Non-Tariff Measures: Impact, Regulation, and Trade Facilitation

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1. Introduction

Like the ebbing tide uncovering rocks on the sea bottom, the progressive reduction of tariffs (currently around 5% for industrial countries and 10-20% for most developing countries) has revealed the importance of other barriers to trade. Some of those barriers are inherent to doing business across borders—informational costs, dealing in foreign currencies and languages, and so on. These “natural” trade costs are very large: Anderson and van Wincoop (2004) estimate their combined ad-valorem equivalent at 36%. Some others, however, are policy-inflicted.

These policy-induced Non-Tariff Barriers (NTBs) are very diverse in nature, going from regulations that ostensibly address domestic issues (say, public health) but incidentally impact trade, to specific border procedures like customs clearance that may raise trade costs because of the way they are implemented on the ground. Reducing them is part of a broader trade-facilitation agenda aimed at the reduction of overall trade costs. This agenda—and the linkage between trade facilitation and NTBs—gained prominence with the APEC’s 2001 Shanghai Accord, which pledged to reduce trade costs by 5% over the following five years. It is now at the core of the Doha Round’s agenda as well.

In spite of a voluminous literature, the definition of NTBs, their identification, and the measurement of their effects on trade are still very much a fuzzy science. Early attempts at measuring the effect of non-tariff barriers focused on easily identified policy instruments such as quantitative restrictions and prohibitions. However, use of these old-style measures has largely receded, thanks in large part to negotiated phase-outs and strengthened multilateral disciplines. New-generation measures are broader in scope, including rules of origin, traceability requirements, sanitary and product standards, and regulations of all sorts. They have proliferated for a variety of reasons, most often to increase consumer safety, and often—though not always—without explicit protectionist intent. The term “Non-Tariff Measures” (NTMs) has gained acceptance to designate these measures without the pejorative (protectionist) connotation associated with the term “non-tariff barriers” (NTB).

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1 The authors would like to thank Amelia Porges for her comments and suggestions, in particular, regarding WTO law. The usual caveats apply.

2 They estimate the “representative” ad-valorem equivalent of trade cost between two industrialized countries at a whopping 170%. Of this, 21% is transportation, 44% is border-related trade barriers, and 55% is retail and wholesale distribution costs. Of the 44% of border-related costs, 8% is tariff and non-tariff measures and 36% is non-policy trade costs, of which 7% is the language barrier, 14% the currency barrier, 6% information costs, and 3% a “security barrier”. Note that percentages do not add up because they compound (so the total is more than the sum).
Naming is one thing, measuring is another. Analysts of NTMs, seeking to identify them and to measure their effects on trade, have proposed a range of approaches briefly reviewed below. None is flawless, and numerous difficulties remain.

To make progress on the NTM-streamlining agenda, policy-makers need a reasonably clear picture of how prevalent NTMs are; how their effect on trade can be assessed quantitatively, and what multilateral, regional and national disciplines are already available to contain their trade-inhibiting effects. These three issues interact, in the sense that data on NTMs can be important in enforcing the existing disciplines and targeting negotiations to open trade. This chapter takes stock of where we stand with respect to these questions. Previewing our conclusions:

(i) Between one third and two-thirds of traded goods are affected by one or more non-tariff measures, with technical standards appearing in surveys as both the most prevalent and the most difficult to comply with;

(ii) Estimates of the ad-valorem equivalents (AVEs) of NTMs suggest levels roughly comparable to tariffs—5% to 10% on average, with very substantial peaks. Estimates of the effect of NTMs on trade flows suggest that harmonization and mutual-recognition agreements can provide substantial gains in trade, particularly for smaller firms with substantial compliance and information costs.

(iii) The rules of the World Trade Organization (WTO) provide an agreed benchmark for NTMs’ acceptability, help governments persuade their trading partners to bring NTMs into rule compliance, and provide a basis and setting to negotiate further market opening. Substantively, these rules require non-discriminatory treatment, and permit member governments to maintain whatever level of protection they desire, but they must meet certain conditions. They require that regulations be necessary to achieve a legitimate policy objective, and not disguised barriers to trade or unnecessarily restrictive of trade. Where the WTO rules stop, negotiations begin; governments have undertaken higher-than-WTO levels of discipline in regional trade agreements or through bilateral arrangements, or have unilaterally liberalized NTMs when viewed as in the national economic interest.

This chapter is organized as follows. Section two discusses the definition and identification of NTMs, and methods to quantify their effects. Section three examines WTO disciplines as well as efforts to streamline NTMs at regional and national levels. We close with conclusions and policy recommendations.

2. Definition and measurement

2.1 Defining and identifying NTMs

2.1.1 Classification systems

We seek out and catalogue NTMs for a specific reason: to understand better those measures that are displacing or replacing tariffs, and to understand where discipline on NTMs would be beneficial. Tariffs are obvious, directly observable, and unambiguously intended to
affect trade—but NTMs are regulatory measures that may affect trade even unintentionally, and whatever their primary purpose. Thus, whether a regulatory text qualifies as an NTM or not depends on its trade effects. NTMs can accordingly be defined as regulatory texts that either (i) create a wedge between domestic and foreign prices or (ii) affect trade flows.

Baldwin (1970) added a normative dimension by defining non-tariff measures as “any measure (private or public) that causes internationally traded goods and services to be allocated in such a way as to reduce potential real income”. However, introducing normative considerations is a source of complication rather than clarification. For instance, NTMs may be used to correct market failures that would otherwise reduce welfare but not income; so focusing on their income-reducing effects may wrongly suggest that they are undesirable. Price- or quantity-based definitions are less conducive to misinterpretations.

For want of a universally acceptable definition, ad-hoc taxonomies have flourished. Baldwin (1970, 1984), as well as Laird and Vossenaar (1991), took intent and impact as their key defining criteria. The WTO has also developed an NTM nomenclature for negotiation purposes. The WTO nomenclature, reproduced at the broadest level, is shown in Table 1.

