With the decline of many tariffs in recent decades as a result of successive waves of unilateral, regional, and multilateral liberalization, nontariff measures have become important barriers to trade. The multilateral trading system, and an increasing number of preferential trade agreements (PTAs), has been paying greater attention to product standards as an important type of potential nontariff barrier.

The World Trade Organization (WTO) agreements set out general rules for the design and implementation of product standards, but it has been in regional contexts that the main instruments of liberalization in this area—harmonization and mutual recognition—have been deployed. These instruments, however, are not free of risk regarding their compatibility with the broader aim of multilateral liberalization. Preferential agreements involving both developed and developing countries (North-South PTAs) can lead to specifications that are overly complex or burdensome from the point of view of many developing countries. Indeed, they could be perceived as locking these countries out of vital international markets (Baldwin 2000). It is therefore important for policy makers and trade policy practitioners to understand the issues that product standards raise in a regional integration context and, in particular, the challenges developing countries can face in dealing with foreign standards as they become increasingly integrated into the world economy.

Although product standards are widely recognized as having potential effects on regional and international trade flows, their motivation and impact are fundamentally distinct from those of traditional trade barriers such as tariffs. Whereas tariffs are mainly protectionist in intent and effect, product standards are not always protectionist from either point of view. Indeed, even when standards have protectionist effects, they are rarely motivated solely by protectionist considerations. Product standards often represent a quasi-regulatory means of promoting an important public policy objective, such as environmental protection, consumer safety, food quality, or compatibility between different technical norms and standards.

This chapter addresses issues arising from the treatment of product standards in PTAs. A unique feature of preferential liberalization is that it offers an alternative means, complementary to multilateral efforts, of diminishing through bilateral mutual recognition efforts the costs associated with compliance with standards. This prospect, and the presumption that standards are not necessarily established for protectionist purposes, suggest that preferential liberalization can be a force for good. The effect on third countries and the lack of international coordination may, however, carry significant costs.

The next section provides a brief overview of the relationship between product standards and trade. Following that, we consider in greater detail the policy measures available for dealing with standards in PTAs, in particular, mutual recognition and harmonization, and look at broader issues of institutional coordination and regional cooperation. Finally, we address the interface between regional and multilateral approaches to standards.

Product Standards and Trade: An Overview

It is common to distinguish three broad groups of standards, based on the types of activities to which they apply, as defined by the International Organization for Standardization (ISO): product standards, process standards, and management systems (see ISO 2006, 2008). Product standards have to do with the characteristics of goods or services, in particular with respect to aspects such as quality, safety, and fitness for purpose. A simple example of a product standard
Economic Rationale for Product Standards

Why are product standards necessary at all? Broadly speaking, standards can be seen as a way of bringing the outcomes of a decentralized market economy more closely into line with social objectives that may not otherwise be achieved (see, for example, Maskus, Otsuki, and Wilson 2000; Ganslandt and Markusen 2001). Two of the most common reasons why standards might be necessary relate to spillover effects (externalities) from certain activities and to information asymmetries between buyers and sellers. These effects are clearly relevant for standardization at the national level, but they also set the scene for regional and global coordination on standards.

Externalities. Packaging is an example of an externality. In the absence of any rules or standards, producers and consumers do not directly pay the cost of disposing of packaging materials after the product has been bought and unpacked. These materials must be taken away to a landfill, where they will break down over time, perhaps releasing pollutants into the environment. A standard setting out biodegradability requirements for packaging materials can help reduce this problem and limit the negative environmental spillovers from useful economic transactions. Social objectives such as environmental protection and public health are common externality-based rationales for the development of product standards.

Another example of externalities relates to network effects and interoperability (see, for example, David and Greenstein 1990; Gandal and Shy 2000; Barrett and Yang 2001).
The high-definition DVD (HDDVD) market has recently seen the emergence of Blu-ray as the de facto dominant standard over the alternative HDDVD system. DVD players can usually display only one of these two formats, and the more consumers buy a particular type of player, the greater is the incentive for firms to release a wider range of movies in the corresponding format. Each consumer’s purchase therefore has an externality—a spillover effect—in the sense that it increases the value for every other customer of having a player of the same format. At the same time, consumers may be reluctant to purchase a player of either format while there is uncertainty as to which will become dominant in the future. Standardization makes it possible to overcome this reluctance and develop the spillovers more completely than would be possible if each equipment manufacturer adopted its own technology standard.

Information asymmetries. Information asymmetries refer to the availability of product-related information to buyers and to sellers. For example, a consumer wants to buy a car that is safe and has a certain level of fuel efficiency, but until she actually acquires it and starts using it, it is very difficult to tell to what extent it meets those requirements. The carmaker is in a much better position to know the car’s true characteristics. An unscrupulous manufacturer might advertise a car as being safe and fuel efficient when in fact it is not.2 How can the consumer go about finding the desired type of car when she knows that advertisements may not always be truthful? Standards can offer a way out of this set of difficulties; if the consumer sees that an independent testing authority has certified that a car meets a particular safety standard, then she can be confident about its characteristics. Objectives such as quality and fitness for purpose are commonly pursued through these kinds of standards. Alternatively, standards can be seen as a way of reducing the costs a consumer must bear in searching for the product that best matches her preferences (see, e.g., Jones and Hudson 1996).

Producers also need information on consumer tastes to manufacture profitable products. Gathering such information can be costly, especially for overseas firms that may be unfamiliar with local preferences and practices. Standards can help make this process simpler and less costly, to the extent that they summarize a set of characteristics considered to be valuable in the local market. (See Swann, Temple, and Shurmer 1996 and Moenius 2005 for a discussion of this mechanism.)

Designing and Implementing Product Standards

Given the role that standards play in the economy, they should be set up to promote the desired social objectives while minimizing costs to the extent possible. Standards may be mandatory or voluntary. Mandatory standards (also referred to as technical regulations) must be met by firms as a matter of law, and penalties are set for non-conforming products. Compliance with voluntary standards remains a matter of commercial choice for individual firms. In practice, both types of standards exist side by side, although the bulk of standards-related activity in most countries now consists of voluntary standards. Mandatory standards tend to be mostly confined to core public health and consumer safety areas, such as requirements governing food and medicines. This coexistence is also apparent at the regional level—for example, in the European Union’s (EU) “New Approach” to harmonization. (See European Commission 2000 and WTO 2005 for a discussion.)

Given the coexistence of mandatory and voluntary standards, the responsibility for meeting those standards is increasingly shared between the public and private sectors. In most cases, standards are set up in a complex environment characterized by interplay between private and public interests and agents (Casella 2001). In the United States, for instance, the FDA is a public body (part of the executive branch), and its standards are mandatory and enforceable through the executive branch and the courts. At the same time, the American National Standards Institute (ANSI), a nonprofit organization, develops and promulgates voluntary standards in a wide range of areas. Sometimes the boundaries between public and private organizations can become blurred. ANSI, for example, is a private law body, but its members include government agencies, as well as private sector organizations.

In this public-private partnership, the state often finds itself at an informational disadvantage with respect to the private sector when it comes to designing and implementing particular standards. It is therefore important for policy makers to find the right balance between public and private initiatives and to ensure that they work together. For instance, in the European Union’s New Approach to harmonization, the public sector takes the lead in enacting mandatory core standards in certain sectors, but private standards organizations such as the European Committee for Standardization (CEN) remain responsible for developing detailed voluntary standards setting out particular ways in which products can be designed and built to meet the mandatory standards (European Commission 2000).

Of course, drafting the documents containing product standards is only part of the process. National standards systems require supporting infrastructure to ensure the effective implementation of standards. Figure 10.1 presents the infrastructure components of a “farm-to-fork” national quality system. All standards systems need a solid basis in
metrology—the establishment of accurate, reliable, and traceable measurements. Without reliable means of measurement, product standards become meaningless, since there is no way of assessing a product’s performance in relation to the set of benchmarks set out in a standard.

