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# Streamlining Non-Tariff Measures in ASEAN: The Way Forward\*

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## **Abstract**

Findings show that the incidence of non-tariff measures (NTMs) in ASEAN is moderate in comparison with other regions of the world. The econometrically estimated ad valorem equivalents also seem comparable with other countries. The challenge is to design NTMs so as to maximize their effectiveness in responding to consumer concerns while minimizing the induced economic inefficiency and the interference from self-interested lobbies. This paper proposes that the way forward is not to follow traditional “notify-negotiate-eliminate” approaches but instead to bring the issue to the country level and imbed them in regulatory-reform agendas in the efforts to improve trade and investment climate.

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## **I. Introduction**

When the world was hit by the beginning of the 2008–09 global financial crisis, numerous observers feared that countries would erect protectionist measures as a means of protecting local jobs, consequently “exporting unemployment,” as had occurred in the 1930s. Because tariffs were constrained by WTO disciplines (which did not exist in the 1930s), however, the expectation was that non-tariff measures (NTMs) would be used instead

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to protect local firms and industries. Fortunately, for the world trading system and for the economic recovery, this protectionist scenario did not emerge. Although a number of incidents took place and the number of NTMs recorded by the Global Trade Alert think tank rose substantially between 2008 and 2011, the use of protectionist measures did not rise to a level that impeded a rapid recovery of world trade. Nonetheless, it is too early to view the recent use of NTMs with complacency. For example, the unraveling of the liberal world trading order of the 1870s took 20 years, and the forces of protectionism are always present. Thus, it is important to remain vigilant for signs of inappropriate use of NTMs for protectionist purposes.

When evaluating NTMs it is important to note that they are often implemented for purposes other than hidden protectionism. As consumer wealth rises around the world, consumers turn to their governments to provide regulations that ensure safety and provide higher levels of environmental protection. In this new setting, governments may prefer to respond to these demands as a means of avoiding potential “food scares” or scandals. In providing consumer safety, or increasing environmental protection, governments are likely to turn to NTMs, even if they make the job of home producers and importers more difficult and ultimately raise consumer prices. The challenge is to design NTMs so as to maximize their effectiveness in responding to consumer concerns while minimizing the induced economic inefficiency and the interference from self-interested lobbies.

This is a difficult balancing act, for which governments, in particular the administrations involved in designing NTMs (regulatory agencies or agriculture, health, and industry ministries) are often ill-equipped. As a consequence, in some cases NTM measures may be poorly designed and unwittingly hurt key sectors of the economy, either because they are not targeted at the right problem, because they are too broad-ranging, or because they involve unduly cumbersome compliance-verification mechanisms. In most countries, regulatory functions are scattered over a number of ministries and agencies that have no experience and little incentive to work together on these issues. As a result, regulations are often adopted with narrow mandates in mind and little consideration for the “collateral damage” they can do.

Because regulations tend to be poorly coordinated across countries, the lack of regulatory harmonization also hurts international and regional trade, fragments markets, and works at cross-purposes with regional integration plans. Further, due to their protectionist potential, NTMs are viewed by trade ministries as bargaining chips to be held for future trade negotiations. Their simplification or elimination is viewed as a concession to trading partners for which there is little motivation unless there is reciprocity, which is more challenging to implement than it is in the case of tariff reductions. The costs stemming from a lack of harmonization are often poorly understood by industry ministries, because the issues are complex.

This paper aims to provide evidence on the past effort on measuring the impact on NTMs by making observations on the incidence and severity of NTMs at the global level and in ASEAN, in particular. To move forward and eliminate NTMs within ASEAN, this paper proposes a methodology for streamlining NTMs using a robust process of regulatory review, which draws heavily on WTO disciplines of non-discrimination, as well as necessity and proportionality tests.

We argue that the way forward is not to follow the traditional “notify-negotiate-eliminate” approach but instead to return the issue to the country level and embed NTMs in regulatory-reform agendas. This could be done by tying up NTM streamlining with other efforts to improve the investment and business climate and by setting up regulatory-review bodies to ensure effective regulatory governance.

This does not mean that the issue should be removed from the agenda of regional trade negotiations. Rather, it should be viewed as an issue in which regional secretariats like ASEAN have a key role to play due to the benefits of information-sharing and technical cooperation. The ASEAN secretariat could improve transparency in NTMs—a key dimension of market access—by coordinating and energizing NTM data collection among member countries through the use of a new multilateral template that would facilitate comparison, benchmarking, and access to information for the private sector. It could also provide guidance and technical assistance to member countries seeking to create good-governance institutions in the area of trade-related regulation, and provide training for regulatory watchdogs in the region. These steps would facilitate technical cooperation on NTM-related issues and would prevent friction on issues that could be easily solved at the technical level.

## **2. NTMs worldwide: What do we know?**

### **2.1 What are NTMs?**

Non-tariff measures are generally defined as policy measures other than ordinary customs tariffs that can potentially have an economic effect on international trade in goods, changing the quantities traded, or prices, or both (UNCTAD 2013). To lay the groundwork for discussion, we provide the definition of NTMs in comparison with tariffs (Section 2.1.1) and non-tariff barriers (Section 2.1.2).

**2.1.1 NTMs vs. tariffs** The term “non-tariff measures” covers a wide array of disparate and complex regulations that can affect international trade, whether or not their primary objective is to regulate it. For instance, a ban on the sale of plastic bags—a measure taken by Rwanda to protect the environment—is not primarily a trade measure. Because the measure potentially affects trade it is thus an NTM. Regulations that take this form, technical ones covering all sorts of product characteristics like the design of electric plugs, the

chemicals used in children toys, maximum tolerance levels for pesticides in fruit and vegetables, and the sanitary and technical measures put in place by governments to protect public health and the environment, are all NTMs.

The frontier between NTMs and domestic regulations is not as clear-cut as one would wish. For instance, an environmental regulation prohibiting the discharge of polluting effluents in rivers as part of the production of a certain chemical is trade-relevant if it raises the production costs of domestic producers and therefore reduces their ability to compete with foreign producers, although it is not an NTM as the term is conventionally understood. If production standards were considered as NTMs, virtually all domestic regulations, including possibly labor regulations, would be NTMs, and the concept would become meaningless. Therefore, production standards are left out.

More traditional and commercially motivated instruments like quantitative restrictions, obligations to use certain types of operators for cross-border operations, and so on, are clear-cut cases of NTMs, and they are sometimes called “core” measures. Contingent trade measures such as anti-dumping duties, countervailing duties, and the use of safeguard clauses are also considered by the WTO to be NTMs, although they take the form of tariffs. The WTO’s thinking on the issue is that they are not permanent tariffs, and therefore are not subject to binding (WTO 2012).

In sum, although one could conceptually argue about where to draw the line between NTMs and other regulations, the conventional definition includes consumption standards and contingent protection, but excludes production standards.

**2.1.2 NTMs vs. NTBs** A further distinction is drawn between NTMs with protectionist intent, which are called non-tariff barriers (NTBs), and others. NTBs are a subset of NTMs that reduce trade intentionally. NTBs can be set up directly to reduce imports; this is the case for quantitative restrictions, voluntary export restrictions, or deliberately discriminatory standards. They can also be set up ostensibly for non-trade purposes, but affect trade disproportionately to the objective at hand—usually because the government really has two objectives in mind, one of which is to cut imports. For instance, an over-strict quality standard on steel beams for the construction sector could be enacted, ostensibly to ensure building safety, but having the effect of protecting a domestic steel producer.

As this example suggests, the distinction between NTMs and NTBs is not completely clear-cut, as different stakeholders may view the appropriate level of a safety standard differently. WTO disciplines contained in the sanitary and phytosanitary (SPS) and technical barriers to trade (TBT) agreements provide some guidance on this. The spirit of WTO disciplines is in “necessity” and “proportionality” tests. The first consists of ascertaining whether a technical regulation is necessary to achieve the stated non-trade

objective (say, protection of human health or the environment), and the second consists of choosing the least trade-distorting instrument to achieve the objective.

## **2.2 Sources of information**

There is currently no single, authoritative source of data on NTMs. Rather, a multiplicity of efforts have arisen to gather information according to needs. Broadly, there are two families of databases: private-sector surveys and official data.

Private-sector surveys provide subjective measures of the effect of NTMs on market access and the cost of doing business as perceived by exporters or importers. Their value is that they reflect what is happening on the ground, including not just the regulations on the books, but how they are administered. Surveys should be interpreted carefully, however. They do not always have rigorous sampling frames and thus may not be representative. This can be a problem when some segments of the private sector—say, large firms or particular industries—have strategic reasons to portray regulations either favorably or unfavorably. Respondents can also be imperfectly informed. For instance, producers are sometimes told by intermediaries that their products fail to comply with some new regulation, as a ploy to convince them to accept lower prices.

Official sources seek to provide objective measures of NTMs. One source is the notification of NTMs by WTO member states to the WTO, which is mandatory for potentially trade-restricting regulations. These notifications, which are subject only to weak disciplines, are designed to provide other members with time and information to react to potential restrictions to market access. Unfortunately, because the process suffers from an incentive problem—by notifying, countries expose themselves to criticism—coverage is incomplete.

Under the United Nations Conference on Trade and Development's (UNCTAD's) leadership, a new, comprehensive NTM database is progressively taking shape. A first wave of data collection, carried out in 2001 on about 100 countries, was posted on the UNCTAD Trade Analysis and Information Systems (TRAINS) database and is accessible through the World Bank's WITS portal. A new wave of data collection was initiated by the Multi-Agency Task Force (MAST), based on a new classification of measures, in 2009. The new classification was further updated in 2012 and adopted by the WTO for future notifications.

### **2.2.1 The new multilateral NTM database**

The new multilateral NTM database consists of inventories of all trade-relevant regulations, including SPS, TBT, or non-technical measures such as quantitative restrictions or

**Table 1. The new UNCTAD-WTO NTM classification**

Import measures	Technical measures	A Sanitary and phytosanitary (SPS) measures
		B Non-sanitary technical regulations (TBT)
	Non-technical measures	C Customs formalities, including PSI
		D Contingent protection (Anti-dumping, CD, safeguards)
		E QR and non-automatic licensing
		F Price-control measures, including additional taxes & surcharges
		G Finance measures
		H Measures affecting competition
		I Trade-related investment measures (TRIMs)
		J Distribution restrictions
		K Restrictions on post-sales services
		L Subsidies (excluding export subsidies)
		M Government procurement restrictions
		N Intellectual property
		O Rules of origin
		P Export-related measures

*Source: Authors' compilation from UNCTAD 2012.*

other state interventions in international trade. In general, however, categories G to P in Table 1 are either omitted or imperfectly covered due to their complexity.

Inventories are carried out by local consultants (academics, think tanks) in collaboration with national authorities, in particular trade, agriculture, health, and industry ministries, standards bureau, and so on. They involve no value judgment on whether measures are appropriate or about the methods of administration—they just record the measures on the books. The information must, in principle, be made official by a validation workshop where concerned agencies have the opportunity to identify and correct inaccuracies, although workshops have not been held in all countries. Once the inventory is complete, it is forwarded to a technical team at UNCTAD that performs cross-checks and asks for further clarification and requests revisions when needed. Once the verification process is complete, the data are posted on the World Bank's WITS portal and made freely accessible to governments, researchers, and traders.

