many PTAs include phase-in periods before their full implementation is completed. Johnson and Noguera (2012) estimate the impact of PTAs on measures of value-added trade, and consistent with expectations, they find that lower domestic value added and more foreign value added are used in the production of exports that flow across countries with a PTA. The authors also find that deeper agreements generate larger effects than shallower agreements. Complementary evidence is shown in Blyde and Volpe (2013), who analyze the effects of PTAs on value chain formation using a measure that is based on foreign

direct investment data instead of trade data. In particular, the authors examine bilateral relationships in terms of the number of vertical subsidiaries among pairs of countries. According to the authors, the number of vertical subsidiaries from a parent country located in a host country is 11 percent higher if both countries share a PTA. Likewise, a host country will experience 2.5 percent more entry of vertical subsidiaries from a parent country if they both belong to the same PTA.

Regional trade agreements, and particularly deep integration agreements, play an important role in the formation of GVCs because they tend to address a number of dimensions that are critical for the sound functioning of supply chains. To start with, crossing borders is associated with additional costs like those incurred in paying tariff duties, which are obviously removed in trade agreements. Beyond tariffs rates, however, establishing production networks across countries typically involves a multifaceted mix of flows related to trade, investment, and technical knowledge that may not be maximized without the close collaboration of the parties involved. For instance, offshoring from an affiliate implies engaging in cross-border investments that might not take place without adequate investment rules in the host country. Likewise, engaging in contract manufacturing with local suppliers may require the flow of knowledge that some lead firms could be reluctant to transfer without proper intellectual property rights. A rapid delivery of products, a feature of particular importance for many supply chains, might require the harmonization and streamlining of customs and security procedures across the parties involved. In short, complex cross-border activities tend to demand complex rules (Baldwin 2012). It is in this sense that deep integration schemes may be associated with more cross-border production sharing because they tend to incorporate disciplines beyond the simple reduction of tariff rates, including aspects like investment policy, intellectual property rights, or the harmonization of management techniques in customs procedures to expedite clearance of goods.

While deep integration schemes are associated with GVCs, there is no doubt that the multilateral approach would be the optimal way to foster global production networks. For instance, as the production of a good is sliced up across more and more countries, the barriers between third countries upstream or downstream become as important as the barriers between the two main partners, and they might be better addressed together. But the multilateral system has not moved in tandem with the modern trends of production fragmentation and has yet to provide, at a global level, the type of deep disciplines in which international supply chains tend to thrive.

Even though RTAs have been a driving factor behind the formation of international supply chains, they are also associated with important limitations. One particular limitation of the regional approach is related to the disincentives to employ cheaper parts and materials from third countries due to their stringent RoO, particularly if they are employed to produce final goods that are later

exported to other members of the agreement. In this sense, RoO could augment production costs to the point where their compliance costs exceed the benefit of the agreement-conferred preferences (Estevadeordal and Suominen 2008). RoO, of course, are critical parts of many PTAs because they establish the conditions that a product must satisfy to be deemed eligible for preferential access in the member countries. They are primarily used to prevent trade deflection—that is, to avoid products from non-participating countries reaching a high-tariff PTA partner via the transshipment of the product through a low-tariff PTA member. But RoO can severely narrow the choices that firms have in order to locate slices of their production abroad.

Also related to RoO is the possibility that in a world with a rising number of RTAs, any firm seeking to participate in production networks spanning various trade agreements will find it increasingly complex to keep track of all the differences in the rules governing them. When an exporter produces only one good, and most intermediate inputs are sourced domestically, the costs of complying with multiple RoO might not be too large. But when the number of exports rises and the fragmentation of production increases across more countries, the costs of dealing with multiple origins can be substantially larger. These costs may increase even more if suppliers are not wholly owned affiliates but independent firms in other countries, because it is less likely that there will be transparent channels for conveying the supplier's origin information, as pricing and other sensitivity issues can arise. For instance, suppliers might not have enough incentives to provide their clients with complete sourcing information for fears that this might jeopardize their relationship, as the client might contact the subcontractor directly and cut the supplier out of the chain (Staples and Harris 2009).