Table 1

<table>
<thead>
<tr>
<th>The WTO NAMA classification of NTMs</th>
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<tbody>
<tr>
<td>I GOVERNMENT PARTICIPATION IN TRADE</td>
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<tr>
<td>II CUSTOMS &amp; ADMINISTRATIVE ENTRY PROCEDURES</td>
</tr>
<tr>
<td>III TECHNICAL BARRIERS TO TRADE</td>
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<tr>
<td>IV SANITARY AND PHYTO-SANITARY MEASURES</td>
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<tr>
<td>V SPECIFIC LIMITATIONS &amp; QUANTITATIVE RESTRICTIONS</td>
</tr>
<tr>
<td>VI IMPORT CHARGES &amp; LEVIES</td>
</tr>
<tr>
<td>VII OTHER (INTELLECTUAL PROPERTY &amp; SAFEGUARDS)</td>
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</table>

Source: Adapted from WTO TN/MA/S/5/Rev.1

The scope of NTMs captured by the WTO nomenclature is fairly wide and includes numerous behind-the-border measures. For instance, “Government participation in trade” (category I) includes a broad range of measures, including the presence of State-owned enterprises, single-channel marketing arrangements, and so on.

In 1994, UNCTAD created a classification that has been widely used since, as it underlies coding in the Trade Analysis and Information System (TRAINS) which records data on tariffs and NTMs into the statistical system of the United Nations Statistical Division (UNSD). However, UNCTAD’s 1994 coding has become obsolete, as it featured old-style measures—quantitative restrictions and the like—that have largely been phased out, while grouping into catch-all categories many measures important now, such as product standards.

In 2006, UNCTAD’s Group of Eminent Persons on Non-Tariff Barriers (GNTB) started working on a new classification, more appropriate to record the new forms taken by NTMs

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3 NAMA: Non-agricultural Market Access, is the negotiating group created to conduct the liberalization of these goods category.
(and closer to the WTO’s). The new classification, adopted in July 2009, is shown at the broadest level of aggregation (one letter) level in Table 2.

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
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<tbody>
<tr>
<td>A000</td>
<td>SANITARY AND PHYTOSANITARY MEASURES</td>
</tr>
<tr>
<td>B000</td>
<td>TECHNICAL BARRIERS TO TRADE</td>
</tr>
<tr>
<td>C000</td>
<td>PRE-SHIPMENT INSPECTION AND OTHER FORMALITIES</td>
</tr>
<tr>
<td>D000</td>
<td>PRICE CONTROL MEASURES</td>
</tr>
<tr>
<td>E000</td>
<td>LICENCES, QUOTAS, PROHIBITIONS AND OTHER QUANTITY CONTROL MEASURES</td>
</tr>
<tr>
<td>F000</td>
<td>CHARGES, TAXES AND OTHER PARA-TARIFF MEASURES</td>
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<tr>
<td>G000</td>
<td>FINANCE MEASURES</td>
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<tr>
<td>H000</td>
<td>ANTI-COMPETITIVE MEASURES</td>
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<tr>
<td>I000</td>
<td>TRADE-RELATED INVESTMENT MEASURES</td>
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<tr>
<td>J000</td>
<td>DISTRIBUTION RESTRICTIONS</td>
</tr>
<tr>
<td>K000</td>
<td>RESTRICTION ON POST-SALES SERVICES</td>
</tr>
<tr>
<td>L000</td>
<td>SUBSIDIES (excluding export subsidies under P700)</td>
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<tr>
<td>M000</td>
<td>GOVERNMENT PROCUREMENT RESTRICTIONS</td>
</tr>
<tr>
<td>N000</td>
<td>INTELLECTUAL PROPERTY</td>
</tr>
<tr>
<td>O000</td>
<td>RULES OF ORIGIN</td>
</tr>
<tr>
<td>P000</td>
<td>EXPORT RELATED MEASURES</td>
</tr>
</tbody>
</table>

Source: UNCTAD

The new nomenclature provides better disaggregation of NTMS, at one letter and one digit (64 categories), one letter and two digits (121 categories), or even one letter and three digits (special cases). It covers a wide range of measures, some of which are clearly behind the border (like anti-competitive measures, which include arcane measures like compulsory national insurance). It has not been widely used yet, and some ambiguities will need to be dealt with; but it will provide the basis for the new wave of NTM data collection to replace TRAINS.

The OECD has also conducted work on the issue, leading to a separate classification set out in an influential paper by Deardorff and Stern (1997). It is fairly similar to UNCTAD’s, but it also includes investment measures and lumps together import surcharges of all sorts with contingent protection measures (anti-dumping, countervailing duties and safeguards).

### 2.1.2 Data

The primary source of data on NTMs is UNCTAD’s TRAINS database, which is managed by a multi-agency consortium of the IMF, ITC, FAO, OECD, World Bank, UNCTAD, UNIDO, and WTO. It draws on information provided by governments, combined with the WTO’s NTM database, and information collected by regional secretariats (e.g. ALADI, SIECA, or SAARC) and some regional development banks such as the Inter-American Development Bank.

TRAINS’ coverage has never been complete. Its classification focused on a relatively narrow set of measures, and implicitly limited the instruments it covered—and government reporting has always been haphazard (see Carrère and de Melo 2009 for details). Out of 165 countries for which trade statistics are available on the COMTRADE database, only about
100 have NTM entries, and essentially for 2000-2001, although some updating has recently taken place. A major effort, led by the Multi-Agency Support Team (MAST), is underway to seek up-to-date data from an expanding number of countries. The data-collection effort is based on UNCTAD’s new classification. Instead of relying on government reporting, UNCTAD commissions consultants to seek NTM information from national authorities, regional secretariats, importers’ associations, chambers of commerce and other private-sector sources. Over time, it is expected that capacity-building will lead to self-sustaining data-collection systems at the national and regional levels.

Exporter and importer surveys provide a source for more qualitative data on NTMs. For instance, the World Bank (2008a) carried out interviews of exporters and government officials in thirteen countries in Asia and Latin America, and similar interviews in East Africa (World Bank 2008b). Coverage, and the balance between private-sector vs. public-sector information, varies substantially across countries.