The database currently includes 65 countries (if the EU's 27 members are counted individually), shown in Figure 1. Central American countries are to be covered soon, and discussions are ongoing for a launch of a U.S. inventory.

NTM inventories can be posted on national customs' Web sites for use by the private sector, reducing regulatory uncertainty and improving the transparent application of regulations at borders, a recurrent demand by traders in many countries. They can also be exploited analytically by researchers to estimate coverage ratios and ad valorem equivalents of NTMs, provided that the data-collection methodology is identical in all countries and that coverage is exhaustive.

Once a first wave of worldwide data collection is completed, the key challenge will be to make it sustainable by setting up mechanisms for follow-up and updating. The role of

**Figure 1. Coverage of the multilateral NTM database, 2013**

*Source:* Authors' compilation.

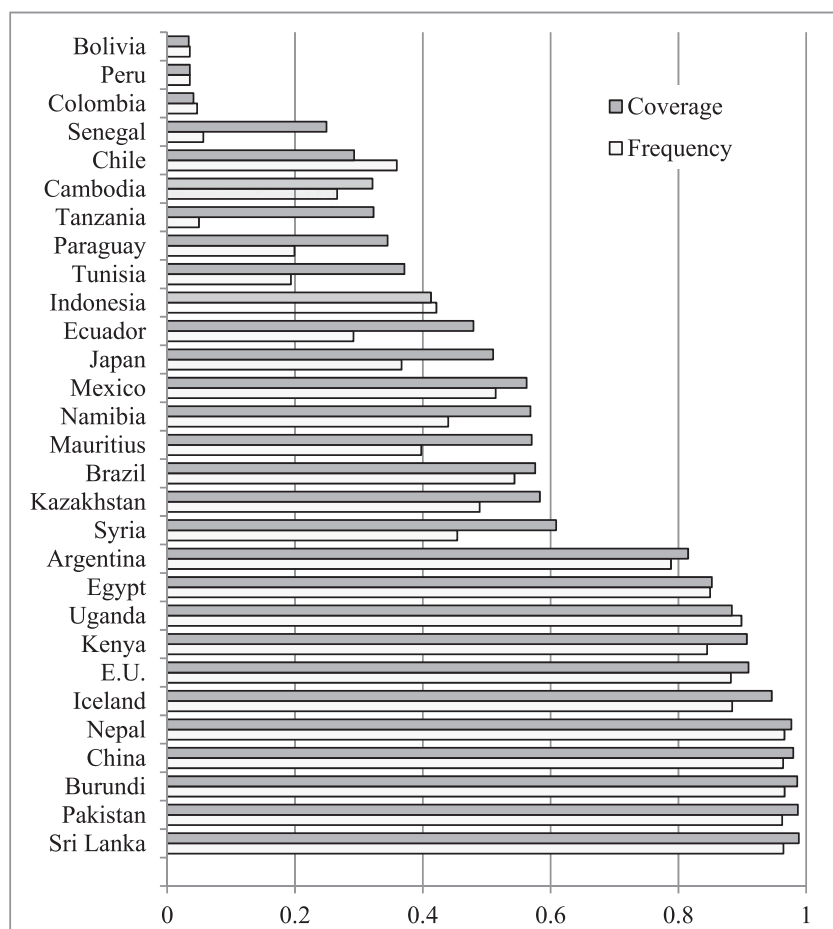
*Note:* Countries in hatched grayscale have incomplete coverage of SPS and TBT regulations.

regional secretariats, such as ASEAN, in building capacities and ensuring follow-up will be crucial in this regard.

There are two key difficulties in gathering accurate information on NTMs: fragmentation and incentives. Unlike tariffs, NTMs are under the mandate of a variety of government agencies including health and agriculture ministries, standards bureaus, and so on, which typically do not have the coordination mechanisms needed for effective data collection. Additionally, in a context where governments feel pressured to cut down on regulations in order to improve their Doing Business ratings, agencies are concerned that disclosing their regulatory activities might lead to finger-pointing. For data collection to proceed unhampered, these two problems must be overcome by (1) setting up a coordinated, inter-ministerial data-collection mechanism in each country, and (2) stressing that data collection is only meant to build up an inventory of information, rather than serving as a finger-pointing exercise, since the regulatory function is part of the legitimate mandate of any modern state.

### **2.3 Incidence and severity: The evidence so far**

The effect of NTMs on market access and competition is typically assessed along two dimensions: Their *incidence*, measured by either the frequency ratio (the proportion of

**Figure 2. Worldwide incidence of NTMs: Coverage and frequency ratios**

*Source:* Authors' calculations based on multilateral NTM database using MAST classification.

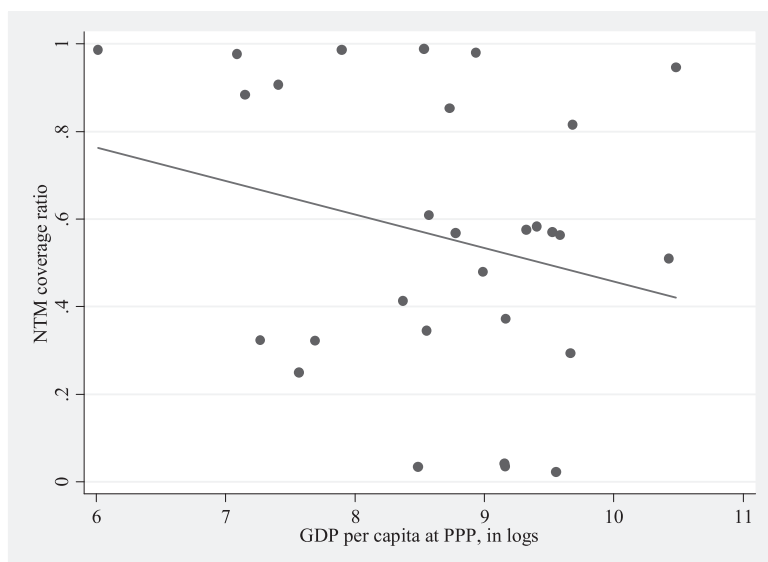
*Note:* Frequency ratios are the proportion of HS6 lines covered by one or more NTMs. Coverage ratios are the proportion of import value covered by one or more NTMs. Import data is averaged over 2008–11.

product categories<sup>1</sup> covered by one or more NTM) or the coverage ratio (the proportion of imports covered), and their *severity*, measured by ad valorem equivalents (AVEs).

**2.3.1 Incidence** The incidence of NTMs is widespread around the world, as shown by Figure 2. Except Argentina, Latin American countries are moderate users of NTMs, and

<sup>1</sup> Product categories are customarily defined at the harmonized system's 6-digit level, which constitutes a nominal total of over 5,000 goods. Most countries trade only a subset of these goods.



**Figure 3. NTM coverage ratios and income levels**

*Source:* Authors calculations based on multilateral NTM database and World Development Indicators.

*Note:* GDP per capita is measured in current U.S. dollars at PPP.

so are Cambodia and Indonesia, two ASEAN countries.<sup>2</sup> By contrast, a number of African countries appear as heavy users of NTMs, on par with the EU.

NTM coverage ratios worldwide seem to correlate negatively with income levels, a counter-intuitive outcome (Figure 3). Although cultural attitudes vary, one would expect high-income consumers to be more concerned about health and the environment. Moreover, regulatory enforcement capabilities, which depend on the skills and resources of national administrations such as standards bureaus and their ability to draw on local scientific expertise, are also likely to increase with national income. Thus, one would

<sup>2</sup> However, using ASEAN Secretariat data, Ando and Obashi (2010) report a 100 percent frequency ratio for Indonesia, explained by universal coverage of para-tariff measures. It seems that the multilateral database (based on Indonesian Government data in the Lartas database [Lartas is a formal portal of the list of prohibited and limited goods that can be exported and/or imported issued by the Indonesian government, <http://eservice.insw.go.id/index.cgi?page=lartas-import-export.html>]) excludes some taxes applied by Indonesia and considered by the ASEAN Secretariat's nomenclature as NTMs. For instance, Ando and Obashi (2010) classify the VAT as one of Indonesia's para-tariff measures, whereas the multilateral database does not consider it as an NTM as long as VAT rates are the same for imported and domestically produced goods (as otherwise many countries would have 100 percent frequency ratios).

expect NTM coverage (and frequency) ratios to correlate positively with GDP per capita. Figure 3, however, shows that there is no such pattern of correlation between the incidence of NTMs and income levels. If anything, the relation is negative, as the regression line is downward-sloping, reflecting more parsimonious use of NTMs for middle-income countries than for low-income ones. One possible explanation for this correlation is that developing countries account for a steadily increasing share of global trade: Their volume of exports rose more than fourfold between 1990 and 2009. Therefore, governments are increasingly called upon to respond to a variety of concerns raised by members of society in many areas, including the environment, animal welfare, and food safety, and are urged to develop technical regulations. Moreover, low-income countries often import larger volumes of products where NTMs are more extensively used—agriculture (Jaffee and Hensen 2004).

The counterintuitive pattern of NTM use worldwide suggests a strong need for technical assistance to help governments to establish regulatory systems adapted to local enforcement capabilities and societal preferences (in terms of a trade-off between the cost-raising effect of NTMs and their benefits in terms of public health).

**2.3.2 Severity** One measure of NTM “severity” is the price-raising effect of the NTMs in the domestic market of the country imposing them. This effect is measured by so-called ad valorem equivalents (AVEs), which can be estimated statistically using either price-based or quantity-based methods (see 2.3.3).

Specific evidence on the impact of NTMs in ASEAN is available from a number of recent studies. Dean, Feinberg, and Signoret’s (2006) study based on a price gap analysis, for example, found that NTMs in ASEAN<sup>3</sup> countries pushed prices upward by 73 to 205 percent in fruits and vegetables, 82 to 109 percent in bovine meat, and 93 to 112 percent in processed food. Another study by Andriamananjara et al. (2004), based on estimated AVEs, concluded that the percentage premia on products restricted by NTMs in Southeast Asia relative to the price of those products in countries without NTMs was 49 percent for vegetable oils and fats and 67 percent for paper products.

Generally, Indonesia’s AVEs were relatively low, ranging from 0.1 to 7.4 percent in priority sectors—namely, Fisheries, Agro-based, Wood-based, Textile and Apparel, Healthcare, Rubber-based, Automotive, Electronics, and ICT. In contrast, Malaysia’s AVEs were higher, ranging from 11.7 to 58.5 percent, as were the Philippines’ AVEs, which ranged from 6.3 to 60.5 percent (Kee, Nicita, and Olarreaga 2006).

<sup>3</sup> ASEAN 5 countries are Indonesia, Malaysia, the Philippines, Singapore, and Thailand.