The question is how to better align the legitimate practice of curbing trade deflection with the reality of GVCs. It is possible to reduce the constraints generally presented by RoO through the use of various mechanisms, for instance, with higher *de minimis* levels, by allowing for duty drawback, or with flexible cumulation rules. *De minimis* rules, for example, allow for a specified percentage of non-originating products to be used in the production process without affecting the origin status of the final product. Duty drawback is used to return the payment of duties applicable to the non-originating material employed in the production of a final product that is subsequently exported to other members of the agreement.

Finally, cumulation in general means that inputs from trading partners can be used in the production of a final good without undermining the origin of the product. Practically all PTAs enable bilateral cumulation, such that materials originating in any one member country are considered as originating in the partner country, and vice versa. This is sometimes called diagonal cumulation in agreements among more than two countries. Full cumulation implies that any operation performed in any of the partner countries can be counted, whether or not the processing is sufficient to

confer originating status to the materials themselves. Full cumulation is particularly beneficial to the formation of regional value chains, as it allows smaller contributions to the final product to be accounted and combined to establish origin of the final product. Additionally, there is a growing trend of employing expanded cumulation to allow three or more countries with separate but overlapping trade agreements to effectively merge their individual bilateral treaties so inputs can be sourced anywhere within the network. This approach could be the most effective strategy to “multilateralizing” RoO across trade agreements.

There is ample empirical evidence suggesting that some of these mechanisms can ease the constraints imposed by RoO and generate larger trade flows. The evidence is particularly forthcoming for the role of cumulation schemes (Augier et al. 2005; Blyde and Volpe 2013; Estevadeordal and Suominen 2008; Hayakawa 2012; Park and Park 2009). The evidence is based on different identification techniques. For instance, Estevadeordal and Suominen (2008) and Park and Park (2009) rely on the difference in trade flows across groups of country pairs (that is, differences between members of agreements with diagonal cumulation and members of agreements without diagonal cumulation), Augier et al. (2005) rely on the comparison of trade flows in the same country pairs before and after the introduction of diagonal cumulation, while Hayakawa (2012) relies on a comparison of trade flows that occur between the same two countries but under two kinds of schemes, one with bilateral cumulation and another with diagonal cumulation. All the analyses show positive and significant trade effects of more flexible cumulation schemes. For instance, Augier et al. (2005) and Hayakawa (2012) show trade creation effects in the order of 4–15 percent associated with diagonal accumulation. Even larger effects in the order of 30–100 percent are found when comparing members in full cumulation schemes relative to those in bilateral cumulation schemes (Estevadeordal and Suominen 2008; Park and Park 2009). Blyde and Volpe (2013) also provide estimates of the effect of cumulation on the entry and the number of vertical subsidiaries. They show that if diagonal cumulation with third parties is allowed, the host country will exhibit 12 percent more vertical subsidiaries and 3.6 percent more entry from the parent country relative to agreements with no diagonal cumulation.

There is, therefore, a compelling argument in favor of the simplification and harmonization of customs procedures and expansion of cumulation of RoO to reduce the implicit costs faced by active and potential participants in international production networks. The next section presents some examples of such efforts and a discussion about lessons learned and the principles that should guide the reform of RoO.

RESPONSES

First, it is important to emphasize that the most effective way to eliminate tariff barriers to the development of GVCs is on a most favored nation (MFN) basis. Preferential tariff reduction necessarily requires the definition and administration of RoO, and, therefore, generates some positive costs. While PTAs can include intellectual property and investment protections as well (which on average more than offset RoO costs), in a strict consideration of basic market access, non-preferential liberalization should be preferred. An illustration of this is the Information Technology Agreement (ITA), under which 70 countries agreed to eliminate tariffs on a set of information and communications technology (ICT)-related products on an MFN basis. These countries represent more than 97 percent of world trade in the covered products. In parallel, global value chains in ICT products are among the longest and most sophisticated. Learning from this experience, the goal of policy-makers seeking to maximize the potential for the formation of modern GVCs in other industries should be to create circumstances as similar to this as possible.