A sound basis in metrology makes it possible to demonstrate whether specified requirements relating to a product have in fact been met. This process, known as conformity assessment, can be completed either through a supplier’s declaration of conformity, in which the seller states that the product meets certain requirements, or through a third-party conformity assessment. In the latter case, an independent laboratory tests whether the product meets certain requirements, and if it does, the laboratory certifies conformity. In some cases, conforming products may receive the right to display a particular logo or label, such as “CE” for certain European standards, or they may be included in an official register of conforming goods. For third-party conformity assessment to be reliable, testing laboratories must themselves be subject to independent assessment of their equipment and processes. Accreditation of testing laboratories serves this purpose.

Standardization involves a complex and technically sophisticated set of organizations and processes. Depending on their level of development, countries, especially developing countries, may need to be selective when they adopt standards infrastructure. Regional cooperation offers a way for countries to share the burden and spread the costs of setting up standards infrastructure. The creation of regional agencies for metrology, testing and conformity assessment, accreditation, and standardization is an example of a concrete approach to cooperation. Use of foreign conformity assessment mechanisms is another possibility, where domestic capacity is weak.

Regional and International Dimensions of Standardization

The rationales for standards discussed above also apply in a cross-border setting. Asymmetries of information between
consumers and producers are even more serious in a traded-goods context because of the ineffectiveness on the international plane of signaling mechanisms that work domestically, such as firm reputations built up over a long period. In addition, a number of important public policy goals—concerning environmental protection, for example—are now recognized as having regional and even global dimensions. In these and other areas, countries are increasingly keen to cooperate on standards, at least to some extent, at the transnational level, through PTAs or the WTO.

The ISO is just one among many transnational entities that issue standards. It is a network of national standards institutes, and, in keeping with the private-law character of many of these institutes, it is a nongovernmental organization. Its standards are, accordingly, private and voluntary.

Another example of international standardization is the Codex Alimentarius Commission, a public organization created as a joint venture between the World Health Organization (WHO) and the Food and Agriculture Organization of the United Nations (FAO). Unlike the ISO, the commission deals with only one area of standardization, food safety. Although its standards do not have direct legal force, they serve as the basis for legally binding rules in many countries (see box 10.3, below).

In addition to international structures such as the ISO and the Codex Alimentarius Commission, some regional bodies deal with standardization. Among them is CEN, which has a regionwide standardization function in the EU. Its members are the national standards bodies of 30 European countries; CEN itself is a private nonprofit organization. Although the standards CEN issues are voluntary, member organizations are required to issue its standards as national standards and to withdraw any inconsistent national standards. CEN’s standards are therefore often referred to as being “European standards” or “harmonized European standards” because they are expected to apply with equal force in all member countries.

**Cost Effects of Standards**

Policy makers need to be aware of the costs entailed by standards and of their potential to distort regional and global trade relations. The implementation of standards policies might lead to discrimination between national and foreign suppliers or between different categories of foreign suppliers. From the point of view of foreign exporters, product standards in an importing country can sometimes represent an additional source of costs (Maskus, Otsuki, and Wilson 2005). Moreover, even though national standards may be legitimate, their multiplicity and diversity can mean duplication of market access costs that may be inefficient from a global perspective. These effects can put foreign competitors at a disadvantage and generate—intentionally or not—a form of protection for domestic industries. Coordination among countries in implementing their standards policies may yield harmonized policies, reducing the cost of market access while preserving regulatory objectives. A potential difficulty with this kind of coordination—discussed in more detail below—is its assumption that it is optimal for the same standard to apply across a wide range of countries. In fact, however, different economic and social conditions may call for different standards.

What kinds of costs can compliance with product standards impose on manufacturers? It might, for example, be necessary to redesign a product, in whole or in part. New machinery may have to be purchased, or a new production process may have to be set up. All these adaptations are associated with increased fixed costs of production (including sunk ones), in the sense that they largely involve a one-off payment rather than a recurring expense.

In some cases, adaptations to deal with product standards can affect the level of variable production costs, as well. If the new production process uses more expensive inputs, or if the new machinery is more costly to run, the unit cost of production will increase. It might

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**Box 10.3. Do Voluntary Standards Have Cost Effects, Too?**

At first glance, it might seem that only mandatory standards would have measurable cost impacts. After all, manufacturers are, in principle, free not to comply with voluntary standards if they so choose. Legally speaking, they are not required to pay additional costs to access a particular market. In practice, the situation is not that straightforward. If compliance with voluntary standards is a commercial imperative, even if not a legal one, we might still expect to see some evidence of cost effects. Is this, in fact, the case?

As it turns out, there is substantial evidence that voluntary standards do indeed affect trade flows, which is consistent with their having a significant impact on cost. Two studies that look into voluntary standards find significant impacts of standards on trade—negative in the work of Czubala, Shepherd, and Wilson (2009), and a mix of sector-specific negative and positive results in the case of Moenius (2005). In addition, Shepherd (2007) finds evidence that voluntary standards affect export diversification in partner countries, which may be indicative of an effect on fixed, not just variable, costs of production. These findings, taken together, suggest that although compliance with voluntary standards may not be necessary as a matter of law, it is still of sufficient commercial importance to produce important links with production costs and trade flows.
also be necessary to formally demonstrate compliance with a particular standard, in which case additional testing and certification procedures might be needed. These procedures also increase variable production costs.

Maskus, Otsuki, and Wilson (2005) collected data from nearly 700 firms in 17 developing countries, as part of an effort to better understand the cost effects of foreign standards. The authors’ findings are in line with the types of effects discussed above. In their sample, the fixed costs of compliance with foreign standards are, on average, nearly 5 percent of firm value added. Moreover, increased compliance investment is associated with a small but significant effect on variable production costs.

In assessing the supply-side effects of standards, the distinction between fixed and variable costs is important. Recent advances in the theory of international trade (Chaney 2008) suggest that higher variable costs primarily affect trade by reducing exports per firm among the small subset of firms that already exports to foreign markets. Higher fixed costs, by contrast, tend to force some firms out of export markets entirely, thus altering the range of products exported, or the set of foreign markets served, or both.

The costs and benefits of standards will also depend on their dynamic effects in the long run. For instance, Jaffee (2003) shows how the horticultural industry in Kenya has used changing European regulations as a stimulus to innovation, competitive repositioning, and industrial upgrading. Diaz Rios and Jaffee (2008) find that developing-country firms responded differently to stricter aflatoxin regulations in the EU. The new rules only exacerbated the commercial difficulties of some exporters, but they offered an opportunity for others to upgrade their production techniques and gain additional market share. The reallocation of resources over time from small and relatively inefficient firms to larger, more efficient ones is associated with gains in sectoral productivity—a kind of technological upgrading that holds significant development promise.

Consolidation: Trade Effects of Product Standards

This brief discussion shows that the overall economic impacts of product standards are difficult to assess. From the producer’s point of view, there are two opposite forces at play in the short term: possible cost increases stemming from the need to adapt production processes and demonstrate conformity, and possible cost savings through the transmission of market-specific information that would otherwise be costly to obtain. Over the longer term, there is also potential for technological progress induced by standards. At the industry level, standards may lead to a reorganization of firms and of the sector around more efficient production methods. (See, for instance, Maertens and Swinnen [2009] on how the Senegalese vegetable export chain reacted to the tightening of European standards.) The overall impact on producers is therefore ambiguous and depends on the relative strength of these two effects in particular cases.

Because of this theoretical ambiguity, empirical work to assess the trade impacts of standards is difficult to interpret, since there is no simple way of distinguishing results that are consistent with theory from those that are not. Although empirical work emphasizes the relative size and significance of these different effects, it remains difficult to identify them separately in a satisfactory manner. Even apart from this issue, empirical work is hampered by the need to rely on very rough proxies to measure the costs associated with standards: only in rare cases is a direct measure of restrictiveness possible (see box 10.4).