The World Bank has also developed indicators for specific components of trade costs. The Doing Business “cost-of-trading” index measures how much it costs (in fees) to import or export a 20-foot container (Djankov, Freund and Cong 2006). The Logistics Performance Index (LPI) measures the infrastructure and regulatory environment in which logistics chains operate, based on survey data from global freight forwarders and express carriers, with direct measurement of some quantitative indicators. Finally, the Trade Facilitation Index (TFI) uses secondary sources to assess national port and customs efficiency, regulatory environment, and service infrastructure. These indices are primarily designed to raise political awareness on trade facilitation issues; caution should be exercised when using them for rigorous statistical analysis.

### 2.2 Measuring incidence and impact

#### 2.2.1 Methodologies and Results

It is an understatement to say that coverage ratios, AVEs and, more broadly, estimates of the impact of NTMs on trade vary substantially across studies, making it difficult to draw sweeping conclusions. Nevertheless, a number of observations can be made.

First, NTMs affect a very large share of imports; standards and technical regulations are now the major form of NTM. The studies reviewed show coverage ratios ranging between one third and two thirds of imports (34% for industrial-country imports from developing countries in Nogues et al. 1986, 57% in Kee et al.’s sample). Moreover, one of the most striking results to come out of recent work (see e.g. Disdier, Fontagné and Mimouni 2008) is the prevalence of product standards in agri-food trade. Subject to caveats discussed in the previous section, ITC survey results suggest that technical barriers (essentially standards) are just as prevalent for a wide range of products and destinations. Thus, standards and technical regulations seem to have superseded quantitative restrictions as the major form of NTMs.

As for the severity of NTMs, estimated AVEs show overall averages of 5% to 10%, with substantial peaks – higher than tariff peaks. Kee et al. find averages of 9.2% (simple) and 7.8% (trade-weighted) across 4,545 product-specific regressions. These estimates are somewhat lower than those of Bradford (2003) who finds average AVEs ranging between
7.8% (Canada), 28% (UK) and 52% (Japan). If products with no NTMs are eliminated, AVEs climb to 39.8% and 22.7% respectively in Kee et al. These higher orders of magnitude are comparable to those obtained using price-based methodologies by Andriamananjara et al., although individual estimates vary substantially (for instance, Andriamananjara et al. find a 73% average AVE for apparel, against only 20% in Kee et al.). Kee et al. also observe that, unlike tariffs, NTM AVEs tend to rise with income levels, reflecting stiff agricultural NTMs in rich countries. As a “reality check”, a recent survey on non-tariff trade costs between Arab countries returned AVEs ranging between 2% and 11%, with an average of 6% (Hoekman and Zarrouk 2009).

Estimates of the trade-reducing effect of NTMs are largely consistent with these AVEs. Using a gravity equation, Hoekman and Nicita (2008) find an elasticity of trade to NTMs around one-half, implying that cutting the AVE of NTMs in half, from around 10% to around 5%, would boost trade by 2-3%.

The studies examined find that standards and technical regulations have a particularly significant impact on trade. Chen, Otsuki and Wilson (2006), using a gravity equation, find that standards have a stronger impact on developing-country exports, and that testing and inspection procedures reduce exports by 9% and 3% respectively. Access to relevant information about standards seems key, as informational barriers by themselves reduce trade by 18%, and firms with foreign capital—typically larger ones with better access to information—are less affected. Finally, non-harmonized standards cause diseconomies of scale for exporters, reducing the likelihood of entry in foreign markets (in addition to reducing volumes conditional on entry). Czubala, Shepherd, and Wilson (2007) also find that the trade-inhibiting effect of standards is reduced when they are harmonized. These results are confirmed by Baller (2007) who found that mutual-recognition agreements had a strong positive effect on both the probability that bilateral trade takes place and on its volume.

The policy implications emerging from this body of work are thus fairly clear: standards-related NTMs have a real impact on trade, compliance costs matter, and harmonization/mutual recognition agreements that reduce those compliance costs—without necessarily watering down the substance of the measures—can have a positive impact on trade flows.

The conclusions are similar for trade facilitation. Djankov, Freund & Pham (2006) estimate that a one-day delay in shipment for exports means a reduction in trade of at least 1% - and 7% if the exports are agricultural products. Wilson, Mann & Otsuki (2003) simulated changes in trade flows among APEC member economies to improve efficiency in the use of ports, the customs environment, the use of e-business tools and certain regulatory harmonization measures at the border (regulatory environment). They estimated that the combination of these measures would yield a remarkable 21% rise in trade ($254 billion) in the APEC Region. The highest-impact measures were those related to port efficiency and the regulatory environment. Indeed, Francois, Van Meijil and Van Tongeren (2003) noted

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4 The methodology of Kee et al. makes it possible to estimate different AVEs for the same product depending on the importing country’s factor endowment.
that trade facilitation measures typically bring higher benefits than most measures currently under discussion in the Doha Round’s market-access negotiations.

3. Approaches to streamlining NTMs through rule enforcement and negotiation

NTMs exist within a framework established by the rules of the trading system, including the multilateral rules of the WTO Agreement, the rules in regional trade agreements and even rules agreed in bilateral or plurilateral negotiations. The following section discusses these rules and their connection to the empirical analysis of NTMs and their effects.

Legal rules provide an agreed normative benchmark for NTMs’ acceptability. By characterizing some NTMs as illegal, they define which NTMs a government is obligated to address, and its trading partners have a right to complain about. Conversely, where an NTM is not characterized as illegal under the rules, trading partners and their stakeholders who seek action to reduce its trade-reducing effects can only obtain it if the importing country agrees. Thus, the rules draw the line between actions that trading partners can expect for free, and actions for which they must negotiate and pay in some form.

Substantively, these rules require non-discriminatory treatment, and permit member governments to maintain whatever level of protection they desire, but they do not stop at non-discrimination. They require that regulations be necessary to achieve a legitimate policy objective, and not disguised barriers to trade or unnecessarily restrictive of trade. Where the WTO rules stop, negotiations begin; governments have undertaken higher-than-WTO levels of discipline in regional trade agreements or through bilateral arrangements, or have unilaterally liberalized NTMs when viewed as in the national economic interest.