Conceptually, reforms of RoO can be divided into two categories—reforms to the specific rules applicable to any product (or all of them), and reforms to the broader architecture of the origin regime, dealing with issues such as cumulation and origin-related customs procedures.

In the former category, it is useful to consider the history of the RoO of the North American Free Trade Agreement (NAFTA). In the Americas, NAFTA was a key turning point in matters of RoO, as it was the most precise and detailed negotiation of RoO up to that point. Also, for a variety of economic and political reasons, the NAFTA RoO were some of the most restrictive in terms of the degree to which materials could be sourced outside of North America without losing eligibility for tariff preferences. Over the nearly 20 years of operation of the agreement, this has led to four rounds of changes to the NAFTA rules. The first was not long after implementation, the most recent was in 2009, and nearly all sectors have products whose rules have been amended (except textiles and apparel, where rule changes require congressional approval). In every case, these changes have meant new rules that are more permissive of materials from outside North America, that is, the use of products that allow for more sophisticated GVCs. Other agreements have similar mechanisms for amending their RoO over time, though as other agreements also learned from the NAFTA experience, they have tended to negotiate less restrictive rules in the first place. All the same, it is important that such mechanisms in new agreements be made as simple as possible, allowing the parties flexibility at the administrative level to modify rules as trading circumstances warrant.

Reforms of the broader architecture of origin regimes must focus on the application of cumulation. Here, the history and its lessons are rich. Perhaps the most substantial experiment in expansion of cumulation involved the Pan-Euro-Med cumulation zone. Although European Union (EU) expansion has made most of its more economically significant elements moot, the mechanism that went into effect in 1997 harmonized the RoO provisions of more than 10 bilateral EU agreements, and enables cumulation among all the partners. Note that the entry into force of this arrangement with each three-way partnership was subject to some strict conditions. First, for any pair of EU trading partners, say Morocco and Egypt, to be able to cumulate each other's materials for purposes of accessing the EU market, they are required to have a bilateral agreement between them that specifies the same rules as their agreements with the EU, as well as several provisions on certification and verification of origin that allow administration across multiple national jurisdictions.

The requirement of identical rules on all three sides of the cumulation triangle is particularly strong. Any given bilateral agreement is going to face its own unique political economy based on factor endowments and the political-economic structure of domestic industries. In the absence of an outside standardizing force like the Pan-Euro-Med arrangement, it is unlikely that the same set of RoO would be optimal for any two agreements, especially the rather restrictive European rules. However, in this case the leadership of the EU, combined with its market size, was sufficient, and the study by Augier et al. (2005) showed that the arrangement generated significant trade benefits.

Within the Americas, the Pacific Alliance comprising Chile, Colombia, Mexico, and Peru (with additional countries participating as observers) made significant progress in establishing provisions for cumulation among them, thus essentially merging their six existing bilateral relationships under a single framework. As was the case with the European bilateral agreements, the solution chosen in this context was to define a single set of RoO to govern the plurilateral cumulation area. This solution was obtained without a hegemonic leader like the EU, though the differences in the rules across the six existing PTAs were not particularly significant.

In another example, in 2011 Mexico and the five countries of the Central American Common Market (CACM) signed a new agreement replacing three existing agreements. Between 1995 and 2001, Mexico had signed separate agreements with Costa Rica (1995), Nicaragua (1998) and the "Northern Triangle" of El Salvador, Guatemala, and Honduras (2001). These agreements did not provide for cumulation among all six countries, and thus acted to segment value chains that tied the CACM members to Mexico. The new agreement enables full cumulation across all six countries under a single set of RoO agreed among all parties.