Work by Ando and Fujii (2002) noted that in terms of tariff equivalent (AVEs),<sup>4</sup> in Indonesia, AVEs ranged from 27.5 percent for food products to 92.6 percent for vegetable products to 102.2 percent for live animals and products, mostly due to technical regulations. Similarly, Malaysia registered a 65.9 percent AVE for vegetable products and a 21 percent AVE for live animals, also due to standards. For the same sectors in Singapore, AVEs were much higher at 257.2 percent and 150.3 percent, respectively, due primarily to non-automatic licensing procedures. The highest AVEs were registered in Thailand, with 596.6 percent in animal and vegetable oils and 132.4 percent in food products, owing mostly to non-automatic licensing, and technical standards for live animals and vegetable products contributed to AVEs of 79.6 percent and 84.6 percent, respectively.

### 2.3.3 Estimating AVEs of NTMs

The AVE of an NTM is the rate of an ad valorem tariff that would reduce imports by the same amount as the NTM. That rate can be assessed using two broad families of approaches. Price-based approaches typically use variants of the so-called “price gaps” method, which compares the price of a good affected by an NTM in the affected import market with its price in a comparison market where no NTM is applied. Examples of price-based methods include Andriamananjara et al. (2004), Fontagné and Mitaritonna (2013), and Cadot and Gourdon (2013). Quantity-based methods use observed variations in trade flows, preferably at the product level, to infer how high are the barriers created by NTMs, once other trade barriers (tariffs and so on) are controlled for. A prominent example is Kee, Nicita, and Olarreaga (2009).

Both approaches use the cross-country variation in the dependent variable (prices or trade volumes) to identify the effect of NTMs. Therefore, by construction, the AVEs obtained are averages across countries and cannot give any indication of how a particular country administers NTMs. A country-specific flavor can be given to the estimates by interacting them with country characteristics such as factor endowments and income levels, and by using country-specific estimates of the elasticity of import demand, a crucial parameter.

Using price-based methods, one would expect AVEs to be mostly positive, as NTMs are likely to push up prices either by imposing compliance costs or by selecting high-quality suppliers. Using quantity-based methods, one can expect either positive or negative AVEs

<sup>4</sup> In the methodology, the price differentials induced by tariffs and NTMs per commodity were calculated as the difference between the domestic producer price of domestic substitute and the cost-insurance-freight (CIF) price of import divided by the CIF price of imports. The tariff was subtracted from this to obtain the price differential driven by NTMs. Next, this was composed into five types of NTMs, by regressing the AVEs against the frequency ratio for each NTM for each commodity to yield coefficients for the price-distorting effect of each type of NTM. Finally, AVEs by NTM type for 21 sectors at the four-digit level was obtained by multiplying the coefficient estimated from the regression by the frequency ratio per NTM type per commodity.

**Table 2. World trade frequency ratios and AVEs of SPS, TBT, and QR measures, by sector**

Section		Frequency ratios <sup>a</sup>			Average AVEs <sup>b</sup>		
		SPS (A)	TBT (B)	QRs (E)	SPS (A)	TBT (B)	QRs (E)
1	Animals	0.94	0.85	0.74	0.23	0.13	0.23
2	Vegetables	0.94	0.51	0.86	0.21	0.28	0.39
3	Fat & oils	0.94	0.57	0.33	-0.11	0.52	0.28
4	Beverages & tobacco	0.95	0.81	0.37	0.59	0.24	0.00
5	Minerals	0.20	0.08	0.19	-0.07	0.53	0.84
6	Chemicals	0.21	0.34	0.71	0.73	0.35	0.32
7	Plastics	0.00	0.37	0.35	0.20	0.61	0.52
8	Leather	0.12	0.14	0.55	0.67	3.31	3.11
9	Wood products	0.27	0.18	0.51	0.08	0.03	0.03
10	Paper	0.00	0.24	0.76	0.31	0.66	0.76
11	Textile and clothing	0.01	0.95	0.82	0.17	0.84	0.45
12	Footwear	0.00	0.57	0.76	-0.10	0.55	0.61
13	Stone & glass	0.00	0.16	0.16	0.79	1.70	1.56
14	Pearls	0.00	0.00	0.04	0.06	-0.20	0.00
15	Metals	0.00	0.24	0.59	0.06	0.56	0.38
16	Machinery	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
17	Vehicles	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
18	Optical & med. Instr.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
19	Arms	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
20	Miscellaneous	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

*Source:* Authors' calculations based on multilateral NTM database using MAST classification.

*Note:* a. Proportion of countries imposing any type-A (respectively, type-B, type-E) NTM on a given HS6 product.

b. Average AVE over all products in section, in algebraic form (0.23 = 23 percent), which means it will increase prices by 23 percent.

as well-designed regulations may act as trade facilitators by removing uncertainty about product quality. Empirically, most AVEs tend to be positive, suggesting that NTMs raise the cost of products and make trade more difficult rather than less difficult.

Table 2 shows quantity-based estimates from a statistical analysis of world trade carried out by the authors. Results suggest that SPS regulations (category A in the MAST classification) tend to have substantial price raising effects on animals and vegetables (21–23 percent) and stiff ones for beverages and tobacco (59 percent). By contrast, they seem to facilitate trade in fats and oils. Technical regulations (TBT in WTO jargon, category B in the MAST classification), by contrast, have strong price-raising effects on fats and oil, probably reflecting some fuzziness in the way regulations on those products are coded (SPS in some countries, TBT in others).

Technical regulations have strong price-raising effects on textiles and clothing (84 percent), raising a suspicion of hidden protectionism due to the fact that the textile and clothing sector has traditionally been subject to heavy protectionism. The elimination of most quantitative restrictions in textile and clothing after the phase-out of the Agreement on Textile and Clothing in 1985 may have given rise to substitution regulations with similar aims and effects.

Chemicals are also affected by strong price-raising regulations (73 percent for SPS and 35 percent for TBT), which is to be expected given the risks involved in the production of

chemicals for public health and the environment. Sections 16–19 do not have estimated AVEs because the coefficients on NTMs in regressions for those products did not produce statistically significant coefficients, suggesting that regulations in those sectors do not substantially affect trade.

In sum, the cross-country pattern of NTM is counterintuitive due to the wide-ranging regulatory scope implemented by some low income countries that bears little relation with enforcement capabilities on the ground. The cross-sectoral pattern of AVEs suggests heavy trade-restricting use of NTMs in key sectors like chemicals where “regulatory prudence” would be expected, but also in sectors such as textiles and apparel where health and environmental issues are secondary and protectionism is widespread. Thus, NTM use worldwide seems to respond, as suggested in the previous section, to both trade and non-trade concerns.

### 3. Methodology

#### 3.1 Quantity-based estimation of AVEs of NTMs

Worldwide (average) NTM AVEs by HS section reported in Table 2 have been estimated using a quantity-based approach derived from Kee, Nicita, and Olarreaga (2009). The estimation was carried out product by product at the HS6 level (four thousand regressions) using the following import equation:

$$\ln(M_c) = \beta_0 \varepsilon_c \ln(1 + t_c) + \beta_1 NTM_c + \mathbf{x}_c \boldsymbol{\beta} + (\mathbf{x}_c \times NTM_c) \boldsymbol{\gamma} + u_c, \quad (1)$$

where  $M_c$  is the dollar value of country  $c$ 's imports of the given product,  $t_c$  is the tariff imposed by country  $c$  on it,  $\varepsilon_c$  the price elasticity of country  $c$ 's import demand for that product,  $NTM_c$  is a dummy variable equal to one if an NTM (of any type) was imposed by  $c$  on that particular product, and  $\mathbf{x}_c$  is a vector of country  $c$  characteristics including its GDP, its GDP per capita, and its endowments of capital, human capital, and arable land. The price elasticity of import demand at the country-product level is taken from Kee, Nicita and Olarreaga (2008). Thus, equation (1) can be rewritten as

$$\ln(M_c) - \varepsilon_c \ln(1 + t_c) = \beta_0 + \beta_1 NTM_c + \mathbf{x}_c \boldsymbol{\beta} + (\mathbf{x}_c \times NTM_c) \boldsymbol{\gamma} + u_c, \quad (2)$$

Estimation is carried out by ordinary least squares (OLS) with White-corrected standard errors. In contrast with Kee et al. (2009), NTMs are not instrumented.

The AVE can then be retrieved through the following calculation. Let

$$\beta_C^{NTM} = \beta_1 + \sum_k \gamma_k x_{kc},$$

where  $k$  indexes the country characteristics included in the vector  $\mathbf{x}_c$ .

Taking the ratio that evaluates imports for the case where  $NTM_c = 1$  as compared with the case where  $NTM_c = 0$  gives

$$\frac{M_c(1)}{M_c(0)} - 1 = \frac{\Delta M_c}{M_c} = e^{\beta_c^{NTM}} - 1. \quad (3)$$

Similarly, taking the ratio of imports for the case of tariffs at rate  $t$ , as compared with the absence of a tariff, gives

$$\frac{M_c(t_c)}{M_c(0)} - 1 = \frac{\Delta M_c}{M_c} = \varepsilon_c t_c. \quad (4)$$

Equating the two gives

$$e^{\beta_c^{NTM}} - 1 = \varepsilon_c t_c, \quad (5)$$

or

$$\tilde{t}_c = AVE_c = \frac{e^{\beta_c^{NTM}} - 1}{\varepsilon_c}. \quad (6)$$

Note that the estimated AVE is country-specific for two reasons: (1) the inclusion of interaction terms for NTMs, and (2) the use of outside, country-specific data for the price elasticity of import demand. The data for this exercise are taken from COMTRADE (trade flows), UNCTAD (tariffs and endowments data), the WDI (GDP per capita), and the multilateral NTM database.

### 3.2 Price-based estimation of AVEs

The price-based estimates given in Table 2 are obtained by estimating bilateral (origin-destination) price (unit value) equations of the following form:

$$\ln p_{od} = \beta_0 + \beta_1 NTM_c + \beta_2 \ln(1 + t_c) + \mathbf{x}_{od}\boldsymbol{\beta} + NTM_c \mathbf{x}_{od}\boldsymbol{\gamma} + \delta_o + \delta_d + \mathbf{u}_{od}, \quad (7)$$

where  $o$  stands for country of origin,  $d$  for country of destination, and  $\delta_o$  and  $\delta_d$  are exporter and importer fixed effects. As with the first measure, this approach involves product by product OLS estimation that does not instrument for the policy variables.

The bilateral unit values data used in this approach are collected from the CEPII (BACI unit-value database), and all other variables are collected as before. Large outliers were reduced using the “squashing function”, a contraction widely used in situations where large estimates must be squeezed between a pre-determined band (here set between –100 percent and 100 percent). Between –0.5 and 0.5 (–50 percent and 50 percent), where most of our estimates lie, the squashing function returns values close to the original ones.

Finally, AVEs were calculated as

$$\hat{\tau}_c = AVE_c = e^{\hat{\beta}_c} - 1. \quad (8)$$

which follows directly from the semi-log form of equation (2).

