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Streamlining NTMs in ASEAN: The Way Forward

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Abstract: The 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.

***Keywords*:** NTM, ad valorem equivalents, ASEAN
***JEL Classification*:** F5, F6, F1

1. Introduction

When, in 2008, the world was hit by the beginnings of the Global Financial Crisis, numerous observers feared an explosion of protectionism to protect jobs and "export unemployment" as had happened in the 1930s. As tariffs were constrained by WTO disciplines (which did not exist in the 1930s), the expectation was that non-tariff measures (NTMs) would be used for the same purposes. Fortunately for the World Trading System and for the recovery, that did not happen. A number of incidents took place and the number of NTMs recorded by the Global Trade Alert, a think tank, rose substantially between 2008 and 2011, but not enough to prevent a rapid recovery of world trade. History, however, does not suggest that complacency is in point, as the liberal world trading order of the 1870s took twenty years to unravel, and the forces of protectionism are always present. Inappropriate use of NTMs for protectionist purposes is therefore something to be watched on a continuous basis.

However, there is more to NTMs than just hidden protectionism. As consumer wealth rises around the world, the demands on governments for safety and environmental protection rise as well. Governments need to respond to those demands before "food scares" and scandals hit and generate media hype. The appropriate response is 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. The result is sometimes measures that are poorly designed and unwittingly hurt key sectors of the economy, either because they are not targeted at the right problem, or because they are too broad-ranging, or else 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.

Regulations are also poorly coordinated across countries, even when their lack of harmonization hurts international and regional trade, fragments markets, and works at cross-purposes with regional integration plans. Because of 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 complex to establish than in the case of tariffs. The cost of non-harmonization is often poorly understood by industry ministries, because the issues are complex.

This paper will argue that the way forward is not to follow traditional "notify-negotiate-eliminate" approaches but instead to bring back the issue to the country level and imbed them 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 good regulatory governance.

This does not mean that the issue should be taken off the agenda of regional negotiations. Rather, it should be viewed as an issue for information-sharing and technical cooperation, in which regional secretariats like ASEAN have a key role to play. As this paper will show, the ASEAN secretariat could work to improve transparency in NTMs—a key dimension of market access—by coordinating and energizing NTM data collection among member countries according to a new multilateral template so as to facilitate comparison, benchmarking, and access to information for the private sector. It could also provide guidance and technical assistance to member countries willing to put in place good-governance institutions in the area of trade-related regulation, and provide training for regulatory watchdogs in the region. This 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 (NTMs) are generally defined as policy measures other than ordinary customs tariffs that can potentially have an economic effect on international trade in goods, changing quantities traded, or prices or both (UNCTAD, 2013). These sections will discuss the definition of NTMs in comparison with tariff (2.1.1) and non-tariff barriers (2.1.2).

2.1.1. NTMs vs. Tariffs

The term "non-tariff measures" (NTMs) 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; however, it potentially affects trade and is thus an NTM. Regulations such as this, technical ones covering all sorts of product characteristics like the design of electric plugs, the chemicals used in children toys, maximum tolerance levels of pesticides in fruit and vegetables, and all 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 clearcut 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; however, 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 non-tariff measures, 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 non-tariff measures, although they take the form of tariffs. The WTO's thinking on the issue is that they are not permanent tariffs and are not subject to binding.

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 a protectionist intent, 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 of quantitative restrictions, voluntary export restrictions (VERs), 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 ostensibly to ensure building safety, but have the effect of protecting a domestic steel producer.

As the example above suggests, the distinction between NTMs and NTB is not completely clear-cut, as different stakeholders may view the appropriate level of a safety standard differently. WTO disciplines contained in the SPS and 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), while 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, there is a multiplicity of efforts to gather information according to needs. Broadly, there are two families of databases: Private-sector surveys and official data.

Private-sector surveys provide subjective measurement 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. However, surveys should be interpreted carefully. 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 just to convince them to accept lower prices.

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

Under 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 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.

Table 1: The New UNCTAD-WTO NTM Classification

Import measures	Technical measures	A	Sanitary and phytosanitary (SPS) measures
		B	Non-sanitary technical regulations (TBT)
		C	Customs formalities, including PSI
	Non-technical measures	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	Subsides (excluding export subsidies)
		M	Government procurement restrictions
		N	Intellectual property
		O	Rules of origin
		P	Export-related measures

Source: Authors compilation from UNCTAD 2012.

Box 1: The New Multilateral NTM Database

The new multilateral NTM database consists of inventories of all trade-relevant regulations, whether they be sanitary and phytosanitary (SPS), technical barriers to trade (TBT), or non technical measures such as quantitative restrictions or other state interventions in international trade. However, typically categories G to P in Table 1 are either omitted or very imperfectly covered because of 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 not and how they are administered on the ground—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 which performs cross-checks and asks for further clarification and revision if needed. Once the verification process has been completed, the data is posted on the World Bank's WITS portal and made freely accessible to governments, researchers, and traders.

The database now includes 65 countries (if the E.U.'s 27 members are counted individually), shown in Figure 1. Central American countries are to be covered soon, and discussions are ongoing for the 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 regional Secretariats such as ASEAN in building capacities and ensuring follow-up will be crucial in this regard.