3.1 WTO disciplines

Regulation is a core subject for modern trade agreements. The GATT’s basic rules for regulation were limited to requirements not to discriminate, and not to ban or restrict imports; however, the drafters recognized a short list of policies that would trump trade liberalization – some of which are very relevant to NTMs. The GATT expanded discipline on regulation through the 1979 Agreement on Technical Barriers to Trade (TBT Agreement), a plurilateral code which added some rules affecting even non-discriminatory regulations. Finally, after the Uruguay Round, the WTO Agreement included an amended TBT Agreement as well as a new Agreement on the Application of Sanitary and Phyto-Sanitary Measures (SPS Agreement). These two agreements go well beyond non-discrimination, and provide additional discipline on NTMs.

3.1.1 Non-discrimination

Non-discrimination is a central principle of the GATT. The GATT was designed as a multilateral tariff agreement, with non-tariff obligations designed to secure the value of the agreed tariff concessions and to generalize their benefit to all GATT members on a most-favoured nation basis. Through incorporation of the GATT into the WTO Agreement, these rules apply to all WTO Members.
It is self-evident that a discriminatory internal tax or regulation can eliminate any benefit of a tariff binding. For this reason, Article III:1 of the GATT recognizes the principle that internal taxes, charges and regulations should not be applied to imported or domestic products so as to protect domestic production. Article III:2 prohibits imposition of internal taxes or charges on imported products which are higher than those imposed on like domestic products. Article III:4 requires that imported products be accorded “treatment no less favourable than that accorded to like products of domestic origin in respect of all laws, regulations and requirements affecting their internal sale, offering for sale, purchase, transportation or use.” As a GATT panel described it in 1958, “the intention of the drafters of the Agreement was clearly to treat the imported products in the same way as the like domestic products once they had been cleared through Customs. Otherwise indirect protection could be given.”

Moreover, because the GATT’s most-favoured nation clause for border charges, Article I:1, also applies to internal taxes and regulations, a WTO Member must apply the same regulations to like products from any WTO source.

In dispute settlement decisions interpreting Article III:4, GATT panels clarified that the scope of this provision is very broad indeed. As the same panel said in 1958, “the drafters of the Article intended to cover in paragraph 4 not only the laws and regulations which directly governed the conditions of sale or purchase but also any laws or regulations which might adversely affect modify the conditions of competition between the domestic and imported products on the domestic market.” In later decisions, panels clarified that this non-discrimination requirement has a very broad scope – applying for instance to technical regulations, government benefits, sales practices of state-owned enterprises, regulations on product quality or ingredients, measures discouraging use of certain products, labeling regulations, and shipping charges of government-run railways or postal services.

In principle, the trade effects of an NTM are of no importance in determining whether it violates these non-discrimination rules. Since 1949, it has been recognized that any higher taxation of imported products violates Article III, even if no damage is shown, and even if there is no tariff binding on the product in question. As a GATT panel found in 1987, the prohibition on tax discrimination between like products does not protect expectations of any particular trade volume, but expectations on the competitive relationship between imported and domestic products.

But what if a regulation or tax treats imports less favorably, without any explicit discrimination between like products? Disputes over de facto discrimination have confronted the WTO dispute settlement system with the task of distinguishing between on the one hand, domestic regulatory or tax schemes that were clearly set up so as to discriminate, and on the other, domestic schemes set up for some other purpose that have an unintended negative effect on imported products.

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5 GATT (1958), para. 11. The panel in this case was composed of trade officials who had participated in the negotiation of the GATT in 1946-48.
6 Id., para. 12.
8 Id., p. 128.
WTO panels and the WTO Appellate Body have solved this conundrum by drawing on the principle in Article III:1 that taxes and regulations should not be applied so as to protect domestic production. They have agreed that the Article III:2 and III:4 provisions on national treatment must be interpreted in the light of this principle. Thus, in judging dissimilar taxation of two products that compete with each other, WTO panels will only find a violation of Article III:2 if “the design, the architecture, and the revealing structure” of the tax measure show that it is applied so as to protect domestic production.

The WTO’s approach to de facto discrimination does not amount to letting in trade effects through the back door. The orthodox doctrine that even if there is no trade, discrimination violates the rules, remains as valid now as in 1949. The decisions referred to above have simply shown that when a regulation or tax does not explicitly discriminate against imports, more flexibility will be shown where its demonstrable purpose was to advance some non-trade objective.

**Exceptions:** The GATT also includes a short list of exceptions in Article XX, which permit a government to maintain measures that would otherwise violate the positive rules of the GATT – for instance, measures that discriminate against or between imports, or ban importation of a good. The Article XX exceptions permit measures necessary to, or related to, certain named policies—for instance, measures “necessary to protect human, animal or plant life or health”, measures “necessary to protect public morals”, measures “necessary to secure compliance” with otherwise GATT-consistent laws and regulations, or measures “relating to the conservation of natural resources if such measures are made effective in conjunction with restrictions on domestic production or consumption”. A proviso to the list requires that the measures in question not be “applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail, or a disguised restriction on international trade”. In any dispute, the complaining party has the burden of proof on whether the positive rules have been violated; however, exceptions are an affirmative defense, for which the burden shifts to the defending party.

For a given NTM, then, a trading partner must demonstrate a rule violation (for instance, denial of national treatment). The importing country then must show that the measure falls within the policy objectives listed in Article XX. It must show that the application of the measure does not discriminate arbitrarily between countries where relevant conditions are the same, and also takes into account relevant differences. It must also demonstrate that the measure is not a form of disguised protectionism.