The requirement of identical rules in order to achieve an expanded application of cumulation is consistent with the

need for RoO in the first place, as differences in rules covering any bilateral segment of a plurilateral cumulation zone would make possible a type of triangulation similar to the trade deflection mentioned at the outset of this paper (Cornejo and Harris 2007). However, several countries in the Americas are currently pursuing frameworks that would allow expanded cumulation without this restriction. In principle, such mechanisms should prove easier to implement as they do not require substantial new negotiations.

An early case considers the agreements between Mercosur and the countries of the Andean Community in the early 2000s. Five different agreements cover this zone—the Andean Community and Mercosur themselves, plus one between Mercosur and Bolivia, one between Mercosur and Peru, and one combining Mercosur with Colombia, Ecuador, and Venezuela. Furthermore, the Mercosur countries each negotiated RoO bilaterally with Peru, Colombia, Ecuador, and Venezuela, such that there are 19 different sets of rules governing the trade among these nine countries. Nevertheless, the provisions of the respective agreements state that materials originating in any one of them can be considered as originating in any of the others when used in subsequent production. There are no formal studies seeking to identify the trade effects of this cumulation provision, but casual observation detects very little formation of sophisticated regional value chains. The overwhelming complexity of the tangled bilateral rules seems to be a serious impediment.

A more limited experiment is seen in the Dominican Republic-Central America Free Trade Agreement (DR-CAFTA) between the US, Central America, and the Dominican Republic. Strictly for apparel of woven fabrics under HS Chapter 62, this agreement allows cumulation of materials from Mexico. While application of this provision is limited to an annual quota, the limit has been set sufficiently high, so it has not been a binding restriction. Also, this mechanism does not require that the RoO between Mexico and Central America be identical to the DR-CAFTA rules. It requires only that the materials sourced in Mexico and processed in Central America be originating under the DR-CAFTA specifications. The experiment can thus be considered a qualified success. Its scope is limited though to a sector of economic significance to Central America, and the implementation procedures required negotiation of additional verification procedures with Mexico, which prevented its implementation until several years after the entry into force of the DR-CAFTA.

Another experiment in the early stages is Canada's agreements with Peru and Colombia. Both feature a provision under which the countries commit to enabling cumulation with third parties with which both signatories have PTAs in force, subject to reciprocal agreement from those third parties. While there are multiple countries that satisfy the criteria of having PTAs in force with both Canada and either Colombia or Peru, the obvious first test case is among the three of them. Although at an early stage, these discussions are underway. As written in the agreements, this would

require that Peruvian materials used in Colombia for export to Canada will be considered as originating provided that they meet the criteria set forth in the Canada-Colombia agreement. This experiment merits close monitoring, as a successful implementation could provide valuable lessons for the future.

There are two negotiations underway that could have profound effects on the ability of companies to form sophisticated GVCs. First, the Trans-Pacific Partnership (TPP) seeks to bring together 14 countries under a single PTA, including the NAFTA countries, Japan, Peru, Chile, Australia, New Zealand, and four Association of Southeast Asian Nations (ASEAN) countries. From published negotiating texts, it is not clear how the countries intend to structure the cumulation provisions, but it is vital that this be as broad and inclusive as possible. While enabling cumulation is problematic when tariff elimination may vary across bilateral relationships, if complete cumulation including all members of the agreement for all products is not a feature of the TPP, its eventual value will be significantly undermined, especially for supporting the formation of GVCs. Furthermore, the TPP will include two of the three GVC hubs, Japan and the US. Cumulation is necessary if these complementarities are to be realized.

Second, the recently announced Transatlantic Trade and Investment Partnership (TTIP) between the US and the EU aims to eliminate tariffs and seeks regulatory harmonization between the world's two largest economies. In matters of preferential market access, the US and the EU have large networks of PTAs with third countries in all regions of the globe. The elimination of bilateral tariffs will imply an erosion of those preferences, without any balancing benefits. While there is no obligation to mitigate preference erosion, this could be accomplished by explicitly including mechanisms for expanding cumulation to these third parties, perhaps following the example set out in the Canada-Colombia-Peru efforts. Such a mechanism would allow such third countries to participate in the GVCs that span these two economies, gaining benefits instead of being cut out. Where the US and the EU have already granted duty-free access to materials from these countries, it seems particularly unreasonable to exclude them from bilateral value chains.