A comprehensive economic assessment of product standards couched in terms of a measure of aggregate welfare could not, of course, be limited to the supply side. It would need to take into account the extent to which a particular standard reduces social costs (e.g., less dangerous products) or creates social benefits (e.g., compatible systems) and thus brings the economy closer to its welfare optimum. Such a comprehensive analysis is at the core of the concept of a regulatory impact assessment (see, e.g., Hahn and Litan 2005) and could easily be extended to the regional context by explicitly considering costs and benefits with cross-border dimensions. However, to take up the issue of internalization and aggregate welfare would be to go beyond the scope of this chapter. Hence, the next sections will deal exclusively with observable trade effects, and largely with the supply-side effects discussed above.

A final observation, however, points toward what are likely to be efficiency costs. The implementation of national standards policies is, by and large, rarely coordinated with trading partners, and it would be surprising if this shortcoming did not lead to more complex and costly standards systems than are strictly necessary. In particular, developing countries may not have available to them the best standards technology, and they may consequently implement inefficient policies—policies that are too costly or do not achieve their objectives. Furthermore, because national policies, even if they incorporate some form of regulatory impact assessment, are decided without consideration of cross-border effects and externalities, it is likely that duplication and incompatibility of standards and practices will create systemic costs.
Dealing with Standards in PTAs

Having set out the general context, we now turn to look more closely at the particular issues raised by product standards in PTAs.

First, it should be clear from the discussion above that regional standards can produce economic effects similar to those associated with national standards. The essential dynamic is one of insiders and outsiders: members of a PTA may benefit from a liberalization of product standards that, at the same time, creates costs for countries outside the agreement.

Second, agreed disciplines on standards in PTAs should be viewed in the context of the overall bargain leading to the agreement, including the mercantilist objectives that may motivate the negotiations. It is not a given that provisions on standards in a PTA necessarily improve on existing national policies; countries may negotiate preferential market access in exchange for nonoptimal standards policies set by their trading partners. (See Fink, ch. 18 in this volume, for a discussion in the context of intellectual property rights.)

Third, PTAs offer a specific mode of trade liberalization when it comes to standards: the recognition (often mutual) of standards and procedures. This approach to liberalization is specific in the sense that it is difficult to achieve it multilaterally. The mutual recognition of standards and procedures requires a case-by-case approach that only seems practical in PTAs consisting of a select number of trading partners with reasonably similar economic and social characteristics. A case-by-case approach is also often required in light of the political sensitivities generated by changes in product standards in areas such as environmental protection and public health.

The importance of these effects is demonstrated by the prominence product standards have been receiving in PTAs: Budetta and Piermartini (2009) find that 58 of the 70 PTAs in their sample contain provisions on product standards. In this section, we briefly examine the economics of preferential standards liberalization and then discuss two of the main approaches that have been adopted within regional forums and that have also influenced developments at the multilateral level: harmonization and mutual recognition (Nicolaides 2001).

The Economics of Preferential Standard Liberalization

Liberalization of standards in PTAs is not necessarily de jure discriminatory, and when it is, it is not necessarily de facto discriminatory. This point is clearly made, for instance, by Baldwin, Evenett, and Low (2009) for several deep integration dimensions. Thus, a PTA on standards does not translate automatically into a preferential liberalization of standards; in some instances preferential liberalization is equivalent to multilateral liberalization. We return to this issue in the last section of this chapter.

As we shall see below, there are different routes to liberalization of standards in PTAs. Some of these—mutual recognition agreements and harmonization with standards of the preferential trading partner that differ from international standards—are distinctly preferential. A parallel can be drawn with preferential liberalization of tariffs: standards,
like tariffs, create compliance costs for business that liberalization can reduce. A key difference is that standards do not raise revenue (see “A note on nontariff barriers” in Baldwin, ch. 3 in this volume). Or, rather, standards are not supposed to bring in revenue, but there are instances in which fees must be paid—for example, for the certification process or for laboratory examination costs. These processes of certification and accreditation may create rents that are captured by public or private domestic interests. In this case, the analysis of preferential liberalization is similar to that of the tariff case, with the exception that the tariff revenue is replaced by the rent capture. In strict welfare terms, if domestic interests are benefiting from this implicit taxes on importers, it is possible that preferential liberalization may generate the negative effects due to trade diversion.

Even when undertaken on a discriminatory basis, preferential liberalization may nevertheless contribute to kick-starting a process of reform of national standards policies. By introducing more rigorous processes in standards infrastructure operations, PTAs can make it more difficult to use standards for purposes other than consumer protection, even when the standards are not internationally harmonized.7

It is also the case that the gap between the prices of the good inside the importing nation and the exporting nation is dissipated by costly activities that are required to satisfy the standards. As shown in more detail in chapter 3, there is no possible negative impact on the importer. Preferential liberalization is unambiguously beneficial in this respect because it generates an economy for both exporter and importer of not having to pay the costs of meeting the standards—even though trade diversion may still occur, since a preference is created. Thus, there is a favorable presumption toward discriminatory liberalization of standards in the absence of rent capture.

### Harmonization of Standards

As noted above, the need for producers to comply with multiple, different standards to access different markets could act as a barrier to trade. One response to this problem is to seek to remove the differences between national standards through a process of harmonization. In this context, harmonization means the convergence of national standards toward a common set of requirements (box 10.5). The question of whether it is optimal for a particular set of countries to adopt the same standard depends on the balance between two effects: the potential for increased trade thanks to reduced cost multiplicity, and the likelihood that different national preferences and resource endowments will

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**Box 10.5. Facilitating Market Access: Harmonization, Equivalence, and Mutual Recognition**

Part of the international effort around standards and technical regulations aims at reducing the overall burden on traders. Coordinating policies to make them more “alike,” or more “compatible,” is one way of reducing the costs of compliance. There are three ways of achieving this: harmonization, equivalence, and mutual recognition.

**Harmonization** is straightforward; it simply means replacing two or more rules or procedures with a single one. Nevertheless, the term can be somewhat misleading because there are degrees of harmonization, involving rules alone, procedures alone, both rules and procedures, or even higher-level objectives only (essential requirements), as in the EU’s New Approach.

The aim of the other processes, equivalence and mutual recognition, is to preserve diversity of rules and procedures, provided that “equivalent” or “like” objectives are met. Nicolaïdis and Egan (2001, 456) offer the following definition:

- **Recognition** refers to the acceptance of equivalence of selected foreign standards or regulations. Mutual recognition establishes the general principle that if a product or a service can be sold lawfully in one jurisdiction, it can be sold freely in any other participating jurisdiction, without having to comply with the regulations of these other jurisdictions. This involves a transfer of regulatory authority from the host jurisdiction to the home jurisdiction from which a product, a person, a service or a firm originates. The “recognition” involved here is of the “equivalence,” or at least “compatibility” of the counterpart’s regulatory system; the “mutual” part indicates that the reallocation of authority is reciprocal and simultaneous.

Thus, one difference is that mutual recognition can be broken down into two components: the “recognition” of the equivalence of a partner’s regulatory system, and the “mutual” aspect, which indicates that both parties simultaneously recognize the other (Nicolaïdis and Shaffer, 2005). Equivalence can thus in principle be asymmetric and unilateral as in U.S. PTAs, where the approach is that parties can decide to accept the other party’s regulations as equivalent.

**Equivalence** can be achieved if the outcome of two standards is identical, even though the means of reaching it differ. Veggeland and Elvestad (2004) quote the example of hard cheese, the manufacturing of which in Australia requires the heating of milk, whereas Switzerland achieves the same levels of pathogen destruction through other production methods, using raw, unpasteurized milk. Equivalence is thus the acceptance that a third party’s standards or procedures, in effect, fulfill national requirements.