### 3.3 Distance from international best practices

Using two-level NTM codes and products defined at the HS6 level of disaggregation, for each country we construct a binary variable equal to one when a given measure is applied to a given product and zero otherwise. We then calculate the “Manhattan distance” between the distribution of zeroes and ones across pairs of countries and normalize it to lie between zero and 100. For each measure  $i$  and  $j$  represent two countries,  $k = 1, \dots, K$  indexes products, and  $n = 1, \dots, N$  indexes NTMs.

$$D^{ij} = \frac{100}{KN} \sum_{k=1}^K \sum_{n=1}^N \left| d_{kn}^i - d_{kn}^j \right|, \quad (9)$$

where

$$d_{kn}^i \begin{cases} 1 & \text{if measure } n \text{ is imposed on product } k, \\ 0 & \text{otherwise.} \end{cases}$$

The bilateral distance ranges from zero when the vectors of product/measure pairs are identical in the two countries to 100 when there is no overlap at all between product/measure pairs. We define an international best practices (IBP) group made up of countries that make at least some use of regulatory impact assessment (RIA). It includes the two high-income countries in the database (the EU and Japan) and a small group of middle-income countries consisting of Chile, Mauritius, and Mexico. Chile and Mexico use RIA,<sup>5</sup> and Mauritius is currently putting in place an institutional setup to do so with technical assistance from the World Bank.

The bilateral distance between the EU and Japan is one of the smallest, at 17.3, suggesting relatively similar regulatory patterns. The average distance between countries in the middle-income IBP group is also low at 14.59 percent, largely because Mexico and Chile have similar patterns of SPS measures (bilateral distance of 7.14). The average distance within the IBP group is much larger (33.2), however, due to substantial differences between the two sub-groups (high-income and middle-income). At 24.7, the average distance within the group of non-IBP countries, comprising Argentina, Bangladesh, Indonesia, Kazakhstan, Kenya, Morocco, Paraguay, the Philippines, Senegal, Uganda, and

<sup>5</sup> For a description of Mexico’s experience, see Haddou (2012).

Uruguay, is lower than within the IBP group, suggesting that adoption of RIA and other IBPs does not lead to convergence in terms of NTM use.

#### **4. NTMs in ASEAN: Stylized facts**

The analysis of NTM use in ASEAN is limited by the fact that few ASEAN countries have participated in the multilateral data collection project. Indonesia did—it was one of the pioneers—and information is also available for the Philippines, Cambodia, and Lao PDR. Whenever the data can be exploited statistically, we include it in the analysis of this section.

A preliminary analysis carried out for this report suggests that

1. The incidence of NTMs in ASEAN is moderate by comparison with other regions of the world;
2. Although substantial, those few econometrically estimated AVEs seem roughly comparable with other countries and follow predictable patterns; and
3. Cross-product patterns of NTM application seem relatively similar to a (tentative) definition of international best practices.

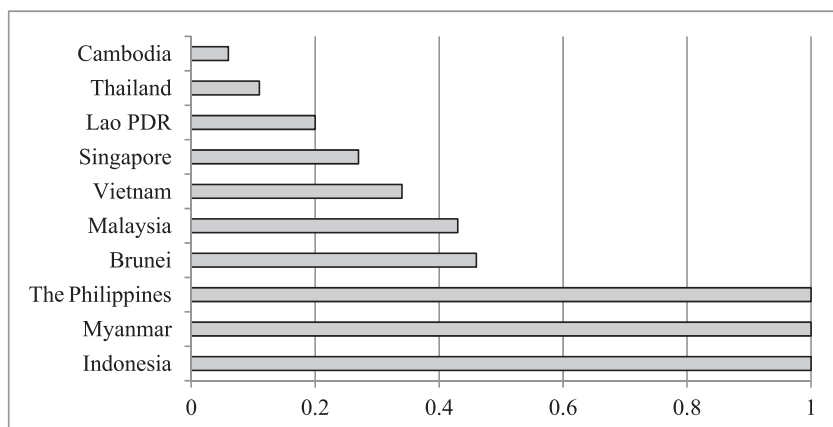
These preliminary results are largely good news. They should not lead to complacency, however. Much remains to be done to eliminate the trade-inhibiting effect of measures that are redundant, imperfectly designed, or applied too strictly.

##### **4.1 Incidence**

Incidence analysis can be carried out by using ASEAN secretariat data, which were collected according to a particular classification of measures that are not fully coincident with the MAST classifications (Note: in our analysis, we convert ASEAN classifications into roughly equivalent MAST classifications.) Frequency ratios reported by Ando and Obashi (2010, Table 2) were used to construct Figure 4. The Philippines, Myanmar, and Indonesia have a 100 percent frequency ratio on account of universally applied para-tariff measures (Indonesia and the Philippines) and quantitative restrictions (Myanmar).

Figure 5, which compares patterns of NTM use based on ASEAN Secretariat data, shows wide variance between member countries. For instance, Indonesia and Singapore use multiple measures (two or three NTMs) at a time in the machinery sector—something that was already noted by Ando and Obashi (2010)—whereas Malaysia and Thailand do not. Malaysia and Indonesia use multiple measures in the chemical sector, whereas other countries do not. Thailand covers a substantial proportion of products with NTMs (about 20 percent) in the textile sector, whereas other countries do not.



**Figure 4. NTM frequency and coverage ratios, ASEAN members**

*Source: Adapted from Ando and Obashi (2010).*

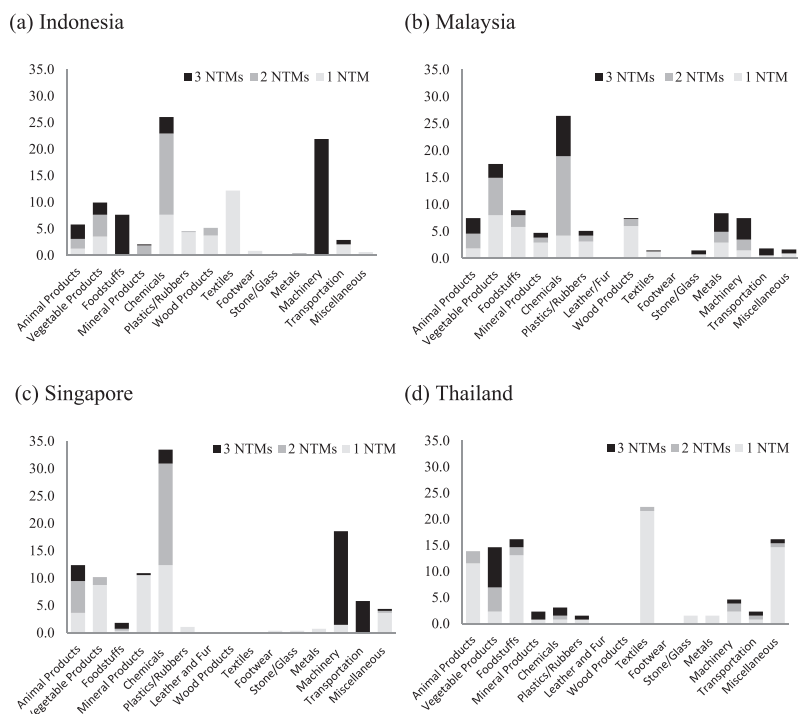
Beyond these key differences, a common pattern emerges of relatively moderate use of NTMs, as no sector has more than one-third of its lines covered by measures in any one of the four member countries for which we have data. Thus, ASEAN secretariat data confirm the picture that was suggested, albeit in a fragmentary way, from the multilateral NTM data (see Figure 2). In general, ASEAN countries were not excessive users of NTMs, and foodstuffs in particular were relatively lightly covered.

This finding can be interpreted in two ways. On one hand, minimally regulated environments are good for trade, as they imply lower levels of bureaucracy and cost-raising obligations to comply with. On the other hand, consumers increasingly demand food safety and count on governments to ensure that food-supply chains are safe. In a world of relatively open trade, this is not always the case, so many countries resort to heavy regulations of food products and agricultural products.<sup>6</sup> Thus, we might expect that ASEAN countries have only begun the process of regulating safety in food supply chains. This may change quickly if food scares suddenly raise the salience of food-safety issues in public opinion and force governments to adopt protective regulations. Thus, the lightweight regulation of food products observed in the data may change in the long run.

#### 4.2 Severity

Information on the price-raising effect of NTMs in the ASEAN is fragmentary. This is because few ASEAN members have collected data according to the multilateral template,

<sup>6</sup> Note that Ando and Obashi (2010) report a 90 percent NTM frequency ratio for agri-food products in Malaysia.

**Figure 5. Incidence of multiple NTMs, by country and sector**

Source: Authors' calculations based on ASEAN (2012) secretariat data.

Note: ASEAN secretariat classification is converted into MAST classification in our analysis.

and the lack of consistent data and classifications precludes the accurate statistical estimation of AVEs (because the estimation is carried out on cross-section of countries, as explained in Section 3.2). For this reason, we only provide estimates for the countries for which data are available.

We base our estimation on prices using bilateral (origin-destination) unit values, which are aggregated to the importer-product level. The results reported in Table 3 are preliminary and should be interpreted with caution.

In the case of Indonesia, SPS regulations (type A) seem to have substantial price-raising effects on food products, although less so on beverages and tobacco.<sup>7</sup> Indonesia uses a multiplicity of NTMs in its chemicals and machinery sectors, although judging by the sum

<sup>7</sup> Estimates on food, beverages, and tobacco may be imprecise because most countries impose heavy regulations on tobacco. For this reason, the counterfactual is based on few observations.

**Table 3. Price-based estimates of AVEs, Indonesia**

		SPS (A)	TBT (B)	Procedures (C)	Price measures (D)	QRs (E)
1	Animals	27.8	19.5	15.4	10.6	17.0
2	Vegetables	29.9	10.4	9.9	15.0	10.8
3	Fat & oils	11.2	10.9	9.7	16.3	5.5
4	Beverages & tobacco	9.0	17.1	9.5	13.0	11.0
5	Minerals	12.4	27.4	17.5	21.2	6.8
6	Chemicals	14.7	16.6	8.5	9.4	9.7
7	Plastics	18.5	14.6	7.6	10.7	6.0
8	Leather	24.6	12.2	32.9	12.7	7.9
9	Wood products	27.4	5.7	9.1	7.6	14.0
10	Paper	17.1	15.8	7.5	24.6	11.2
11	Textile and clothing	33.8	8.5	26.9	10.0	15.2
12	Footwear	47.1	21.0	23.7	16.7	10.0
13	Stone & glass		21.9	21.1	17.9	18.1
14	Pearls		24.4	16.3	–	15.0
15	Metals		22.3	11.4	8.3	6.7
16	Machinery		15.7	14.2	5.2	23.2
17	Vehicles		18.6	16.8	8.3	24.0
18	Optical & med. Instr.		21.6	18.5	2.0	19.9
19	Arms		38.3	4.9	–	6.3
20	Miscellaneous		21.3	8.8	14.4	14.0

*Source:* Authors' calculations based on multilateral NTM database using MAST classification.

*Note:* AVEs are in percent. Negative AVEs have not been taken into account in calculating section averages. Results are not altered drastically if they are included.

of the AVEs for A- and B-measures, the costliest regulations, in terms of price-raising effect, are in footwear (68 percent) and textile & clothing (42 percent). Measures other than regulatory—procedures, price measures, and quantitative restrictions—seem to have a substantial price-raising effect in the automobile sector (close to 50 percent). These statistical estimates ought to be taken *with extreme caution* given the limitations of the data and the fact that identification at the product-country level is based on interaction terms that fundamentally reflect average effects. They need to be further verified by conducting complementary case studies on the ground.