A final note is worth including on harmonization of RoO. While the presence of identical RoO in different PTAs greatly facilitates provisions for the expansion of cumulation, in the strict bilateral context this can be more a barrier than a benefit. Imagine trade in something as simple as instant coffee. If a hypothetical international standard were devised in which instant coffee could only be originating for preferential purposes when produced from originating coffee beans, then there would never be free trade in NAFTA in instant coffee, because there is no significant cultivation of coffee in any of the members. In South America or Southeast Asia, on the other hand, this would not be particularly problematic, as many of the leading global producers are located there. This problem arises in numerous industries,

whether based on factor endowments like land and a climate favorable to growing coffee, or historical patterns of production such that different regions possess a comparative advantage in particular industries. This is much of the problem underlying the lack of progress in negotiation of harmonized non-preferential RoO under the WTO Agreement on Rules of Origin, as each country wants its own contribution to the value chain to be the minimum acceptable contribution to confer origin.

Where harmonization does make sense is in matters of mechanisms and procedures. Differences in the methods of calculating regional value content for meeting value added requirements, and differences in procedures for certifying and verifying origin claims can create tremendous difficulties for firms seeking to take advantage of PTAs, often resulting in a decision to simply pay the MFN tariff and avoid the headache. Where "RoO harmonization" can add value is in this type of effort.

CONCLUSIONS

The emergence of GVCs is changing the way countries approach industrialization. The old development paradigm of building entire supply chains within a country—with all the challenges, costs and time that this entails—is giving way to a new development paradigm of joining international supply chains. As a result countries are industrializing much faster than before, as the experience of South Korea, China, or Vietnam shows. But international production networks have evolved mainly regionally around Japan, Germany and the US, leaving many countries far from these hubs scrambling for ways to benefit from these new trends of production sharing. We show that the regional pattern of GVCs is largely determined by the existence of RTAs, particularly deep ones, because they tend to incorporate disciplines like rules in investment policy, services, standards, intellectual property rights or the harmonization of custom procedures that are important for the multifaceted mix of trade, investment, and knowledge flows that are associated with GVCs.

But while RTAs have been a driving factor in the formation of GVCs, they also have limitations because of the RoO that tend to disincentivize the use of cheaper parts and materials from third countries. Also, firms seeking to fragment production across large geographic areas find that it can be prohibitively costly to deal with multiple origins at the same time.

Without doubt, the multilateral approach would be the optimal way to foster the development of GVCs, as preferential tariff reduction necessarily requires the definition and administration of RoO, with all the associated costs that this entails. But while the multilateral system catches up with the modern trends in production fragmentation, alternative policies can be derived to minimize the shortcomings of the regional approach, particularly of those induced by the existence of RoO.

In this piece we argue that there are three specific areas in which countries can work to limit the undesired effects of RoO on GVC formation. The first area consists of reforms to specific RoO. History shows that members of existing trade agreements are capable of revisiting their old RoO and reforming them with simpler and less stringent rules. One particular recommendation for existing and future agreements is to allow the parties enough flexibility at the administrative level to modify rules as trading circumstances warrant.

The second area has to do with the broader architecture of RoO and the issue of cumulation across trade agreements. Here, the experience around the globe is quite rich. One lesson from past cumulation schemes is that imposing the requirement of identical rules on all three sides of

a cumulation triangle can be particularly restricting, as any given bilateral agreement will have its own unique characteristics. More recent experiences that allow expanded cumulation without this restriction can be more accommodating for the wide variety of agreements that could benefit from such an approach.

Finally, there is the issue of harmonization of RoO. Here we argue that the focus should not be on the rules themselves but on the methods of calculating regional value content as well as on the procedures for certifying and verifying origin. Differences in these mechanisms and procedures have created tremendous difficulties for firms seeking to take advantage of PTAs, and thus the bulk of the gains from RoO harmonization is likely to be in this area.

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