**Mutual recognition** normally refers to the acceptance of certification of a partner country. It can also be used to refer to agreements on specific sectors or on specific instances of application, or to agreements between specific partners of the “principle of mutual recognition” (Nicolaïdis and Egan 2001).
interact to produce different optimal regulations in each closed economy. For example, Norway and Zambia might be able to realize some trade gains by adopting the same standards for environmentally friendly packaging materials, but their technological and enforcement capacities differ greatly, and it could be very difficult to ensure that the standard is in fact implemented. Moreover, the differences in income levels and relative land abundance might suggest that Norwegians and Zambians could legitimately have different preferences in relation to the trade-off between the cost and the environmental properties of packaging materials. These issues are extremely complex to resolve but need to be kept in mind when examining harmonization efforts. (See Bhagwati 1996 for a review.)

Harmonization of standards can take place in two ways. Unilateral harmonization occurs when one country or group of countries simply adopts a standard prevailing in another country. More common is concerted harmonization, whereby countries work together to identify a set of requirements that is acceptable to all parties. Concerted harmonization can be a lengthy and uncertain process, requiring extensive negotiations among the parties concerning every standard in each jurisdiction. The more divergent the parties’ interests and approaches to standardization, the more difficult it is likely to be to negotiate a set of harmonized standards. Successful harmonization therefore tends to involve countries at reasonably close levels of development, and with some broad similarities in their preferences and their general approaches toward regulation.

**Trade effects of harmonization: Insiders versus outsiders.** With respect to trade effects, the distinction between countries inside the harmonizing region and those outside is crucial. Ordinarily, the cost-reducing effects of harmonization accrue primarily to firms within the region where standards are harmonized. Foreign exporters still must satisfy the importing region’s standards, in addition to whatever requirements may prevail in their home country. They therefore face some level of cost multiplicity (albeit lower than the levels that prevailed prior to harmonization). In the case of “harmonizing-up” by the preferential area—that is, the adoption of a stricter standard than prevailed prior to harmonization—it may even be more difficult to access some markets (box 10.6).

At the same time, however, harmonization allows foreign exporters to realize economies of scale by granting them access to a larger market. Exporters have to meet only one type of standard for the whole region, and this reduces the fixed costs of compliance. The balance between cost and scale effects is an empirical issue that must be resolved case by case. The currently available evidence suggests that the cost effect sometimes dominates in the case of regional harmonization but that harmonization with international standards generally leads to dominance of the scale effect. In other words, the net effect of harmonization on the exports of excluded countries tends to be negative for regional harmonization but positive for international harmonization.

One way of dealing with the difficulties created by this insider-outsider dynamic is the hybrid approach adopted by the members of the Asia-Pacific Economic Cooperation (APEC). APEC is a particularly heterogeneous regional grouping that includes developed countries such as Australia, Japan, and the United States; developing countries at various income levels (e.g., China, Peru, and Thailand); and transition countries (the Russian Federation and Vietnam). Such a diverse membership would seem to suggest that concerted harmonization could be a

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**Box 10.6. Trade Effects of Harmonization: Empirical Evidence**

There is substantial empirical evidence to the effect that harmonized standards are often associated with increased trade among harmonizing countries. For instance, Henry de Frahan and Vancauteren (2006) find that harmonization of standards across Europe tends to boost trade among European Union (EU) members: bilateral exports in sectors with harmonized food regulations are, on average, 253 percent higher than in nonharmonized sectors. The tariff equivalent of nonharmonization ranges from 73 to 97 percent, depending on the sector. These findings are consistent with the cost-based analysis presented above: a single, harmonized standard avoids the cost multiplicity that arises from multiple standards, making it easier for producers to access an expanded market within the harmonization zone. Of course, this dynamic must be nuanced in certain cases because of the possibility that information effects will work in the opposite direction: Moenius (2005) shows that the effect of harmonization on trade is not always positive, even for the harmonizers, and suggests that the reason could be the dominance of information effects in some sectors.

For countries outside the harmonization zone, the picture is not generally so rosy. Empirical work suggests that there is considerable scope for a kind of trade diversion effect: the cost reductions implicit in harmonization can lead to a switch in demand to a relatively high-cost supplier within the harmonization zone, to the detriment of lower-cost suppliers elsewhere. In the case of the EU, Baller (2007) and Chen and Mattoo (2008) show that harmonization under the EU’s New Approach directives can sometimes lead to a switch in demand to relatively high-cost suppliers within the zone, at the expense of lower-cost suppliers elsewhere. In the case of the EU, and more generally in the harmonization zone, it is plausible that the EU’s harmonization program involves a significant degree of harmonizing-up to a higher standard, which would also tend to have negative trade consequences for excluded countries. Developing countries are more likely to be affected than developed ones, presumably because adaptation costs are higher in a technology-poor environment.
particularly long and uncertain process. Similarly, the presence of a number of large countries makes it unlikely that unilateral harmonization by all members except one would be a possibility.

Consistent with its commitment to “concerted unilateralism” and “open regionalism,” APEC has therefore adopted an intermediate approach. APEC member economies commit to increasing harmonization of their own national standards with international standards, such as those issued by the ISO; they identify priority sectors in which harmonization should be pursued first; and they undertake to participate actively in the work of international standards bodies. As with other APEC commitments, member economies must make public progress reports (individual action plans) each year. Helble, Shepherd, and Wilson (2007) show that substantial progress appears to have been made on these points.

Trade effects of international harmonization. The empirical literature discussed above examined the impact of regional harmonization on outside countries. In addition, there is now a growing body of empirical evidence suggesting that harmonization with international standards can mitigate the costs that foreign exporters might otherwise face. Czubala, Shepherd, and Wilson (2009) find that EU standards that are not harmonized with international (ISO) norms have a negative and significant impact on exports of African clothing to the EU; internationally harmonized EU standards have no statistically significant impact.

These results are confirmed by Shepherd (2007), who focuses on the fixed-cost effects of standards. A 10 percent increase in the total number of EU standards leads to a 6 percent reduction in the variety of products exported by non-EU partner countries. This finding is consistent with the idea that standards tend to generate fixed costs that exporters must pay to access foreign markets. By contrast, a 10.0 percent point increase in the proportion of those standards that are harmonized with ISO standards is associated with a small (0.2 percent) but significant increase in partner-country export variety. These results suggest that convergence of regional standards to international norms can be an effective way of limiting the potential for negative trade effects in excluded countries, in particular, developing countries.

Mutual Recognition of Standards or Conformity Assessments

Another way of dealing with the cost issues raised by divergent national standards is mutual recognition of standards. Whereas harmonization eliminates the costs associated with different standards by reducing multiplicity, mutual recognition allows each country to maintain potentially different standards but requires each country to accord equal treatment to goods produced in partner countries, even though standards might be different. If South Africa and Nigeria decide to harmonize standards, they adopt a single set of requirements that applies equally in both countries. If they agree to mutual recognition of standards, South African products that conform to local standards can be put on the Nigerian market, even if they do not comply with Nigerian standards (and vice versa). Of course, it is possible for recognition to be unilateral (equivalence) rather than mutual; for example, Nigeria may decide to treat products conforming to South African standards as equivalent to those conforming to its own standards.

An advantage of mutual recognition of standards over harmonization is that once the principle has been agreed on, it is not necessary to engage in long and complex negotiations over each individual standard; the rule simply applies across the board. National standards agencies continue to go about their work as usual, the only difference being that nonconforming products from foreign markets might now appear on the domestic market.

In fact, however, mutual recognition can be extremely difficult to implement among countries with markedly different social preferences or with fundamentally different approaches toward regulation. Although the rule is relatively easy to apply in practice, it is usually difficult for countries to reach agreement as to whether it should be applied at all. Mutual recognition can be seen as creating a risk that one country’s standards might be undermined by another country’s different—perceived as lower—standards. In an environment of mobile capital, the fear is that a sharp difference in standards might create an incentive for production to relocate from high-standard to low-standard countries. This would, in turn, provide a motive for authorities in the high-standard country to lower standards in a “race to the bottom.”