In sum, although the AVEs in Table 3 do not seem out of line with those found in other countries, they seem nevertheless quite substantial in absolute terms. These measures may deserve further scrutiny, especially in the textile and apparel sector where they can affect the cost of living, and thus real incomes and poverty, potentially working at cross-purposes with poverty-alleviation policies.

Price-based estimation reveals similar patterns for the Philippines (Table 4). SPS regulations seem to have price-raising effects across the board, particularly high in the case of footwear, textiles and clothing, and leather. Technical regulations seem to have moderate price-raising effects, while other regulations again seem to have a substantial effect on the automobile sector.

A similar picture emerges for Cambodia and Lao PDR (Tables 5 and 6, respectively), with relatively high AVEs due to SPS measures on food products, textiles and clothing, and

**Table 4. Price-based estimates of AVEs, the Philippines**

		SPS (A)	TBT (B)	Procedures (C)	Price measures (D)	QRs (E)
1	Animals	14.7	13.9	14.9	11.9	17.0
2	Vegetables	16.5	7.5	9.3	15.1	11.3
3	Fat & oils	7.3	2.6	17.6	16.7	5.5
4	Beverages & tobacco	8.7	8.3	6.3	14.1	11.3
5	Minerals	13.0	18.7	14.4	19.1	6.8
6	Chemicals	14.9	12.3	7.2	9.9	11.0
7	Plastics	17.7	12.8	9.3	10.2	7.7
8	Leather	20.4	19.9	35.1	14.9	8.1
9	Wood products	24.3	6.0	12.0	11.9	14.3
10	Paper	17.0	9.1	6.2	25.2	9.7
11	Textile and clothing	33.5	5.4	18.3	10.5	14.4
12	Footwear	48.5	15.7	24.0	9.5	14.6
13	Stone & glass		19.2	14.1	18.6	18.6
14	Pearls		30.7	28.2	2.6	14.7
15	Metals		8.8	10.7	8.6	6.7
16	Machinery		15.3	13.6	5.2	22.8
17	Vehicles		15.6	18.3	9.5	28.1
18	Optical & med. Instr.		19.8	19.4	2.0	16.4
19	Arms		19.9	14.0	—	5.9
20	Miscellaneous		18.5	9.0	13.5	13.5

*Source:* Authors' calculations based on multilateral NTM database using MAST classification.

*Note:* AVEs in percent, negative AVEs not taken into account in calculating section averages.

**Table 5. Price-based estimates of AVEs, Cambodia**

		SPS (A)	TBT (B)	Procedures (C)	Price measures (D)	QRs (E)
1	Animals	23.1	17.7	15.1	9.8	16.6
2	Vegetables	19.4	8.9	10.3	15.3	10.6
3	Fat & oils	11.3	2.4	11.3	16.5	6.0
4	Beverages & tobacco	13.4	14.8	7.7	13.2	12.7
5	Minerals	13.7	22.3	16.1	18.9	6.0
6	Chemicals	15.7	13.5	15.8	9.8	10.5
7	Plastics	18.5	14.8	7.5	10.7	7.1
8	Leather	21.0	18.8	33.9	15.1	7.9
9	Wood products	25.9	6.7	12.4	7.7	12.3
10	Paper	18.3	13.1	6.9	31.2	9.7
11	Textile and clothing	34.1	5.5	19.1	10.3	14.1
12	Footwear	47.4	15.6	22.9	13.4	14.7
13	Stone & glass		22.3	16.4	17.0	17.5
14	Pearls		24.8	19.3	2.6	15.2
15	Metals		10.2	12.0	8.2	6.8
16	Machinery		19.5	13.8	5.2	23.1
17	Vehicles		17.2	34.9	6.3	33.6
18	Optical & med. Instr.		20.3	18.9	2.0	16.0
19	Arms		19.1	12.1	—	6.7
20	Miscellaneous		21.4	10.8	15.7	14.2

*Source:* Authors' calculations based on multilateral NTM database using MAST classification.

*Note:* AVEs in percent, negative AVEs not taken into account in calculating section averages.

footwear. We find that AVEs for TBT measures are consistently in excess of 10 percent, and that they have high combined effects.

**Table 6. Price-based estimates of AVEs, Lao PDR**

		SPS (A)	TBT (B)	Procedures (C)	Price measures (D)	QRs (E)
1	Animals	26.8	17.2	14.0	9.6	16.6
2	Vegetables	22.4	9.5	9.8	13.7	10.2
3	Fat & oils	7.8	3.2	12.6	16.5	5.5
4	Beverages & tobacco	38.7	15.2	7.8	12.7	10.7
5	Minerals	14.8	23.0	18.4	19.0	6.4
6	Chemicals	15.9	13.6	9.5	9.9	10.3
7	Plastics	18.4	14.9	7.7	10.2	6.7
8	Leather	20.9	18.2	34.3	15.0	7.9
9	Wood products	25.9	6.7	14.7	9.7	14.1
10	Paper	18.3	14.1	35.9	24.3	9.4
11	Textile and clothing	33.0	5.5	35.8	10.2	13.5
12	Footwear	47.6	14.6	42.7	15.6	12.7
13	Stone & glass		22.9	17.4	17.0	16.3
14	Pearls		26.8	32.2	2.6	15.1
15	Metals		10.7	45.7	8.2	6.4
16	Machinery		15.9	43.1	5.1	21.9
17	Vehicles		17.6	36.8	9.3	21.5
18	Optical & med. Instr.		19.9	21.9	2.0	16.6
19	Arms		19.1	20.0	—	6.7
20	Miscellaneous		21.5	16.9	14.4	11.5

*Source:* Authors' calculations based on multilateral NTM database using MAST classification.

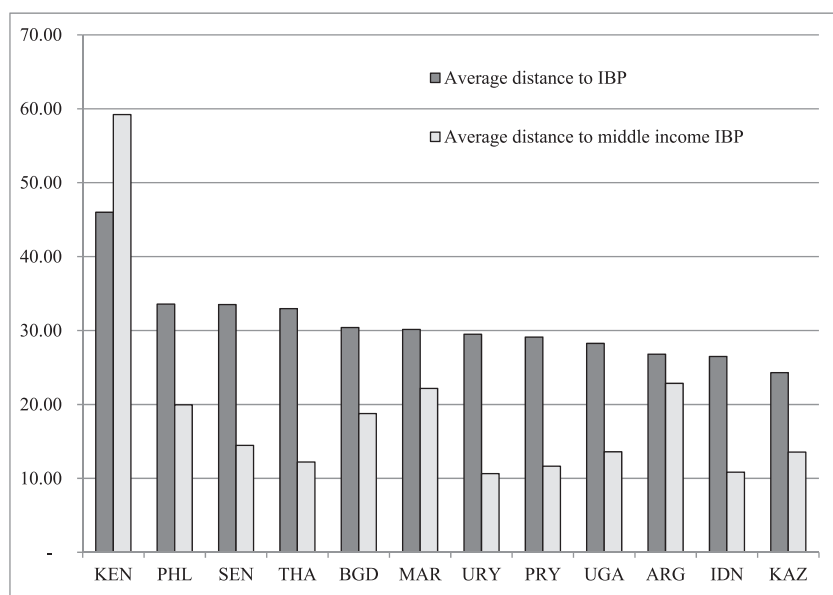
*Note:* AVEs in percent, negative AVEs not taken into account in calculating section averages.

### 4.3 How far from “IBP”?

So far, our statistical analysis of NTMs has been “positive” (i.e., involving no value judgment). Wide coverage may be good or bad depending on societal preferences. For example, high AVEs may be the price to pay for the protection of important “goods” such as the environment or public health.

In this section, we propose a tentative and partial assessment of the rationality of the observed pattern of SPS measures by using certain countries as benchmarks of IBP. The method is detailed in Section 3.2. Essentially, our approach measures for each product, whether similar measures are applied by a country of interest—say, Indonesia or the Philippines—are also applied by countries in a group characterized by good overall regulatory regimes. These countries include the EU and Japan for high-income countries. Because societal preferences may differ between high-income and middle-income countries in terms of the trade-off between product safety and the cost of living, the method also uses a middle-income best-practices group comprising Chile, Mauritius, and Mexico. All three countries have made efforts to adopt, or at least partially, some good-regulation principles (see the discussion in the following section). Thus, the distance between the patterns of NTM application between, say, Indonesia and the best-practices group can be taken as a (preliminary) indication of the need to rethink the pattern of measures in Indonesia.

The results of this comparison are shown in Figure 6. For all non-IBP countries aside from Kenya, the distance from the IBP group is larger than the distance from the

**Figure 6. Patterns of NTMs: How far from IBP?**

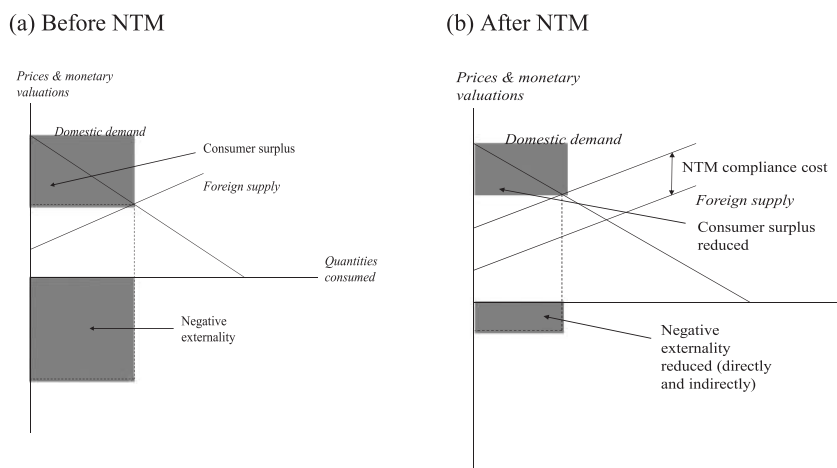
*Source:* Authors' calculations based on multilateral NTM database.

*Note:* International Best Practices (IBP): EU, Japan; middle-income IBP: Chile, Mauritius, Mexico.

middle-income IBP group. This result suggests that patterns of NTM use differ systematically between high-income countries (the EU and Japan) and developing countries. This is to be expected and suggests that the method provides sensible measures. By and large, the comparison suggests that Indonesia, the Philippines, and Thailand have patterns of NTM usage that are “not too far” from middle-income IBP, compared with other countries in the non-IBP set. Because the Philippines is the country with the highest distance, our measures suggest that technical assistance might help to rationalize the Philippines' regulatory regime based on international experience.

## 5. New thinking about NTMs

The analysis of NTMs subsumed in coverage ratios and AVE estimation captures their price-raising effects and the consequent reduction in trade flows. Because NTMs are often imposed for non-trade purposes, however, analysis exclusively focusing on their trade-impeding costs may fail to capture important factors, and may even lead to the risk of misleading policy guidance.