Necessity figures in three of the Article XX exceptions referred to above, and panels have relied on a balancing approach in analyzing necessity. In the leading WTO case on this issue, analyzing a discriminatory Korean regime for imported beef, the Appellate Body noted that claims of necessity must be evaluated in relation to the circumstances, and that this evaluation involves in every case a process of weighing and balancing a series of factors, which prominently include (a) the actual contribution made by the measure to achieving the stated objective within Article XX, (b) the importance of the common interests or values protected, and (c) the restrictive impact of the measure on trade.9 In this

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9 [Korea – Beef, para. 164]
and other cases, the Appellate Body has looked for a relation between the measure and the end pursued that is not just a contribution to accomplishing the objective, but closer to being indispensable to accomplishing that objective. The party seeking to demonstrate that its measures are necessary must establish this through evidence or data establishing that the measures actually contribute to the achievement of the objectives pursued. Evaluation of a measure’s necessity also requires an evaluation of its restrictive effect on trade (or on behind-the-border sale or distribution of imports, if the issue is justifying behind-the-border discriminatory regulations). The less restrictive an NTM is, the more likely it is to be justifiable as “necessary.”

But it cannot really be necessary for an NTM to violate GATT rules if there is some reasonably available GATT-consistent way for the government to accomplish the same goal. A GATT panel pointed this out in the US – Section 337 case in 1988, and WTO panels have repeatedly recognized the essential truth of this proposition.

In the Korea – Beef and US – Gambling cases, the Appellate Body clarified that as a panel evaluates necessity, it must examine whether the defending party could reasonably be expected to employ an alternative measure that is WTO-consistent (or less WTO-inconsistent), that would achieve the objectives pursued by the measure at issue. An alternative measure may be not "reasonably available" where it is merely theoretical in nature, or where it imposes an undue burden on a Member, such as prohibitive costs or technical difficulties in its implementation. Moreover, an alternative measure that is "reasonably available" must preserve the defending party’s right to achieve its desired level of protection with respect to the objective pursued under Article XX. (Saez, 2005). Where the complaining party identifies an alternative measure, the defending party has the burden of demonstrating that its GATT-inconsistent measure is “necessary”.

To determine whether such an alternative measure exists, then, the panel must evaluate whether (a) the measure is economically and technically feasible from an economic and technical point of view; b) the alternative would achieve the same objectives as the original measure, and (c) it is less trade restrictive than the measure analyzed. If any of these elements is not met, the alternative measure is deemed to be not compatible with WTO obligations. Here as well, economic information on the NTM at issue is directly useful.

3.1.2 On beyond non-discrimination: SPS and TBT

While the GATT bans discrimination in internal taxes or regulations, GATT rules impose no limitations whatsoever on a non-discriminatory measure’s objectives, subject, policy focus or methodology. Government regulatory sovereignty remains supreme. A government could even impose a non-discriminatory regulation that burdens all trade – such as a requirement that all goods offered for sale must be labeled only in the language of the importing country, or must be shipped in containers that have been painted pink.

The SPS and TBT Agreements go beyond the GATT and address the impact on trade of even non-discriminatory NTMs. The SPS, developed as part of the Uruguay Round agricultural trade package, specifically tackles typical NTMs affecting food trade, and

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11 Id., para. 319.
applies only to sanitary and phytosanitary (SPS) measures. The TBT Agreement provides related but separate disciplines, and applies to all other standards, technical regulations and conformity assessment procedures for all products.\textsuperscript{12}

The SPS Agreement presents the tradeoff between free trade and regulatory sovereignty most explicitly. It states that WTO Members have the right to take SPS measures, but requires that such measures must be applied only to the extent \textit{necessary} to protect human, animal or plant life or health, and that the measures must be based on scientific principles and not maintained without sufficient scientific evidence. (Articles 2.1-2.2) Whether scientific evidence supports a measure is an element of whether the measure is necessary and proportional. A Member has the right to set its desired “appropriate level of sanitary or phytosanitary protection”, but in doing so it must take into account the objective of minimizing negative trade effects (Article 5.4)

Article 2.2 of the TBT Agreement confronts the same tradeoff in similar terms. It requires that Members ensure that technical regulations are not prepared, adopted or applied with a view to, or with the effect of, creating \textit{unnecessary} obstacles to trade. It further clarifies that technical regulations must not be more trade-restrictive than necessary to fulfil a legitimate objective, taking into account the risks of non-fulfilment. Unlike GATT Article XX, which is limited to a short list of acceptable excuses such as public morality and public health, TBT Article 2.2 provides an open illustrative list of acceptable “legitimate objectives”.

These SPS and TBT necessity requirements encourage Members to address non-trade problems such as product safety through less trade-reducing and more efficient measures. Thus, the costs in terms of trade inherent in the regulations should be clearly lower than the benefits obtained. These agreements promote a more efficient use of instruments that create fewer distortions from an economic standpoint.

The analysis of necessity under the SPS and TBT Agreements rolls together the same combination of themes as the analysis of necessity in Article XX: a measure’s contribution toward a policy objective, the legitimacy and importance of the objective pursued, and the measure’s restrictive impact on trade (including the government’s choice not to employ reasonably available alternatives that would have been less restrictive). There is an essential difference, however. In any dispute applying SPS Article 2.2, 5.4 and/or 5.6 to a (non-discriminatory) SPS measure, or a dispute applying TBT Article 2.2 to any other measure, the complaining party bears the burden of proving there is a lack of necessity. On the other hand, in a GATT dispute where the defending party invokes an affirmative defense under Article XX, the defending party has the burden of proof on all the issues in

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\textsuperscript{12} SPS measures are extensively addressed in other chapters of the book. We limit our analysis to the essential principles of the agreements. SPS Article 1.1 provides that the SPS Agreement applies to all SPS measures that may, directly or indirectly, affect international trade; Annex A defines the scope of SPS measures subject to the agreement (health protection measures, principally to protect against risks arising from entry, establishment or spread of pests or diseases, or from additives, contaminants or toxins in food, beverages or feedstuffs). The TBT Agreement applies to all technical regulations, standards and conformity assessment schemes \textit{except} for SPS measures – for instance, food regulations imposed for other reasons.
Article XX (including necessity, and non-discriminatory, non-protectionist application). This difference can make a substantial difference in the outcome of the dispute.  