Although there is considerable debate as to the empirical relevance of this dynamic, there is no doubt as to its political relevance. (See Drezner 2006 for a review.) As a result, mutual recognition is generally only seen among relatively similar countries. European countries, for instance, adopted a form of mutual recognition rule as set out in the Cassis de Dijon decision: products that comply with mandatory regulations in one European country cannot usually be prevented from accessing markets in other European countries. But even within a relatively homogeneous grouping such as the EU, the idea of adopting a type of mutual recognition rule for services trade—the “country of
origin” principle—proved so controversial that it had to be largely shelved (box 10.7).

Another form of mutual recognition applies to conformity assessments. Under such a regime, countries agree to recognize the results of testing and certification procedures conducted in other countries, even though there is no harmonization or mutual recognition of the underlying standards themselves. For example, if the EU and Australia agree to mutual recognition in the area of conformity assessments, European exporters can have local laboratories certify their compliance with Australian standards. Since the question of recognition is limited to the performance of scientific tests and the certification of results, this procedure should be considerably easier for countries to negotiate than full-scale mutual recognition of standards. Fundamentally, all that is required is that the recognizing countries have a certain level of trust concerning the quality of testing and certification authorities overseas.

**Box 10.7. Trade Effects of Mutual Recognition: Empirical Evidence**

The available empirical evidence on the effects of mutual recognition is much more limited than in the case of harmonization. Chen and Mattoo (2008) look at the effects of European mutual recognition agreements (MRAs) with other (non-EU) countries that cover conformity assessments. They find that conformity assessment MRAs uniformly promote trade between the parties. Baller (2007) confirms that result for a wider range of countries. Amurgo-Pacheco (2006) finds evidence that conformity assessment MRAs with relatively open rules of origin tend to be much more common than mutual recognition of standards: 29 agreements provide for harmonization of mandatory standards, and 25 provide for harmonization of voluntary standards. By contrast, only 5 agreements include mutual recognition of voluntary standards, and 15 provide for mutual recognition of mandatory standards.

Mutual recognition is the most frequent approach for conformity assessment, perhaps because it is easier to achieve mutual recognition of conformity than of standards. Instead of implying equivalence of regulatory objectives, which is a sensitive issue in many cases, recognition of conformity assessment only looks at whether the ways in which tests are performed and certification is granted are equivalent in the countries concerned.

Legally, there is an important difference between the structural patterns of the two types of obligation. Agreements to pursue harmonization can sometimes impose a relatively small number of up-front obligations, and it is common for the parties to commit to ongoing negotiations with a view to harmonization. The devil is thus in the details, since the extent of harmonization that in fact takes place depends on the outcome of a long and complex process. Moreover, Budetta and Piermartini (2009) point out that the majority of agreements with harmonization obligations include the EU as a party, and most of them require harmonization with EU standards. This dynamic reflects both a long-term dynamic within the EU and the fact that most of these agreements involve much smaller and less developed economies. Thus, the figures cited above also reflect the influence of different “models” of treatment of standards and technical regulations in preferential agreements.

**A Review of Standards in PTAs**

How commonly is each of the above approaches actually applied in practice? Recent work by Budetta and Piermartini (2009) provides some useful first results (see table 10.1). The authors analyze the texts of 70 regional and bilateral PTAs, of which 58 contain some kind of provision related to product standards. Interestingly, harmonization appears to be much more common than mutual recognition of standards: 29 agreements provide for harmonization of mandatory standards, and 25 provide for harmonization of voluntary standards. By contrast, only 5 agreements include mutual recognition of voluntary standards, and 15 provide for mutual recognition of mandatory standards.

<table>
<thead>
<tr>
<th></th>
<th>Voluntary standards</th>
<th>Mandatory standards</th>
<th>Conformity assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Harmonization</td>
<td>25</td>
<td>29</td>
<td>25</td>
</tr>
<tr>
<td>Mutual recognition</td>
<td>5</td>
<td>15</td>
<td>39</td>
</tr>
</tbody>
</table>

Source: Adapted from Budetta and Piermartini 2009, table 2.
Some PTAs go even further in their treatment of product standards and incorporate institutions designed to make the process of standard setting and administration work more smoothly between trading partners. Of the agreements reviewed by Budetta and Piermartini (2009), 34 provide for some kind of regional administrative body to deal with the administration of standards systems, and 24 include a dispute settlement mechanism. Interestingly, 22 agreements have provisions relating to technical assistance. This last point is consistent with the increasing trend toward North-South integration agreements and suggests that the parties are aware of the asymmetric challenges that can arise when trading partners at different levels of development pursue integration bilaterally. It is impossible, however, to draw any general conclusion as to the effectiveness of these provisions because the way they are implemented is so important. Legal provisions of agreements tell us about the intentions of their drafters but not about the actual implementation.

Still, there is evidence in Europe, in the Southern Cone Common Market (Mercosur, Mercado Común del Sur), and in the Andean countries that PTAs generate actual changes in standards policies. Aldaz-Carroll (2006) reports that by 2004, Mercosur had developed about 370 regional voluntary standards and 407 regional technical regulations and sanitary and phytosanitary (SPS) measures. The Andean Community has harmonized technical regulations for 31 agricultural products representing about 60 percent of intraregional trade. An additional piece of indirect evidence of the attention paid to implementation issues is provided by Budetta and Piermartini (2009), who examine WTO disputes concerning technical regulations and find that a number of them involve PTA partners, suggesting that such disputes are linked to the agreements they have signed.

What do existing regional experiences tell us about the ingredients of a successful approach to standards? Aldaz-Carroll (2006) reviews the evidence from Asia and Latin America, and concludes that the following aspects are crucial:

- Building trust among parties to the PTA
- Building regulatory capacity among parties
- Focusing on simplification, transparency, and dynamism in the standards-upgrading process
- Allowing for gradual reform where appropriate
- Promoting mutual recognition of conformity assessments as a first step
- Identifying priority sectors for harmonization.

Table 10.2. Content of Preferential Trade Agreements Relating to Provisions on Standards (percent)

<table>
<thead>
<tr>
<th>Provision</th>
<th>Lesser, based on 24 case studies</th>
<th>Budetta and Piermartini, based on 58 PTAs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reference to WTO TBT Agreement</td>
<td>86</td>
<td>52</td>
</tr>
<tr>
<td>Harmonization of standards, technical regulations, and conformity assessment</td>
<td>47</td>
<td>46</td>
</tr>
<tr>
<td>Harmonization to regional technical regulations and standards</td>
<td>34</td>
<td>45</td>
</tr>
<tr>
<td>Equivalence of technical regulation and standards</td>
<td>33</td>
<td>26</td>
</tr>
<tr>
<td>Recognition of conformity assessment</td>
<td>77</td>
<td>67</td>
</tr>
<tr>
<td>Transparency</td>
<td>80</td>
<td>52</td>
</tr>
<tr>
<td>Joint committee or regional body</td>
<td>80</td>
<td>62</td>
</tr>
<tr>
<td>Dispute settlement</td>
<td>80</td>
<td>50</td>
</tr>
<tr>
<td>Technical assistance</td>
<td>47</td>
<td>38</td>
</tr>
<tr>
<td>Metrology</td>
<td>14</td>
<td>29</td>
</tr>
</tbody>
</table>

Note: TBT, technical barriers to trade; WTO, World Trade Organization.
Lessons from the Standards Provisions in PTAs

The examination of specific provisions in agreements confirms that countries seek to use PTAs to help with market access and implementation of compliance with foreign standards. Chapter 11, which takes up the practice of product standards in PTAs, provides additional empirical information. The establishment of institutions to help with implementation is widespread and is often coupled with transparency requirements (box 10.8). These features suggest that regional institutions can contribute to making standards less burdensome to trade. Access to information, trust, and capacity building all matter. The need to coordinate national, regional, and multilateral efforts on standards might, however, place a significant strain on resources and capacity in some poorer countries.