**Figure 7. Partial-equilibrium analysis of a welfare-enhancing NTM**

To illustrate this point—the possibility that NTMs are beneficial to welfare, even if they restrict trade—we provide a partial-equilibrium analysis in Figure 7. In our example, we assume that consumption of the imported product involves a negative externality. For instance, a wholesaler could import steel beams for the construction sector, which may have poor quality and represent a hazard for users of bridges or dwellers in buildings. Or the good in question might be gas-guzzling sport utility vehicles (SUVs) that contribute to pollution or raise fatality rates in collisions with smaller cars. In such cases, consumption of the good produces consumer surplus (the gray triangle in panel (a) of Figure 7) but also a negative externality that reduces welfare (the rectangle) due to its harms to others in society. The net effect of the two might well be negative, as illustrated in Figure 7.

In the case of the steel beams, the government might consider a technical regulation on the quality of imported steel. The regulation would raise the price of imported steel by limiting distributors to import of higher-quality steel. This would have three distinct effects:

1. Reduce consumer surplus through higher prices and lower consumption;
2. Reduce the negative externality through reduced risk (the vertical shrinkage of the rectangle); and
3. Reduce the negative externality through lower consumption (the horizontal shrinkage of the rectangle).

The AVE for the regulation on imported steel beams would be a function of the upward shift of the foreign supply curve (the compliance cost) and of the price elasticity of demand. Although the trade distortions represented by the AVE might be high, it is also possible that the hazard to society, measured by the rectangle in the lower part of panel (a), could also be large. In the case of SUV imports, the government might consider an outright ban, or a tax, with similar effects. In this case, the externality reduction would be related to the reduced use of the good rather than mandated changes in its characteristics.

In sum, a proper welfare analysis of NTMs requires a cost-benefit analysis rather than a simple cost analysis via AVEs. The difficulty lies of course in the measurement of externalities and of the willingness of society to accept higher prices in return for additional safety or an improved environment. The proper measurement of this willingness to pay may be obtained through experiments (see Beghin et al. 2011). Alternatively, in the absence of experimental evidence, the best proxy for society's willingness to pay may be inferred based on evidence of NTM imposition in countries where regulatory regimes are subjected to democratic scrutiny. This is the "benchmarking" approach we used in Section 3.3.

## **5.1 Approaches to NTM streamlining: The international experience**

**5.1.1 Multilateral and regional approaches** *WTO disciplines* General WTO agreements include good-governance principles that provide a good start for the improvement of national regulatory environments.<sup>8</sup> The WTO's approach on NTMs consists of disciplines that have progressively been put in place over time as NTMs were rising in prominence in world trade. Whereas the focus in the 1970s was on quantitative restrictions that were then widely applied in textiles and clothing, steel, and other sensitive sectors, the Uruguay Round set basic disciplines on trade-relevant regulations through the SPS and TBT agreements. These two agreements provide basic disciplines that are still highly useful in preventing protectionism from creeping into legitimate regulations, as NTMs are transformed into NTBs.

The SPS agreement allows WTO members to set sanitary and phytosanitary regulations as needed for the protection of plant, animal, and human health, but specifies that regulations should be based on science. When science is ambiguous—as in the case of genetically modified organisms (GMOs)—Article 5.7 allows countries to impose precautionary measures, but those should be imposed only on a temporary basis and the countries imposing them are expected to make reasonable efforts to reduce the scientific uncertainty. If, after a reasonable delay, no scientific evidence of harmful effects has been uncovered—as was the case with GMOs—the importing country is encouraged to phase out the precautionary measures.

<sup>8</sup> See Laird (2009) for more details.



The TBT agreement applies the fundamental principle of non-discrimination to trade-relevant regulations. In other words, technical regulations should not favor domestic products over imported ones. Countries are encouraged to adopt international standards instead of national ones, and whenever feasible to apply mutual recognition. It also requires transparency in the imposition of technical measures, through the notification system (see above on the notification mechanism) as well as good-governance principles in terms of advance notice of regulatory changes.

Other WTO rules apply to the many forms NTMs can take, including licensing, customs valuation, quantitative restrictions, and so on. On licensing, for instance, WTO rules stipulate maximum delays for agencies to issue licenses and encourages member countries to adopt simple rules.<sup>9</sup>

*Regional efforts* The reduction of NTBs to trade has been a priority in ASEAN efforts to promote economic integration in the region, due to the widespread view that NTBs have been more important than tariffs in the reduction of regional trade. To this end, the ASEAN Economic Community blueprint has mainstreamed the reduction of NTBs in regional integration efforts, together with improvements in trade facilitation through single windows.<sup>10</sup>

ASEAN countries have focused on the removal of NTMs affecting largely traded products in intra-regional trade. The products identified are minerals, electrical appliances, and machineries. To identify the NTMs affecting these sectors, ASEAN regulators compiled information on NTMs based on submissions made by member countries, the GATT trade policy review, submissions by the ASEAN Chambers of Commerce & Industry, and the UNCTAD's TRAINS database. The outcome of the analysis of NTMs was the identification of the main measures affecting intra-regional trade—namely, customs surcharges, technical measures, product characteristic requirements, and monopolistic measures (World Bank 2008a).

The ASEAN Trade in Goods Agreement (ATIGA), adopted in 2008, set a schedule for the elimination of NTBs in three stages (see ASEAN 2012). The approach consisted of

<sup>9</sup> The licenses considered here that should adopt the WTO rules are non-automatic licenses, and licenses delivered automatically as proof of compliance with technical or SPS regulations are considered as licenses that have applied WTO rules as covered by those articles. Incidentally, NTM data sets sometimes fail to distinguish clearly between those and classify as “licenses” measures that are really SPS or TBT measures, for which licenses are merely proof of compliance.

<sup>10</sup> A nationally integrated electronic system that allows an integration of information related to customs documents handling and other export–import documents and ensures the data and information security and automatically integrates the flow and information process between internal systems. This covers customs, licensing, port/airport affairs, and other systems associated with import–export activities.

classifying NTBs into three categories: green for NTMs that were not NTBs (i.e., justified measures), amber for NTMs whose trade-restrictiveness could be discussed, and red for clear-cut NTBs.<sup>11</sup> ASEAN member countries were supposed to submit lists of NTMs that the ASEAN secretariat would then categorize as green, amber, or red. The secretariat's classification would be reviewed by member countries, after which measures would be examined and prioritized for elimination by a number of negotiating bodies including the Coordinating Committee on the implementation of the Common effective preferential tariff for AFTA.<sup>12</sup>

The ATIGA mechanism suffers from incentive problems, however, because governments are expected to provide information that will then be put on a bargaining table. Governments may prefer to keep information to themselves. The success of the ATIGA mechanism also required that governments set up inter-ministerial coordinating mechanisms to centralize information about the regulations issued by various agencies. The problem is that governments are expected to overcome a collective-action problem to provide a public good: market access for regional partners.

In addition to their attempt to reach a negotiated elimination of NTBs at the regional level, countries in the Asia-Pacific region have also adopted a sectoral approach to harmonization and mutual recognition, which seems to be delivering results. At the time of writing, the ASEAN Consultative Committee on Standards and Quality was working on the implementation of the Hanoi Plan of Action in terms of standards harmonization and Mutual Recognition Arrangements (MRAs).<sup>13</sup>

In agricultural products, with regard to sensitive products (mostly agriculture products), ASEAN is currently developing an MRA for the acceptance or recognition of conformity of assessment procedures among ASEAN countries associated with food inspection and certification systems. The draft MRA was targeted for finalization by 2014.

In cosmetics, ASEAN regulators and the industry have been working on the harmonization of technical requirements and the removal of TBTs. The ASEAN secretariat is working on a Cosmetic Directive intended to guide national regulations in member countries, as the basis for mutual recognition—a model close to that in force in the EU, where the

<sup>11</sup> First, non-tariff measures that are non-transparent, discriminatory, without scientific basis, or inferior to better alternatives are to be eliminated immediately, and are classified as Red Box. Second, NTMs that are transparent but discriminatory and cannot be justified or identified as barriers are subject to negotiation and classified as Amber Box. Third, NTMs that are transparent, non-discriminatory, supported by science, and do not have better alternatives are acceptable and classified as Green Box.

<sup>12</sup> See Ando and Obashi (2010) for more details.

<sup>13</sup> See <http://www.usasean.org/regions/asean/afta/harmonized-standards>.

EU Commission sets broad guidelines in Regulations and Directives and lets member countries adapt their own legislation, as long as the key provisions are sufficiently close that mutual recognition is possible.

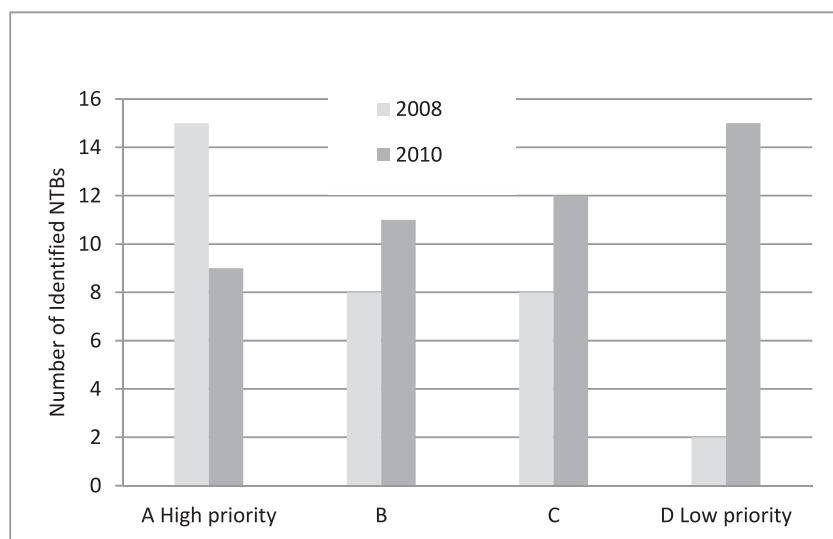
An MRA for electrical and electronic equipment was endorsed by the ASEAN economic ministers. In preparation for its implementation, member countries have undertaken activities to favor the convergence of conformity-assessment procedures. In telecommunications equipment, an MRA initiated by the ASEAN Telecommunications Regulators' Council was finalized by 2000. Finally, a comparative study of ASEAN regulatory regimes for pharmaceuticals has been completed, with several areas identified for harmonization. An ASEAN Common Technical Dossier has been developed for the registration of pharmaceutical products, which will serve as a basis for application of the MRA.

More recently, ASEAN has established a work program on NTMs called the Work Program on Streamlining ASEAN NTMs 2013–14. Among others, ASEAN member states are aiming to establish an NTM inventory using WTO-consistent UNCTAD classifications and implemented via an NTM information portal at the country and ASEAN level. This effort also seeks to review and streamline NTMs through agreed principles and to establish an institutional mechanism to monitor and enforce agreed NTM streamlining objectives at the country and ASEAN levels.

A slightly different approach has been tried in East Africa, where the Common Market for Eastern and Southern Africa (COMESA) secretariat has set up an NTB monitoring mechanism with assistance from donors (see World Bank 2008d). In contrast to ASEAN efforts, the COMESA mechanism relies on the private sector to flag issues with NTBs rather than on member countries. For this reason, in principle, incentives are better. As in ASEAN, NTBs are to be classified by order of urgency. In 2009, a draft East African Community (EAC) time-bound program for the elimination of identified NTBs seeking to identify quick wins to help build momentum was adopted by the EAC council. It identified 33 NTBs for elimination in 2008, classified into four categories, from A to D by degree of urgency. The exercise was repeated in 2010, with 47 NTBs identified (World Bank 2012).