Panels have not found difficulty in applying this three-part test, relying on objective evidence from experts on the risks combated by the SPS measures at issue—for instance fish diseases (in Australia – Salmon) or plant diseases and plant quarantine (Japan – Apples). Since the alternative measures proposed by exporting countries will always be significantly less restrictive than the status quo, the only question is whether the proposed alternative is technically and economically feasible and would deliver the importing country’s designated “appropriate level of protection” (ALOP). As the Appellate Body noted, the SPS Agreement does not explicitly require a Member to define its ALOPs routinely for all products, but in a dispute, the panel must use some benchmark for applying SPS obligations, and if the defending party does not supply an ALOP, the panel will simply have to infer it from the level of protection in its actual SPS measures. In the compliance phrase of the Salmon and Apples disputes, each panel relied on its experts and quickly concluded that the importing country’s amended import regime failed the three-part test.

No panel has (yet) applied the necessity and proportionality test in TBT Article 2.2 (although claims under Article 2.2 are at issue in at least two pending disputes).

### 3.2 Regionalism and other bilateral or plurilateral agreements

Governments have also used regional preferential trade agreements (PTAs) to address NTMs, especially those arising from standards, technical regulations and conformity assessment. The channels of communication created in the setting of a PTA can build mutual trust and confidence in other regulators’ judgment, creating a basis for agreements for harmonization of standards, mutual recognition of test data or mutual recognition of conformity assessment. Agreements of this type also occur outside the context of a PTA, within an established bilateral or plurilateral relationship, such as EU-US mutual recognition agreements and standards-related agreements among APEC members.

#### 3.2.2 SPS and TBT provisions in PTAs

EC and the US PTAs contain several measures aiming at the reduction or elimination of NTMs. A study by Horn, Mavroidis and Sapir (2008) reviews measures in 28 EC and US PTAs with developed and developing countries. The authors distinguish between 52 policy areas and divide them into two types of commitments:

- Commitments going beyond the WTO, but in the areas where commitments are building on those already agreed to at the multilateral level (WTO+)
- Commitments in the areas not covered by the WTO (WTO-X)

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13 A “necessity test” (a requirement that a measure must be necessary to achieve stated non-trade policy objectives) also appears in GATT Article XI:2, XII:2, XII:3(c)(i) and (d) (and corresponding provisions of Article XVIII); GATS Articles VI:4, XIII:2(d) and XIV; para. 5(e) of the GATS Annex on Telecommunications; TRIPS Articles 8.2 and 27.2, and GPA Article XXIII:2. (see, e.g., WTO, 2003)

14 Id., para. 205-207.
WTO+ commitments may reconfirm existing commitments under the WTO or provide further obligations. The SPS and TBT measures are included in this category. The WTO-X obligations are qualitatively new and relate to areas or policy instruments not previously regulated by the WTO (such as environment, labour laws or movement of capital and others).

Horn, Mavroidis and Sapir (2008) note that there is a very high degree of coverage of the WTO+ areas in both EC and US agreements. In the case of TBT measures, all 14 EC agreements include TBT provisions, but the enforceable undertakings appear in only 5 of them (Cariforum, Mexico, Chile and EEA and Turkey). Typically, on top of reinforcing the commitments from the WTO TBT Agreements the EC establishes a forum aimed at promoting unilateral or mutual recognition of standards and conformity assessment. These commitments are deeper than in the case of US PTAs, which typically reconfirm the WTO obligations of preferential partners. The TBT provisions are included in 12 out of 14 US agreements, but 11 of them are legally enforceable.

In terms of SPS provisions only 8 EC agreements include SPS provisions and only 3 contain provisions that are legally enforceable (EEA, Chile and Cariforum). The coverage is slightly broader in US PTAs with 12 agreements including SPS provisions, but only 2 legally enforceable (Israel and NAFTA). The SPS measures are unique in as a sense that all US agreements contain exemptions from dispute settlement only in the case of SPS measures, allowing for dispute settlement only in the two above mentioned agreements.

The study by Lesser (2007) covers 28 North-South and South-South PTAs concluded by Chile, Mexico and Singapore. The author finds that the most often applied approach in the reviewed PTAs is the mutual recognition of conformity assessment results. This approach is considered to be less costly than harmonization of regulations, standards and conformity assessment procedures. The second most frequently applied approach is based on increasing transparency requirements, urging members to notify each other about introduction of new or modifications to the existing regulations and procedures.

Other approaches that have been adopted in the PTAs reviewed by Lesser (2007) involve harmonization of technical regulations, standards and conformity assessment procedures and the least frequently adopted acceptance of technical regulations of other parties as equivalent (when these differ in technical specifications). These approaches are compatible with each other and often a given PTA includes a range of measures based on various approaches.

In terms of the depths of the TBT commitments, most PTAs do not include provisions that are more stringent than the TBT Agreement; however they often display WTO+ characteristics. The more far reaching commitments relate to the acceptance of technical regulations as equivalent and the mutual recognition of conformity assessment procedures and bodies, where parties need to give an explanation for non-equivalence and non-recognition to the other parties conformity assessment procedures. In addition, a few developed countries developed mutual recognition arrangements for conformity assessment results for particular sectors such as telecoms, electrical, electronic and medical equipment (the EU and more developed ASEAN and APEC members).

Lesser (2007) finds that there are three main factors that influence the depth of the TBT liberalisations. The first is the level of development of parties. Provisions regarding
harmonization of standards and most importantly recognition of conformity assessment results are included in PTAs among countries with similar level of development. The second factor is the degree of integration. Deeper and more comprehensive agreements that create customs unions, economic association agreements, most often go beyond the WTO TBT commitments. The third factor is the involvement of the EU or the US. In line with the previous studies discussed above, the author finds that in PTAs involving the US, TBT-related liberalization can take several forms, including acceptance of technical regulations of the partner as equivalent, alignment towards international standards and recognition of the conformity assessment results. In contrast, the EU PTAs with the ENP countries are based on harmonization towards EU regulations, standards and conformity assessment procedures, while convergence towards international standards is preferred in PTAs with more remote countries (e.g. Chile).