The treatment of standards in PTAs is highly dependent on the type of agreement. First, agreements involving the EU and the United States each propose different models, and it is still unclear which advantages each partnership may or may not yield. Take, for instance, the question of recognition. Some U.S. agreements use the concept of equivalence, which can be pursued unilaterally by each partner without reciprocity. The EU on the other hand, focuses on mutual recognition or harmonization. It is also unclear which model is superior. Where the advantage lies is most likely to vary depending on the partner country (and the similarity of regulatory preferences). Second, agreements between partners at similar development levels (North-North or South-South) are more likely to lead to deep integration measures such as mutual recognition; Lesser (2007) cites the example of the Trans-Pacific Strategic Economic Partnership Agreement between Brunei Darussalam, Chile, New Zealand, and Singapore. Third, technical assistance dimensions are more prevalent in North-South agreements, where upgrading of capacity may be needed before regulatory reform takes place.

Finally, the agreements contain examples of good practice. Among them are, obviously, support for the multilateral WTO framework and, to the extent that it is consistent with the adoption of optimal standards, international harmonization efforts. Advance notification to trading partners is another. The approach favored by the United States

Box 10.8. How Small ASEAN Countries Manage to Access Certification and Accreditation Services

The absence of internationally recognized public laboratories need not act as a binding constraint on the implementation of mutual recognition agreements, provided that the private firm can either use a private company or obtain access to the testing infrastructure of neighboring countries. Permitting the efficient operation of private testing service providers (local and foreign) can enable export-ready firms to access testing services at low cost. In the presence of internationally recognized third-party certifiers, the absence of a national accreditation agency or office need not be a serious constraint. The major export markets will accept certification from these third-party certifiers.

Although the small size of the market in the Lao People’s Democratic Republic and in Cambodia might discourage foreign testing companies from establishing local branches and offering services across a wide range of sectors, at least one foreign third-party certification company has begun operating in Cambodia. Intertek, an internationally recognized testing company, has opened an office in Phnom Penh and is offering testing and certification services to exporting companies. The service conducts tests for companies that export garments to the U.S. and EU markets. Since the advent of Intertek, inspection costs have declined.

In Cambodia, Intertek has no contact with the government of Cambodia, but it works closely with foreign buyers. This example illustrates the absence of internationally recognized public laboratories need not act as a binding constraint on the implementation of mutual recognition agreements, provided that the private firm can either use a private company or obtain access to the testing infrastructure of neighboring countries. Permitting the efficient operation of private testing service providers (local and foreign) can enable export-ready firms to access testing services at low cost. In the presence of internationally recognized third-party certifiers, the absence of a national accreditation agency or office need not be a serious constraint. The major export markets will accept certification from these third-party certifiers.

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In Cambodia, Intertek has no contact with the government of Cambodia, but it works closely with foreign buyers. This example illustrates the importance of private sector third-party certifiers in enabling exporters to obtain the necessary documentation to prove they meet international standards.

East Asia is developing a network of calibration laboratories with traceability to physical measurement standards at the national level or to the internationally recognized national physical standards of another country. Most members of the Association of Southeast Asian Nations (ASEAN) have both privately and publicly owned laboratories that are accredited by a government accreditation service. The original six ASEAN members (Brunei Darussalam, Indonesia, Malaysia, the Philippines, Singapore, and Thailand) have entered into MRAs on laboratory accreditation with other ASEAN members. In the newer members of ASEAN, the CLMV countries (Cambodia, Lao PDR, Myanmar, and Vietnam), individual laboratories engage in MRAs with foreign counterparts; this is the case for Intertek in Cambodia.

In countries without a national accreditation agency, the government may contract a foreign accreditation body to carry out national accreditation activities on its behalf. Within ASEAN, the Brunei Ministry of Development has an agreement with the Singapore Accreditation Council (SAC) that includes the use of SAC accreditation of laboratories and of certification and inspection bodies and that, in addition, provides for training to build up capacity in Brunei Darussalam. A government can also allow foreign accreditation bodies to provide services directly to laboratories in a foreign country without any formal arrangement with the government. Although this would work for many markets, it would not assist with improved market access to the EU under any of the EU’s MRAs because, under those agreements, the exporting country is required to endorse the accreditation service.

to request justification for decisions to refuse equivalence also stems from the right kind of principles, as does the promotion of suppliers’ declarations of conformity. Finally, the establishment, in the context of agreements, of institutions such as specialized committees that meet regularly seems to offer a good venue for dialogue and exchange of information, enabling learning by doing, monitoring of implementation, and defusing of possible disputes.

Regional Standards in a Multilateral World

Standards in the WTO are disciplined by the Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement) and the Agreement on Technical Barriers to Trade (TBT Agreement). The WTO agreements do not force countries to adopt standards, but they do provide disciplines to be adopted when applying standards. For example, the SPS Agreement states a specific preference for the Codex Alimentarius. One very specific dimension of the two agreements is, therefore, to aim for a balance (some will see it as a tension) between countries’ autonomy to pursue domestic regulatory objectives and the objective of nondiscrimination.

WTO Disciplines on Regional Standards

Unlike other trade policies in which regional and bilateral PTAs may be seen as an exception to multilateralism, the SPS and TBT Agreements incorporate the regional dimension into their provisions:

• Articles 4.1, 9.2, and 9.3 of the TBT Agreement address PTA issues.
• Article 2.4 of the TBT Agreement recognizes that in some instances, international standards may not be appropriate means of fulfilling certain objectives because of “fundamental climatic, geographical, or fundamental technological problems.”
• Article 2.7 of that agreement seeks to promote recognition of other members’ equivalence of technical regulations.
• The TBT Agreement suggests that members seek mutual recognition agreements on conformity (Article 6.3).10
• The TBT Agreement refers to international and regional standards-setting bodies (Article 4.1), as well as regional certification bodies (Articles 9.2 and 9.3), although not to regional standards.
• Article 13 of the SPS Agreement refers to the applicability of the agreement to regional bodies.
• The SPS Agreement recognizes that national boundaries are not necessarily relevant for the application of SPS measures and refers to regional conditions (Article 6).

The fact that regional aspects are so explicitly mentioned in the TBT and SPS Agreements reflects the nature of standards, which must meet regulatory objectives such as protecting the environment. Meeting these regulatory objectives, by definition, creates barriers to trade. The role of the WTO is to help minimize any excessive burden on trade created by such regulations and to ensure that no discrimination arises from them. This requires that the need for regulation, as well as the principle of nondiscrimination, be taken into account (Trachtman 2003).12

In some instances, necessity may be compatible with regional interventions. At the same time, it has to be acknowledged that there is an immediate tension between the risk of discrimination created by any agreement between a select few and the pursuit of legitimate objectives of protection through regional standards interventions.

There is a certain lack of clarity as to how WTO disciplines apply to regional TBT and SPS measures because of the need to interpret the relation between the provisions of the General Agreement on Tariffs and Trade (GATT)—in particular, Article XXIV, on preferential trade agreements, and Article I, on the most favored nation (MFN) obligation—and the provisions of the SPS and TBT Agreements themselves. Trachtman (2003) is of the opinion that the WTO language does not require harmonization or mutual recognition within PTAs. He notes that a specific area of uncertainty relates to mutual recognition agreements, in particular, the potential that they create for discrimination toward nonparticipating trading partners; unlike the General Agreement on Trade in Services (GATS), the TBT and SPS Agreements do not suggest that recognition be offered on an open basis (i.e., that third-party countries be allowed to obtain recognition). A too strict application of the MFN principle, however, could prevent legitimate liberalization of trade in PTA through harmonization and recognition.

Regional Standards Systems and Multilateralism

As we saw earlier, regional standards and bodies are an important layer of the international trade system and are recognized as such in the WTO texts. In what way can regional initiatives be compatible with multilateral, nondiscriminatory, and open-trade objectives?