Although more NTBs were identified in 2010, reflecting the political realities, they were pushed toward the less-urgent categories, as shown in Figure 8, and the identification of quick wins, in the end, proved difficult. Ultimately, the lack of follow-up on complaints has led to some disaffection of the mechanism based on the private sector.

In sum, whereas some progress has been achieved in key sectors of the regional economy, both ASEAN's and East Africa's experiences highlight how difficult it is to make progress on the elimination of NTBs when the discussion of NTMs is approached from a

**Figure 8. Postponing action on NTBs in the East African Community time-bound program**

Source: World Bank (2008b); World Bank (2012).

trading-concessions angle. In the next section, we propose an alternative approach in which each country views NTM streamlining as part of a broader but largely domestic regulatory-improvement agenda.

**5.1.2 Country-level approaches to regulatory reform** NTBs restrict market access but do not necessarily improve the profitability of domestic producers. The reason is that poorly designed regulations create inefficiencies that are difficult to identify. For example, importers of intermediate products can be hurt by poorly designed or administered technical or sanitary standards. If those importers are also exporters—as is often the case—poor NTM design will damage national competitiveness.

For this reason, viewing the elimination of NTBs through the lens of mutual concessions is not the best approach, and may even be counterproductive if it induces governments to postpone reform out of a desire to retain “bargaining chips” for future negotiations. Instead, it would be better to start from a clear distinction between NTMs and NTBs at the country level. Only NTBs should be eliminated, while NTMs should be improved to minimize their costs for the private sector.

Given an objective of improvement rather than elimination, the issues change. NTMs are trade-relevant regulations, but the problems involved in making NTMs less

trade-distorting are essentially better-regulation problems, which are similar to those encountered in the improvement of domestic regulations.

Few developing countries have embarked on wide-ranging regulatory reform programs. Mexico is one, and its experience in this regard is particularly interesting because Mexico was started with a heavily regulated and distorted economy. Its experience is summarized in 5.1.2.1.

*5.1.2.1 Mexico's experience with regulatory reform* The drive for regulatory reform in Mexico began in early 1995 with the so-called "Tequila crisis" of December 1994, which highlighted the need to modernize the economy. Regional rules set forth in NAFTA prevented Mexico from using tariffs as a means of protecting jobs. Thus, the government had to turn to other policy options that were not constrained, and chose to reduce the costs faced by domestic producers by addressing problems related to heavy regulations.

Mexico embarked in a top-down program of regulatory reform driven by a small group of high-level technocrats who had the strong support of the president. The process was institutionalized through the creation of a regulatory-improvement agency, the Economic Deregulation Unit (UDE). It was placed under the Secretariat of Trade's authority, but given, by presidential decree, a broader authority than the secretariat itself. The controversial decision to place UDE under a ministry's umbrella rather than making it a strictly independent agency has been argued by some to be at the root of its subsequent weakening. Early on, UDE gathered credibility and clout by initially targeting "low-hanging fruit"—regulatory reforms that were easy and widely seen as urgent. However, it actually embarked on an ambitious deregulation agenda rather than tackling a laundry-list of small-scale, low-visibility regulations and NTMs. UDE required all ministries not just to notify, but also to provide justification for their measures. This shamed ministries into eliminating the silliest formalities, leading to the elimination of 45 percent of them by 1999 (IFC 2008).

A second step in the institutionalization of the regulatory reform process consisted of the creation of the Economic Deregulation Council, a consultative body which assembled representatives from regulation-issuing ministries, UDE, business, labor unions, and academia (IFC 2008). Although without formal sanction powers, the Council, which met quarterly, reinforced UDE's strategy of exposing senseless, harmful, or special-interest driven regulations. Distortionary regulations often make their way through the political process due to the imbalance between concentrated beneficiaries (lobbies) and dispersed societal interests. Around the Council's table, lobby-driven ministries, which were required by the president to be represented by their secretaries themselves (no low-level substitutes), found themselves surrounded by representatives of wider interests, and that,

by itself, made it more difficult to ram through measures that harmed other groups. UDE reviewed ministries strategically, starting with friendly ones (Trade and Foreign Affairs) and turning to more difficult ones (Interior, Communications, Transportation) later on (Salas 2004).

The third and final step came with the passage of the Federal Administrative Procedures Act and the transformation of UDE into a formal federal agency, COFEMER, in 2000. The law's objective was to ensure that new regulations would obey standards of transparency and rationality by assessing the regulatory process of specialized agencies. Already since 1996, federal agencies were required to submit RIAs with new regulation projects (Salas 2004). The creation of COFEMER, with a staff of 60 professionals, a budget of USD 5 million, and an independent status with a president-appointed head (although still within the Secretariat of Trade) was meant to reinforce its powers. For instance, it could undertake its own cost-benefit analyses and had the brainpower to do so. Key limits to its power, however, such as the exclusion of all tax-related matters, were maintained because of Finance-ministry opposition.

International support was critical. Many of the ideas in which the technocrats had been trained were "in the air" abroad, as regulatory-reform and state retrenchment agendas were pushed forward, in the last quarter of the twentieth century, in the UK, the United States, New Zealand, and elsewhere (in particular, the OECD regulatory reform agenda). The UDE received many forms of support, including technical assistance from peer agencies in Canada, the UK, and the United States. This support was important because it helped to avoid isolation and keep the flame alive.

Nevertheless, in spite of the institutionalization of the regulatory reform process, it was only as strong as the President's political backing. When elections returned a hostile parliamentary majority, partisan politics significantly slowed the reform process. By that time, 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 COFEMER's performance) had eroded political support for further regulatory reform. In 2003, COFEMER lost a key battle against the telecommunications sector, waiving its right to issue an opinion on the sector's draft regulation (which was favored by incumbent operators). The same year, the head of COFEMER was abruptly replaced, and later, the agency was without a head for several months.<sup>14</sup>

Mexico's experience suggests that four key ingredients are needed to support viable regulatory reform:

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<sup>14</sup> Source: Haddou (2012); authors' interviews.

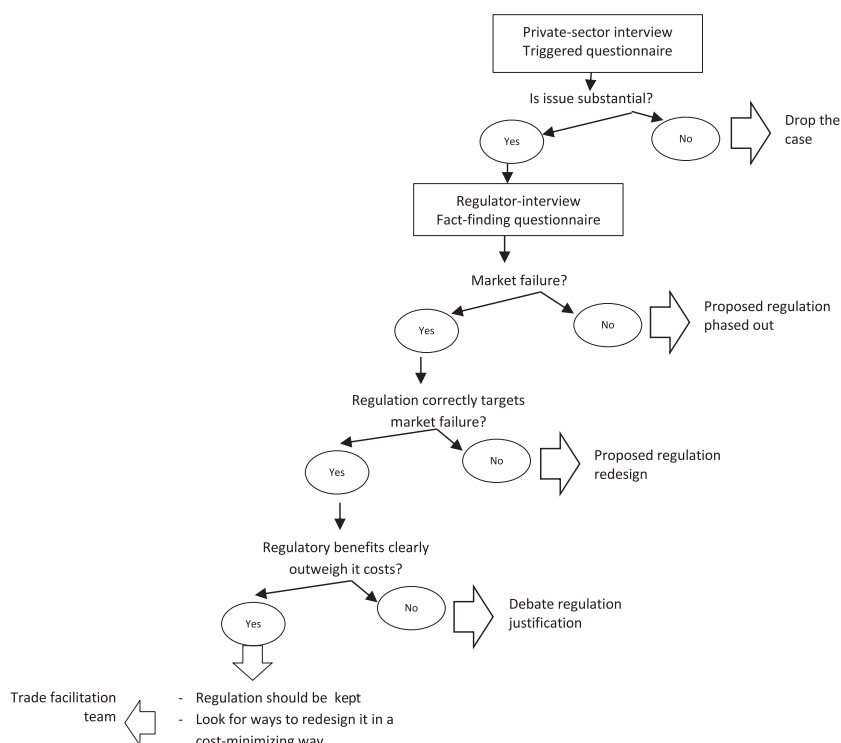
1. A consistent and mutually reinforcing reform agenda, and a strong and permanent *political anchor*, such as a binding trade agreement.
2. *International support* in the form of technical assistance to the regulatory-improvement body, and international (typically regional) cooperation in regulatory improvement.
3. A credible *institutional design* revolving around a strong oversight body with independence, competence, and high-level political support.
4. Engagement with national administrations, and middle-level civil servants in particular, in the RIA process for new regulations including consultation with stakeholders.

The following section builds on this experience to recommend an institutional design at the country level, which would make progress on the streamlining of NTMs.

## 5.2 Toward a balanced approach

The analysis so far suggests that progress on NTM-streamlining agendas will require a shift of focus, away from approaches guided by the principles of tariff negotiation, toward an emphasis on domestic regulatory-improvement reform that considers regulatory governance as much as the measures themselves. In other words, efforts to negotiate the elimination of NTBs at the regional level, even if they were successful—which so far has scarcely been the case—will encounter recurrent problems if the domestic regulatory processes is not reformed by the adoption of good-governance principles. This section proposes some changes based on the World Bank's recent toolkit (World Bank 2011).

**5.2.1 NTM review: The analytics** The World Bank's approach to reviewing NTMs is to emphasize careful cost-benefit analysis rather than an exclusive focus on regulatory costs. The logic of a regulatory review is shown in Figure 9. The starting point is a private-sector complaint about an NTM, formatted in a "trigger questionnaire". The first question that must be addressed is to assess whether the complaint is substantial, misinformed, or frivolous. If it is substantial, an NTM review is called for. Through a fact-finding questionnaire, the next step for the reviewing agency is to assess whether there is a market failure (externality, public good, imperfect information, or so on) that justifies government intervention. This step is crucial, as it is the puts the whole analysis on a sound micro-economic foundation. If there is no market failure to address, government intervention is likely to be misguided. If a market failure exists, the next question is whether the regulation, as it exists (in the case of a review) or as it is contemplated (in the case of a new one) correctly targets it. For instance, if the problem is a hazard or a negative externality linked to final consumption, the regulation should target final sales rather than imported inputs. If the regulation is correctly targeted, the next question is whether its cost-benefit analysis is favorable; that is, whether the benefits of the regulation offset its costs. This may be highly technical if done quantitatively. In most cases, the analysis will shed light on the question, only when the result is strongly lopsided, (i.e., if costs far outweigh benefits). Information on this type of issue can be gathered from the private sector, and indeed it

**Figure 9. The logical flowchart of an NTM review**

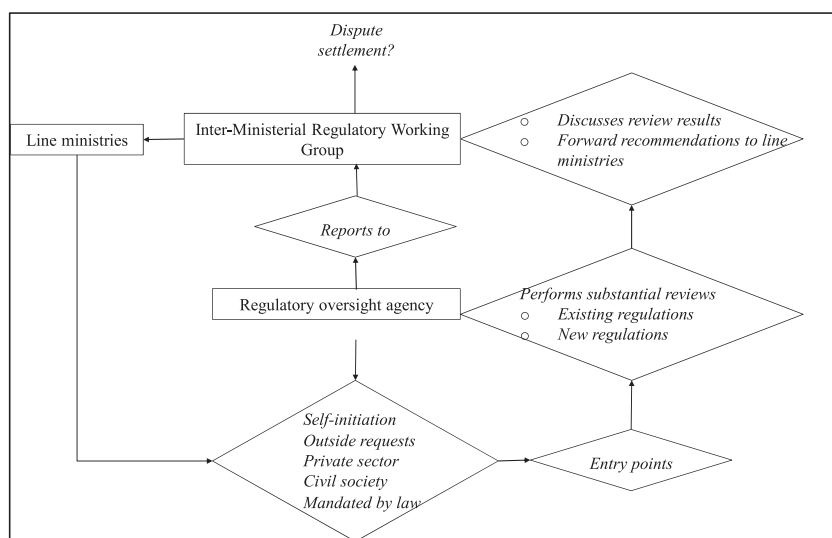
Source: World Bank (2009).

is not uncommon for regulatory examinations to reveal that costs are multiples of even conceivable benefits. Finally, even when the cost-benefit analysis is favorable, it is possible that even more favorable alternatives exist.