The findings by Lesser (2007) are largely consistent with the recent work of Budetta and Piermartini (2009) who also find that harmonization appears to be much more common than mutual recognition for standards. Budetta and Piermartini (2009) provide the most comprehensive coverage of PTAs, as they review over 70 PTAs signed covering all geographical regions, all levels of development and depths of intra-PTA trade, 58 of them contain some TBT provisions. Again the equivalence and mutual recognition of conformity assessment is the most often applied approach to deal with the conformity assessment procedures, as 39 PTAs included provisions including mutual recognition, while harmonization of conformity assessment procedures was present in 25 of the reviewed PTAs.

In terms of technical regulations harmonization is the preferred approach. This approach was present in 29 agreements, while mutual recognition of technical regulations was included in only 15 agreements. In the case of voluntary standards 25 agreements provide for harmonization of standards, while only 5 agreements include mutual recognition of standards. The authors note that the majority of RTAs that favour harmonization on the bases of regional standards as opposed to international standards are the agreements signed by the EU.

In additional transparency provisions are also recognised as an important element of regional integration (found in 30 agreements). Two thirds of the agreements that included transparency provisions also required the establishment of a system for the exchange of information within the TRA, while 21 agreements included provisions on the notification of new standard-related measures or modification of existing measures.

3.3 Unilateral reform: Lessons from two decades of reform

NTMs are, more than other areas of trade policy, intimately linked to national regulatory structures. Unlike tariff reductions, NTM reforms affect not just industry structures, but also the way public administrations work and interact with the private sector. Streamlining NTMs should thus be viewed as part of broader regulatory reform agendas such as those embraced by industrial countries in the 1990s. Regulatory reform, in turn, requires strategic thinking. What follows summarizes some of the lessons drawn from international
experience, in particular six case studies recently studied by the World Bank’s Doing Business and FIAS programs.\textsuperscript{15}

3.3.1 Substance vs. process

Streamlining NTMs involves two distinct albeit complementary policy objectives. One consists of improving the \textit{substance} of the existing stock of NTMs; the other consists of improving the \textit{process} through which new NTMs and regulations are issued and implemented.

In the short run, when regulations are too many and harmful, a clean-up process is the first step and possibly the one with the highest immediate return. Improving the substance of the existing stock of NTMs means reviewing them in light of existing evidence about their effects. Transparency is key. In many cases, redundant, harmful and unnecessarily complicated regulations and NTMs are fairly easily spotted—and sometimes known by competent ministries. All it takes to eliminate them is to expose and shame responsible ministries in roundtables with the private sector (as was done in Mexico—see World Bank 2008d), or through the creation of registries—e.g. Single Windows—where they are asked to justify all measures.

In the long run, what matters is the process. Any modern society requires a constant stream of new product standards and regulations, as technology and societal preferences change. In order to slow down the production of new regulations, in 2004 Mexico imposed a “regulatory moratorium”.\textsuperscript{16} This, however, could only be a temporary fix. What matters is not just to prevent regulatory proliferation; more broadly, it is to improve the process through which regulations are issued and enforced. For that, procedures must be put in place with clear and consistent requirements in terms of transparency, impartiality, and economic rationality. In this regard, the international best practice is to impose mandatory Regulatory Impact Assessment (RIA) procedures.

3.3.2 Leadership

Change frequently occurs when crises make business as usual no longer possible—provided that there is sufficient leadership to seize opportunities for action. As Thomas Friedman (2005) wrote, “[a] crisis is a terrible thing to waste”.\textsuperscript{17} Mexico’s regulatory reform gathered momentum immediately after the so-called “Tequila Crisis” of Christmas 1994. The impetus for reform came from the recognition that helping the private sector, hard hit by the crisis, could no longer come from trade protection after Mexico had joined the GATT and NAFTA. Given the new constraints, working to improve national competitiveness through red-tape elimination suddenly appeared as the only option. Korea similarly launched its regulatory reform as a response to the 1997 crisis which exposed the vulnerability of a development model based on State intervention and widespread non-transparency.

\footnotesize\textsuperscript{15} The countries are Hungary, the Republic of Korea, Mexico, Australia, Italy and the United Kingdom. See World Bank (2009).
\footnotesize\textsuperscript{16} OECD (2004).
\footnotesize\textsuperscript{17} Cited in World Bank (2009), p. 19.
But a crisis is not enough: leadership is needed to seize the opportunity and transform it into political momentum. In both Korea and Mexico, governments had the capacity to read the signals correctly, draw the right conclusions, and get into action, because minds were ready. For instance, in Korea, the wave of reforms of the late 1990s built upon partly successful efforts that stretched back to 1981.

Reform is often driven by a surprisingly small group of technocrats. In Mexico, the regulatory reform process was top-down and driven by a small group of 15 to 20 technocrats. These were a mixture of economists and lawyers, many of them trained abroad and sharing a vision that placed markets—rather than the State—at the center of Mexico’s growth strategy. In Korea, the regulatory reform was also very much top-down—so much so that it ultimately lacked ownership in lower ranks of the administration.

Support at the highest level is crucial when reformers take on powerful vested interest, but it is not enough in democracies with separation of powers. The Mexican technocrats had full support from the Presidency, and in particular from the President’s legal counsel, under the administrations of Presidents Salinas (1988-94) and Zedillo (1994-2000). When Mexico’s PRI lost control of Congress, however, presidential support became less decisive. In the long run, there is no alternative to building coalitions and strong institutions.

3.3.3 Building momentum

When NTMs are distortionary, they typically benefit a few at the expense of many, so building coalitions to get rid of them should not be a problem. Yet, in heavily distorted economies, many groups benefit from one rent-generating policy or another, and each fears it will be next. Uncertainty about the distributional impact of reforms adds to inertia. In order to overcome fear and inertia, losers must be visibly compensated. The art of reform is to find compensations that are less distortionary than the measures being eliminated. For instance, in the Democratic Republic of Congo (DRC), overstaffed parastatals impose a myriad of border taxes to cover their payroll without providing much service in return.