Figure 1: Coverage of the Multilateral NTM Database, 2013

Source: Authors' compilation; countries shown hatched have incomplete coverage of SPS and TBT regulations.

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 Doing Business ratings, agencies are concerned that disclosing their regulatory activities might lead to finger-pointing. In order for data collection to proceed unhampered, these two problems must be overcome by (i) setting up a coordinated, inter-ministerial data-collection mechanism in each country, and (ii) stressing that data collection is only meant to build up an inventory and not a finger-pointing exercise, as the regulatory function is part of the legitimate mandate of any modern State.

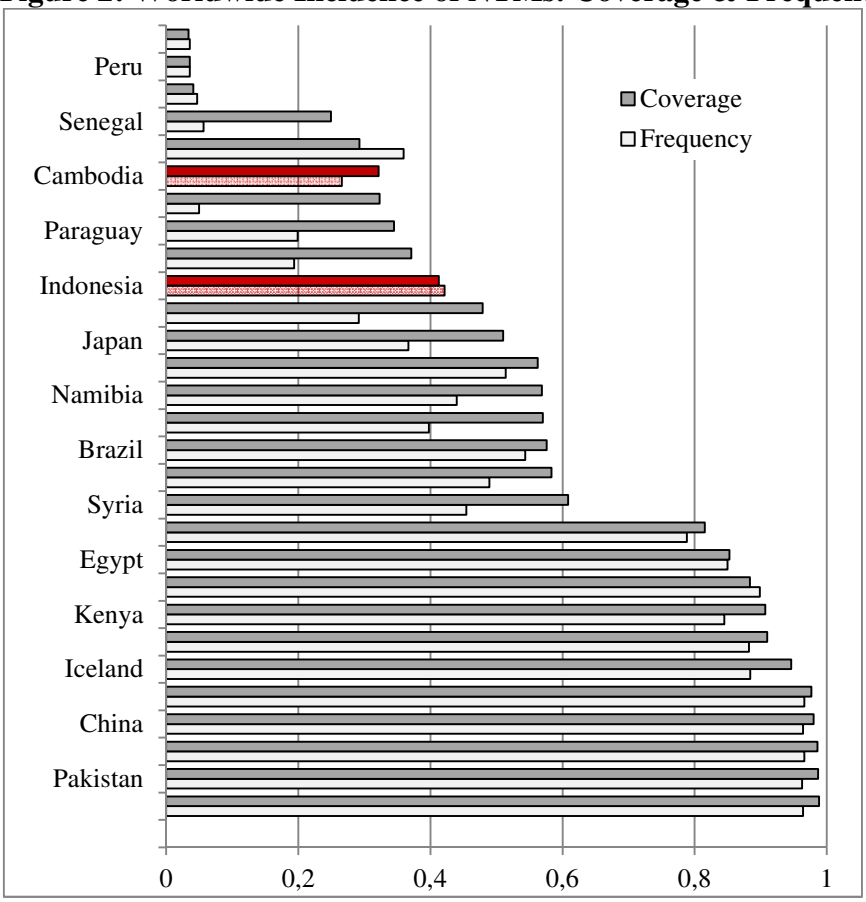
2.3. Incidence and Severity: The Evidence So Far

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 product categories[1] 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 so are Cambodia and Indonesia, two ASEAN countries.[2] By contrast, a number of African countries appear as heavy users of NTMs, on par with the E.U.

Figure 2: Worldwide Incidence of NTMs: Coverage & Frequency Ratios

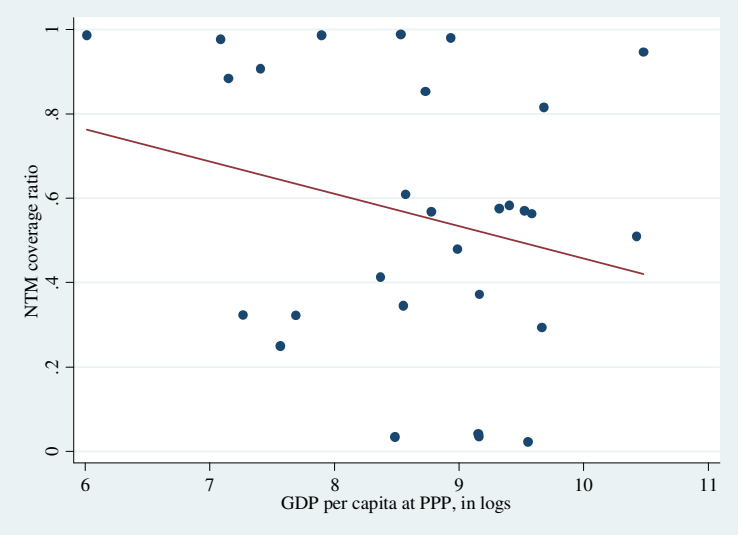


Note: Frequency ratios are the proportion of HS6 lines covered by one or more NTMs. Coverage ratios are the proportion of import value covered by one or more NTMs. Import data is averaged over 2008-2011.