The first contribution of PTAs might be their role in enforcing multilateral disciplines, providing, in a way, some redundancy in enforcement. Multilateral and preferential agreements have different enforcement mechanisms that may strengthen each other. Concessions in PTAs may
also be perceived as more valuable to trading partners than multilateral concessions, and infringement of commitments as thus more costly. PTAs offer more possibilities for “soft” dispute resolution through dialogue and information sharing at an expert level that can help defuse many disputes. In some cases, too, PTAs offer more stringent arbitration rules than the WTO, foreshadowing, for instance, the repeal of offending standards. In some agreements, such as the North American Free Trade Agreement (NAFTA), the possibility of resorting to both the WTO and PTA dispute settlement mechanisms is explicitly mentioned (Budetta and Piermartini 2009).

Second, PTAs can offer scope for further autonomous liberalization in the area of standards by promoting harmonization in areas not explicitly covered by the WTO, contributing to the elimination of national standards, or promoting provisions that are stricter than WTO language. In the first instance, given that standards are generally designed to be MFN—that is, the standards specification is the same for products from all origins—regional standards design or discipline can complement multilateral disciplines (Lesser 2007; see also the further discussion below). Mercosur provides an example of harmonization of regional standards. In addition, as Trachtman (2003) notes, agreements among countries with more homogeneous regulatory preferences may render the reduction of standards barriers easier. In this second instance, principles similar to those professed by the WTO are adopted, but in a more binding way.

In some instances, national systems may not be adapted to guarantee the correct application of a given standard. The economic reason for such a situation is the existence of cross-border externalities or cross-border economies of scale. In such circumstances, transnational cooperation may be called for. The SPS Agreement mentions regional conditions with respect to diseases and pests that may require cross-country coordination to ensure control or eradication. (This is an example of an externality.) Small countries may also lack the resources to develop adequate institutions to manage standards. In particular, accreditation and metrology bodies may not be available in some countries, or it might not make economic sense to have such services in small markets, and access to regional facilities in a partner country is therefore needed (an example of economies of scale). Thus, international cooperation might help implement a “division of labor” among countries according to their specific comparative capacities in certification (Aldaz-Carroll 2006).

A related point is the capacity of PTAs or regional institutions to help with the implementation of standards and, more generally, with the sharing of experience. This may go beyond deeper harmonization, to the definition of common procedures (e.g., risk management, testing protocols). Mutual recognition, or, in WTO language, equivalence of measures, in standards or in the testing and certification of trade partners, is a facilitating practice that is implemented through specific ad hoc agreements (e.g., the EU–U.S. agreement on mutual recognition of conformity assessment) or as part of PTAs. This process is essentially bilateral or, in some rarer cases (the EU, Mercosur) regional, since relatively intensive cooperation among the parties is required if it is to be acknowledged that foreign standards or testing systems are equivalent to national ones and go toward meeting the same regulatory objectives.

Finally, regional cooperation can also involve the provision of technical assistance and transfer of knowledge (see box 10.8, above). Such a level of cooperation can be easier to attain and can be more flexible than in international agreements.

Regional Standards: Stumbling Blocks, or Building Blocks?

Like two sides of the same coin, the characteristics of preferential cooperation that could favor multilateral liberalization are often the same that could hinder it. At the heart of this paradox is the fact that cooperation creates a “special relationship” to which other trading partners lack access. Two cases can arise. The first is that this preferential relationship is used to raise the standards applied to the rest of the world (without a justifiable change in the regulatory objectives). This can occur when a regional standard that is used as the basis of harmonization is protectionist in intent. An example of a protectionist regional standard is Mercosur’s prohibition of imports in wine in barrels (Nofal 2004).

The second, more common, occurrence is when the preferential relationship, while leaving standards outside the PTA unchanged or improved and trade within the parties to the agreement liberalized, provides preferential access to products from within the PTA but not to third parties, leading to trade diversion. This is what happens with “nonopen” MRAs that are confined to members of the agreement only and cannot be extended to third countries. The economic incentives so created are the same as for other forms of preferential access; they generate market access rents that may act in the future as stumbling blocks to further liberalization.

There is also the related question of whether regional standards systems produced by preferential agreements may, as they grow in size, create disincentives for progress toward greater international harmonization, as the cost of
changing standards rises in relation to the marginal benefit of increased market access.

The cost of switching to more open international standards and certification can be increased in two ways. First, problems of compatibility and complexity can arise when a country belongs to many standards systems. Second, regional systems may alter incentives for further liberalization. Once a country joins a regional standards system, changing to an international system may not be attractive enough because the costs would be too high and the marginal benefit of extra market access too small. There is also the possibility that a regional standards group may become large enough to exert market power and affect the terms of trade, thus providing incentives to exclude nonmembers. Finally and perhaps closer to reality, large economic areas that are producing standards have an incentive to export their own policy models. The EU and the United States, for example, are known to be pushing to spread their trade policy norms (Maur 2005; Horn, Mavroidis, and Sapir 2010), as is discussed next.

What the Texts of Agreements Tell Us

Lesser (2007) and Budetta and Piermartini (2009) examine the legal provisions relating to TBTs in PTAs notified to the WTO with a view to assessing, in particular, whether these provisions promote convergence toward the multilateral system. Some dimensions reviewed by the two studies convey a positive picture, in that PTAs do not overtly conflict with the WTO disciplines:

- Of 70 surveyed PTAs, 58 have TBT provisions, and 30 (51 percent) make explicit reference to the WTO TBT Agreement (Budetta and Piermartini 2009).
- Lesser (2007) finds that 86 percent of the PTAs in a sample of 24 refer to the WTO TBT Agreement.

A mere reference to the WTO TBT Agreement would not be sufficient to justify a conclusion that PTAs constitute a building block for a liberal multilateral system. The researchers therefore look at several other dimensions of PTAs that may contribute to greater or less convergence. On the whole, a picture of agreements that, by and large, act as potential complements to international initiatives emerges. For instance, when PTAs seek harmonization of standards, technical regulations, and certification procedures among partners (about half of PTAs reviewed do so), in about 60 to 70 percent of these cases, the use of international standards is encouraged (Lesser 2007).

Beyond the WTO Provisions

PTAs also predictably focus on areas in which multilateral initiatives cannot or do not yet offer disciplines. Two main models of recognition prevail. One, promoted in some U.S. PTAs, is the recognition of conformity assessment conducted in the territories of partner countries as equivalent to one's own. As noted by Lesser (2007), the U.S. agreements often go beyond WTO rules by stating that any refusal to authorize certification performed in the partner country has to be justified on request. This contrasts with the softer language in the WTO TBT agreement, which merely encourages equivalence. Another feature of the U.S. agreements is their promotion of private sector self-certification through supplier declarations of conformity assessment. The second model is that of the European Union, which insists more on MRAs on conformity. Generally, this translates into separate bilateral MRAs. To date, these agreements involve partners at similar development levels; apparently PTAs between developed and developing partners, even when calling for such MRAs, have not led to any being signed yet.

A desire to go beyond the WTO agreements is one motivation of PTA provisions on TBTs. Transparency provisions in PTAs are in some instances more onerous than those required by the WTO, with longer notification times (90 days). In the case of harmonization to regional standards and certification, the rationale is often to fill
Product Standards

The Codex Alimentarius and Preferential Trade Agreements

The North American Free Trade Agreement (NAFTA) between Canada, Mexico, and the United States; the Treaty of Asunción, which established the Southern Cone Common Market (Mercosur, Mercado Común del Sur) between Argentina, Brazil, Paraguay, and Uruguay; and the Asia-Pacific Economic Cooperation (APEC), with 21 members, have all adopted measures consistent with principles embraced by the Uruguay Round agreements and related to Codex Alimentarius standards. NAFTA includes two ancillary agreements dealing with sanitary and phytosanitary (SPS) measures and technical barriers to trade (TBT). In connection with SPS measures, Codex standards are cited as basic requirements to be met by the three member countries with respect to the health and safety aspects of food products. Mercosur's Food Commission has recommended a range of Codex standards for adoption by member countries and is using other Codex standards as points of reference in continuing deliberations. APEC has drafted a mutual recognition arrangement on conformity assessment of foods and food products. It calls for consistency with SPS and TBT requirements and with Codex standards, including the recommendations of the Codex Committee on Food Import and Export Certification Systems. EU directives also frequently refer to the Codex Alimentarius as the basis for their requirements.