Those taxes, which typically go with complicated procedures, raise trade costs and slow down the movement of goods. But restructuring parastatals involved in transit procedures and infrastructure—and downsizing their bloated workforces—would set a precedent for many other, equally inefficient parastatals in other sectors of the economy. Setting such a precedent is, understandably, loathed. In such a case, building viable coalitions for restructuring would involve not only reaching out to importers penalized by high trade costs, but also neutralizing losers by offering credible social plans. Inasmuch as those social plans could be financed out of well-designed taxes, they would be less costly to the economy than the parastatals’ present stranglehold on trade.

The interaction between parastatal restructuring, social liabilities, and tax reform illustrates another key principle: synergies between reforms. Once domestic taxes are adequately designed and collected, border taxes are easier to dispense of. Other areas of synergies include procedural changes and technology upgrading in customs administrations, or investments in infrastructure, regulatory simplifications, and changes of behavior on the ground. For instance, better roads cannot reduce transit times as long as redundant checkpoints and blockades are maintained by police, paramilitary forces and bureaucracies, as is often the case in Africa.
Regulatory reforms should aim high, but they should also start small. Reform processes often have little credibility or goodwill at the outset. They need to assert themselves by picking low-hanging fruits and winning easy battles. This is the strategy that was successfully followed by Mexico’s early reformers. A good entry point for NTM reform is the creation of a registry of existing NTMs and regulations, based on compulsory notification by competent ministries. A “guillotine” approach mandating the elimination of a set number of (generally redundant or obsolete) regulations can also be used. For instance, in 1998 Korea’s President Kim Dae Jung instructed all ministers to eliminate half their regulations by year-end (World Bank 2008d).

3.3.4 Lock in

However well designed and needed, reforms are always at risk of reversal. When Mexican elections returned a majority in Congress that was hostile to the President, partisan politics significantly slowed down the reform process. By 2000, general reform fatigue in the face of disappointing growth (although Mexico’s disappointing performance was due to a variety of factors that had little to do with the reforms) had eroded political support for further regulatory reform. In 2003, the newly-created regulatory-oversight commission lost a key battle against the telecommunications sector, waiving its right to issue an opinion on the sector’s draft regulation favored by incumbent operators. The same year, its head was abruptly replaced, and, in 2009, the agency found itself without direction for several months in a row.

Reforms need to be locked in through legal reform—so they become legally enforceable—and through the creation of sufficiently powerful institutions. Mexico’s federal regulatory-oversight body, COFEMER, proved too weak to maintain the momentum, having been unable to establish a solid and prestigious role comparable to that of the competition commission. Korea’s Regulatory Reform Committee also lacked clout due to its insufficient expertise (World Bank 2008c).

When domestic commitment is not enough, international agreements can serve as anchors, as discussed earlier in this chapter. NAFTA provided a strong anchor to the Mexican reform process, because the political cost of breaking away from it would have been prohibitive—and Mexico’s NAFTA partners also had regulatory-reform agendas of their own, generating policy coherence in the bloc. The perspective of E.U. accession provided the strongest possible anchor to Hungarian reforms because of its reliance on mutual recognition and because of the Single Market’s very ambitious regulatory-reform agenda. However, the degree of commitment provided by trading agreements varies, and so does the substance of their NTM-reform agendas. For instance, the East African Community (EAC) has an agenda of NTM elimination, but so far its implementation on the ground still lacks oomph.

3.3.5 Implementation

Reforming alone is hard. The Mexican experience shows the critical importance of international support. Regulatory-oversight bodies drew extensively on support from peer agencies and international experts and stakeholders most affected by NTMs. Product standards, in particular, are increasingly complex, but at the same time regulatory needs are not terribly different from one country to another. There is no need for national
administrations to spend precious budget resources duplicating work (in the form of standard-setting or expert review) that has already been done elsewhere. But fruitful contact and cooperation between the national agency and foreign ones requires personnel in the national agency to be sufficiently well-trained to be able to communicate with foreign peers. U.S.-trained economists, engineers and lawyers in Mexico’s regulatory-oversight bodies felt at ease communicating with their counterparts in the U.K., Canada or the U.S. This ability to exchange ideas and bring home best practices is key to their efficiency and motivation, and points to careful selection of the agency personnel at the outset.

Engaging middle-ranking administration levels in the reform process is crucial. NTM streamlining and regulatory reform may look good in high-level pronouncements, but they are worth only what actually happens on the ground. First, not all administrations have the same ability or willingness to reform. Getting all administrations to march in step is often difficult and the overall pace tends to be set by the slowest. In Mauritius, for instance, as part of a spectacular modernization of customs, online application procedures are being put in place to speed up requests for permits delivered by other ministries. Apparently unaware that the point is to speed up clearance, some of those ministries nevertheless require physical trips to their offices downtown Port-Louis. The same applies to risk-management techniques introduced by customs is several countries but incompletely understood by other administrations. Second, it is commonplace in the change-management literature to observe that the strongest resistance to corporate change typically comes from middle-level management. The same applies to public administrations. Changes in rules and procedures mandated from the top are only as good as what division heads and lower-ranking officials will make them. This requires their adhesion in the face of uncertainty about the effect of regulatory reform on their status and position. When regulatory improvement comes as part of an aggressive agenda of State retrenchment and privatization, it can easily be perceived as hostile and threatening, leading to inertia or passive resistance. In Mexico, a spoil system made it possible to change public-administration personnel down to middle levels in key areas (World Bank 2008d). However this carries a risk of politically-motivated reversal later on and is not conducive to the long-term viability of the reforms. Far better would be to gain the support of a stable, competent administration through training and communication, which Mexico’s regulatory-oversight body tried to do (but with insufficient means) through capacity-building seminars.

In the end, NTMs are and will remain an important component of trade regulations. What is needed is a clear understanding of the policy objectives sought and a constant review of their impact and appropriateness. When they are needed, and often they are, policymakers need to constantly strive to reduce their trade-distorting impact and seek ways to ensure effective administration at least cost to legitimate traders.
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