Although based on micro-economic analysis, the regulatory-review structure proposed in Figure 9 is fully consistent with the spirit of WTO disciplines, and, in particular, the necessity and proportionality tests.

Clearly, such an analysis may be technical. It is akin to an RIA, a tool for regulatory quality that has been adopted widely in OECD countries. In developing these tools for countries where administration has limited capacity and local researchers can only provide limited support, RIA or the type of regulatory review proposed in this section may impose a heavy burden. The solution to this problem favored by consulting firms who provide advice on regulatory improvements has been to water down RIA to the point where



**Figure 10. Institutional setup for NTM governance**

Source: Adapted from World Bank (2011).

it consists only in checking boxes, where it becomes useless (APEC-OECD 2005). The approach proposed in the World Bank's toolkit, by contrast, is to help government set up regulatory oversight agencies with strong analytical skills (young, skilled personnel) supported by technical assistance from donors (World Bank 2009). We now turn to the institutional steps involved.

**5.2.2 An institutional setup** The Mexican experience suggests that for a regulatory oversight body to have clout, it should not be located in a line ministry, as other ministries would resent being implicitly put under their authority (World Bank 2008c). Instead, the regulatory oversight body should be placed either under the prime minister's or president's authority or be independent (Figure 10).

Regulatory governance in the proposed setup would subject all existing and new regulations to a process whereby government or non-government stakeholders—the private sector, civil society—could bring up issues to an independent agency that possesses the analytical capability to review proposed or existing regulations. The agency could also self-initiate inquiries based on its own assessment. The result of analytical reviews would follow the logical steps illustrated in Figure 9 and would conclude with the formation of reports recommending that each of the regulations be green-lighted, modified, or eliminated.

Recommendations would then be examined by an inter-ministerial regulatory working group, possibly including non-government stakeholders as well, where line ministries would join as well. By subjecting the issues to an objective factual analysis, we expect that most cases could be resolved. In cases characterized by strong vested interests, a dispute-settlement mechanism could be added that would send contentious cases to a higher level.

The most crucial element of this institutional architecture is that the regulatory oversight body possesses the resources and skills to carry out credible reviews. To this end, the oversight body should be given legal existence and be endowed with sufficient resources to be able to recruit young, skilled experts rather than “borrowing” staff from existing ministries. Over the long run, the regulatory oversight body could be merged with a competition oversight body, as the type of skills and expertise needed to review competition issues—mergers & acquisitions, dominant positions, collusive and anticompetitive arrangements—are largely the same as those needed to assess the economic effects of regulations. The advantage of merging the two functions are many, including economies of scale in regulation, increased clout, and the possibility of a more balanced authority over the private and public sector.

## 6. Concluding remarks and recommendations

Our analysis of the scope for streamlining NTMs in the ASEAN region has highlighted the following observations:

1. NTMs increase costs for ASEAN businesses and reduce competitiveness. Nevertheless, many of these increased costs are associated with other societal preferences such as a desire for a cleaner environment or higher standards of health and safety. Therefore, an agenda on streamlining NTMs shouldn't focus on the outright elimination of NTMs, but on modifications in design and implementation. What should be eliminated, however, are NTBs—the subset of NTMs that are designed solely with trade reduction as a goal.
2. The incidence of NTMs in ASEAN is moderate by comparison with other regions of the world. The econometrically estimated AVEs seem roughly comparable with other countries and follow predictable patterns, and cross-product patterns of NTM application seem relatively similar to a (tentative) definition of International Best Practices.
3. NTMs are often imposed for non-trade purposes and an analysis exclusively focused on NTM costs would omit consideration of other important goals, possibly leading to misleading guidance. In summary, a proper welfare analysis of NTMs requires a cost-benefit analysis rather than a simple cost analysis via AVEs.
4. The analysis of the recent performance of multilateral and regional efforts to streamline NTMs is instructive. Traditional approaches that follow the “notify-negotiate-eliminate” approach have failed to deliver. In summing up, negotiation-led reform

has been slow because NTM simplification or elimination is viewed as a concession to trading partners. In this setting there is little motivation to take these steps, unless trading partners provide reciprocal benefits. The issue should instead be brought back to the country level and embedded in domestic, unilateral regulatory reform agendas.

5. This report has proposed an alternative route based on the creation of country-level regulatory-oversight agencies that possess strong analytical capability for carrying out NTM reviews in member countries. The ASEAN secretariat could play an important role in fostering the emergence of such bodies, providing them with capacity building, coordination, and support. The existence of similar agencies in several or all member countries with commonly trained personnel would help tremendously in resolving issues between member countries at the technical level before they create political friction. As a first step, the ASEAN secretariat might consider organizing the collection of NTM data according to the multilateral template and using the data to produce a report on NTMs in the ASEAN area in the next two to three years.

## References

- Ando, Mitsuyo, and Takamu Fujii. 2002. The Costs of Trade Protection: Estimating Tariff Equivalent of Non-Tariff Measures in APEC Economies. Japanese Economic Association, Fall Meeting, 13–14 October, Hiroshima University.
- Ando, Mitsuyo, and Ayako Obashi. 2010. The Pervasiveness of Non-Tariff Measures in ASEAN—Evidences from the Inventory Approach. In: *Rising Non-Tariff Protectionism and Crisis Reco: Studies in Trade and Investment*, edited by Mia Mikic, pp. 2587. Bangkok: United Nations Economic and Social Commission for Asia and the Pacific (ESCAP).
- Andriamananjara, Soamiely, Judith Dean, Robert Feinberg, Michael Ferrantino, Rodney Ludema, and Marinos Tsigas. 2004. The Effects of Non-Tariff Measures on Prices, Trade, and Welfare: CGE Implementation of Policy-Based Price Comparisons. USITC Office of Economics Working Paper 2004-04-A. Washington, DC: U.S. International Trade Commission.
- APEC-OECD. 2005. *APEC-OECD Integrated Checklist on Regulatory Reform: A Policy Instrument for Regulatory Quality, Competition Policy and Market Openness*. Joint Official Document. Available at: <http://www.oecd.org/regreform/34989455.pdf>
- ASEAN. 2012. *ASEAN Economic Community Scorecard 2012*. Jakarta: ASEAN Secretariat.
- Beghin, John, Anne-Cecilia, Disdier, Stéphane Marette, and Frank van Tongeren. 2011. Measuring Costs and Benefits of Non-Tariff Measures in Agri-Food Trade. Working Paper No. 11001. Ames, IA: Iowa State University.
- Cadot, Olivier, and Julien Gourdon. 2013. Measuring the Effect of NTMs on Trade and Prices: New Evidence. Unpublished manuscript, University of Lausanne.
- Dean, Judith, Robert Feinberg, and José Signoret. 2006. Estimating the Price Effects of Non-Tariff Barriers. USITC Economics Working Paper No. 2006-06-A. Washington, DC: U.S. International Trade Commission.

- Fontagné, Lionel, and Cristina Mitaritonna. 2013. Assessing Barriers to Trade in the Distribution and Telecom Sectors in Emerging Countries. *World Trade Review* 12:57–78.
- Haddou, Ali. 2012. Streamlining NTMs in Mexico. In: *Non-tariff Measures: Fresh Evidence on Trade Policy's New Frontier*, edited by O. Cadot and M. Malouche, pp. 247–270. London/Washington, DC: CEPR/The World Bank.
- IFC. 2008. *Regulatory Transformation in Mexico, 1988–2000*. Washington, DC: International Finance Corporation.
- Jaffee, Steven, and Spencer Henson. 2004. Standards and Agro-Food Exports from Developing Countries: Rebalancing the Debate. Policy Research Working Paper 3348. Washington, DC: The World Bank.
- Kee, Hiao Looi, Alessandro Nicita, and Marcello Olarreaga. 2006. Estimating Trade Restrictiveness. World Bank Policy Research Working Paper No. 3840. Washington, DC: The World Bank.
- Kee, Hiao Looi, Alessandro Nicita, and Marcello Olarreaga. 2009. Estimating Trade Restrictiveness Indices. *Economic Journal* 119:172–199.
- Laird, Sam. 2009. Basic Information on WTO Rules on Non-Tariff Measures. Note prepared for Workshop on Non-tariff Measures: Introduction to Issues and Challenges, organized by the Ministry of Trade and the World Bank Office Jakarta (Multi Donor Facility Trade and Investment Climate, MDFTIC) at the MOT, Jakarta, 10–11 December 2009.
- Salas, Fernando Jose. 2004. Mexican Deregulation: Smart Tape on Red Tape. World Bank Working Paper No. 31435. Washington, DC: The World Bank.
- UNCTAD. 2012. *Non-Tariff Measures to Trade: Economic and Policy Issues for Developing Countries*. Geneva: United Nations.
- UNCTAD. 2013. *Classification of Non-Tariff Measures February 2012 Version*. Geneva: United Nations.
- World Bank. 2008a. A Survey of Non-Tariff Measures in the East Asia and Pacific Region. World Bank Policy Research Report No. 42853. Washington, DC: The World Bank.
- World Bank. 2008b. Non-Tariff Measures on Goods Trade in the EAC. Report No. 45708-AFR. Washington, DC: The World Bank.
- World Bank. 2008c. *Regulatory Transformation in Mexico, 1988–2000*. Washington, DC: IFC/World Bank.
- World Bank. 2008d. Non-Tariff Measures on Goods Trade in the East African Community. Report No. 45708-AFR. Washington, DC: The World Bank.
- World Bank. 2009. *Streamlining Non-Tariff Measures: A Toolkit for Policy Makers*. Washington, DC: The World Bank.
- World Bank. 2011. *Lessons for Reformers: How to Launch, Implement, and Sustain Regulatory Reform*. Washington, DC: IFC/World Bank.
- World Bank. 2012. Burundi: DTIS Update. Washington, DC: The World Bank.
- WTO. 2012. *Looking Beyond International Cooperation on Tariffs: NTMs and Services Regulations in the XXIst Century*. Geneva: World Trade Organization.