Conclusions

Product standards are an important fact of commercial life and in many instances are justified—at least in part—by economic analysis because of spillover effects or information asymmetries. Since these effects are not limited by national borders, they can serve as a basis for regional and global cooperation on product standards. Policy makers, however, need to be aware that product standards also impose costs and that multiple or conflicting standards can create an overly burdensome cost environment for business and international trade. Like any regulatory instruments, standards are open to capture by vested interests and may in some cases act as a form of protectionist measure.

There is a clear tension between, on the one hand, the legitimate protection of important social goals, and the promotion of economic efficiency in some areas, and, on the other, the costs that standards can entail both inside and outside national borders. These costs can be particularly severe for firms in countries that are excluded from common approaches to standards, as well as in developing countries where technical and financial constraints can make it difficult to comply with burdensome standards abroad. The economic costs and benefits of product standards need to be carefully assessed in each case, paying particular attention to the possibility of cross-border impacts.

Conclusions

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and to whether individual countries are in a position to build a satisfactory national standards infrastructure or whether cross-border cooperation is needed.

PTAs can provide an answer to regional cooperation problems. Moreover, they are at the heart of liberalization efforts regarding standards and technical regulations. This is partly because core measures such as harmonization and mutual recognition of standards or of conformity assessment are much easier to negotiate and implement among groups of countries with relatively similar development levels and institutional settings. As with other types of preferential liberalization, however, it is important for policy makers to ensure that such efforts work in tandem with and do not undermine the broader multilateral agenda expressed in the WTO SPS and TBT Agreements.

Indeed, most PTAs do not seem to be designed with the objective of taking a different path from the one agreed in the WTO. WTO disciplines, however, remain relatively general, so PTAs should ensure that they adopt disciplines that reduce the risks of exclusion of third-country traders. This chapter has reviewed a number of possible approaches, such as a focus on international harmonization and inclusion of open rules of origin regarding certification. Both instruments can be seen as ways of multilateralizing PTAs. Of course, it is also important for PTA groupings to retain sufficient flexibility to allow standards to evolve in line with international developments and not to lock participants into a particular set of norms that is difficult to modify.

For parties to a PTA, harmonization and mutual recognition seem to have positive effects on the volume of trade. Choosing between harmonization and mutual recognition is, however, important because the countries’ level of development and their regulatory objectives will influence which approach is better suited to their particular circumstances. In general, harmonization seems suitable for a minority of cases. Whether to pursue commonality in standards definition or simply in conformity assessment is another consideration. Cooperation on conformity assessment is arguably a more accessible first step for many countries.

Product standards raise a number of important issues in the context of North-South PTAs, which are becoming steadily more common. Adoption of identical standards by countries at very different development levels raises serious questions as to whether either country, and in particular the less developed partner, will achieve a socially optimal level of regulation. In addition, developing countries can face particularly severe technical and financial obstacles when it comes to undertaking the investments necessary to bring about compliance with some developed-country standards. This analysis suggests that technical assistance, capacity building, and aid for trade might have important roles to play in supporting the development of standards infrastructure within PTAs.

The next chapter reviews in greater depth actual practice with respect to product standards in a selected number of representative PTAs.

Notes

The authors are grateful to Juliana Salles Almeida, Silja Baller, Michael Friis Jensen, and Roberta Piermartini for suggestions and sharing of results.

1. For an overview of policy issues in this area and a review of empirical work, see WTO (2005).

2. This is a variant of the “lemons” problem discussed by Akerlof (1970).

3. In some cases the declaration of conformity can be made by the purchaser, as well. A supplier’s declaration regime can potentially lead to significant cost savings for business and government. Fleiss, Gonzales, and Schonfeld (2008) find some empirical evidence in Europe to support the view that a shift from third-party certification to a supplier-declaration system can be trade promoting.

4. The WTO agreements maintain a distinction between standards broadly related to food safety and those related to more general issues in the area of manufactured goods. The former are largely dealt with under the Agreement on Sanitary and Phytosanitary Measures (the SPS Agreement); the latter come under the Agreement on Technical Barriers to Trade (the TBT Agreement).

5. The empirical literature offers little evidence that protectionism may be a motivation behind some standards (see Kono 2006). The financial crisis and measures taken by some countries to protect domestic industries have, however, raised again the specter that standards may be used as protectionist devices. An example is India’s recent decision to ban Chinese toys on safety grounds (“Downturn Heightens China-India Tension on Trade,” Wall Street Journal, March 20, 2009, http://online.wsj .com/article/SB123749113639187441.html).

6. WTO Article VIII states, “All fees and charges of whatever character (other than import and export duties and other than taxes within the purview of Article III) imposed by contracting parties on or in connection with importation or exportation shall be limited in amount to the approximate cost of services rendered and shall not represent an indirect protection to domestic products or a taxation of imports or exports for fiscal purposes.”

7. This happens when agreements are signed with the EU, which requires strict standards. Countries have to meet the safety expectations set by EU legislation if they want to be able to export foods to the EU. In some African, Caribbean, and Pacific (ACP) countries, this requirement has been met with resistance by policy makers, who see a traditional sphere of influence being undermined by the new regime (Doherty 2008).

8. As noted above, harmonization is not always optimal in a welfare sense because countries (and regions) can differ in their preferences and resource endowments. Thus, while adoption of internationally harmonized standards can often be beneficial from a trade point of view, policy makers need to ensure that the overall welfare effect is positive. This question is particularly important for developing countries and regions, given the technical and financial burdens that international standards can impose.

9. Harmonization and mutual recognition should generally be viewed as complements, not substitutes. In the EU’s New Approach, for instance, both instruments work together.

10. TBT Article 6.3 states, “Members are encouraged, at the request of other Members, to be willing to enter into negotiations for the conclusion of agreements for the mutual recognition of results of each other’s conformity assessment procedures. Members may require that such agreements fulfill the criteria of paragraph 1 and give mutual satisfaction.
regarding their potential for facilitating trade in the products concerned.”
11. SPS Article 4 states, “Members shall, upon request, enter into consultations with the aim of achieving bilateral and multilateral agreements on recognition of the equivalence of specified sanitary or phytosanitary measures.”
12. It is worthwhile at this stage to mention another area in which the question of (regional) standards applies: that of services. Authorization, certification, licensing of services suppliers, and recognition of qualifications are areas in which the question of standards arises and regional integration prospects may have a role to play. The WTO General Agreement on Trade in Services resembles the TBT and SPS Agreements in recognizing this, although in a quite different way. Trachtman (2003) notes that GATS Article VII provides specifically for the autonomous or mutual recognition of standards of other trade partners. It thus clearly views mutual recognition as an acceptable exception to MFN treatment.
13. Note, however, that the existence of a uniform standard does not guarantee nondiscrimination: the standard may be so designed as to target a particular source of imports (by including a characteristic specific to that source only) or may be implemented in a discriminatory fashion through testing and certification procedures.
14. The EU–U.S. agreement covers telecommunication equipment, electromagnetic compatibility (EMC), electrical safety, recreational craft, manufacturing practices for pharmaceutical goods, and medical devices. MRAs have also been concluded with Australia, Canada, Japan, New Zealand, and Switzerland; see http://ec.europa.eu/enterprise/ international/index_en.htm.
15. See table 10.2, above. The diffusion of EU standards is actually clearly advocated in the European Commission (2001), which states as an aim, “to promote where possible, the adoption of overseas standards, and encourage the harmonization of the technical standards of other trade partners.”
16. A recent review of standard provisions in African PTAs can be found in Meyer et al. (2010).

References

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