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

NTM coverage ratios worldwide seem to correlate negatively with income levels, a counter-intuitive situation (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 go up with national income. Thus, one would expect NTM coverage (and frequency) ratios to correlate positively with GDP per capita. However, Figure 3 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.

Figure 3: NTM Coverage Ratios and Income Levels



Note: GDP per capita is measured in current U.S. dollars at PPP.
Source: Authors calculations based on multilateral NTM database and World Development Indicators.

The un-natural pattern of NTM use worldwide suggests a strong need for technical assistance in order to help governments put in place 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

The "severity" of NTMs is their price-raising effect in the domestic market of the country imposing them. This is measured by so-called "ad-valorem equivalents" (AVEs) which can be estimated statistically using either price-based ones or quantity-based methods (see Box 2).

Box 2 : Estimating Ad-valorem Equivalents (AVEs) of NTMs

The ad-valorem equivalent of an NTM is the rate of an ad-valorem tariff that would reduce imports by just as much 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 comparator market where no NTM is applied. Examples of price-based methods include Andriamananjara, *et al*. (2008), Fontagné and Mitaritonna (2013), or Cadot and Gourdon (2011). 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, *et al*. (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 on 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 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.

Table 2 shows quantity-based estimates from a statistical analysis of world trade carried out by the authors and detailed in the annex. Results suggest that sanitary and phytosanitary regulations (category A in the MAST classification) tend to have substantial price raising effect on animals and vegetables (21-23%) and very stiff ones for beverages and tobacco (59%); 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 heavily 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 very strong price-raising effects on textile and clothing (84%), raising a suspicion of hidden protectionism as textile and clothing has traditionally been a sector affected by heavy protectionism. The elimination of most QRs in textile and clothing after the phase-out of the ATC in 1985 may have given rise to "substitution" regulations with similar aims and effects.

Chemicals are also affected by highly price-raising regulations (73% for SPS and 35% 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.

Table 2: World Trade Frequency Ratios and AVEs of SPS, TBT and QR Measures, by Sector

Section		Frequency ratios [a/]			Average AVEs [b/]		
		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.

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

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

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

In sum, the cross-country pattern of NTM use does not seem to follow intuition, with some low-income countries having wide-ranging regulatory scope bearing little relation with enforcement capabilities on the ground. The cross-sectoral pattern of ad-valorem equivalents suggests heavily trade-restrictive use of NTMs in key sectors like chemicals where "regulatory prudence" would be expected, but also in sectors like textile and apparel where health and environmental issues are secondary while protectionism is widespread. Thus, NTM use worldwide seems to responds, as suggested in the previous section, to both trade and non-trade concerns.

3. NTMs in ASEAN: Stylized Facts

The analysis of NTM use in ASEAN is limited by the fact that few ASEAN countries have been participating 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 will include it in the analysis of this section.

A very preliminary analysis carried out for this report suggests that

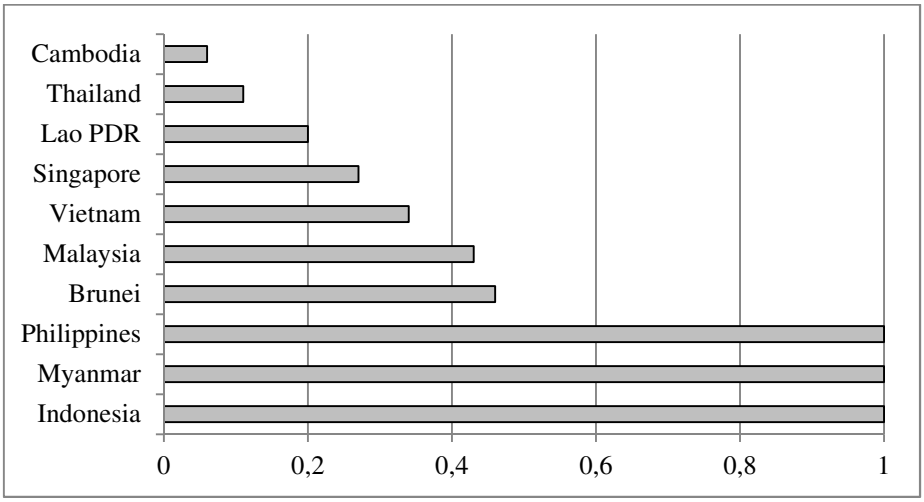
- The incidence of NTMs in ASEAN is moderate by comparison with other regions of the world;
- While substantial, those few econometrically-estimated AVEs seem roughly comparable with other countries and follow predictable patterns;
- Cross-product patterns of NTM application seem relatively similar to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

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

3.1. Incidence

Incidence analysis can be carried out using ASEAN Secretariat data which has been collected according to a particular classification of measures that is not fully compatible with the MAST classification (Note: in our analysis, ASEAN classification is converted into MAST classification). Frequency ratios are reported by Ando and Obashi (2010, Table 2) from which Figure 4 is constructed. The Philippines, Myanmar and Indonesia have 100% frequency ratio on account of universally-applied para-tariff measures (Indonesia and the Philippines) and quantitative restrictions (Myanmar).

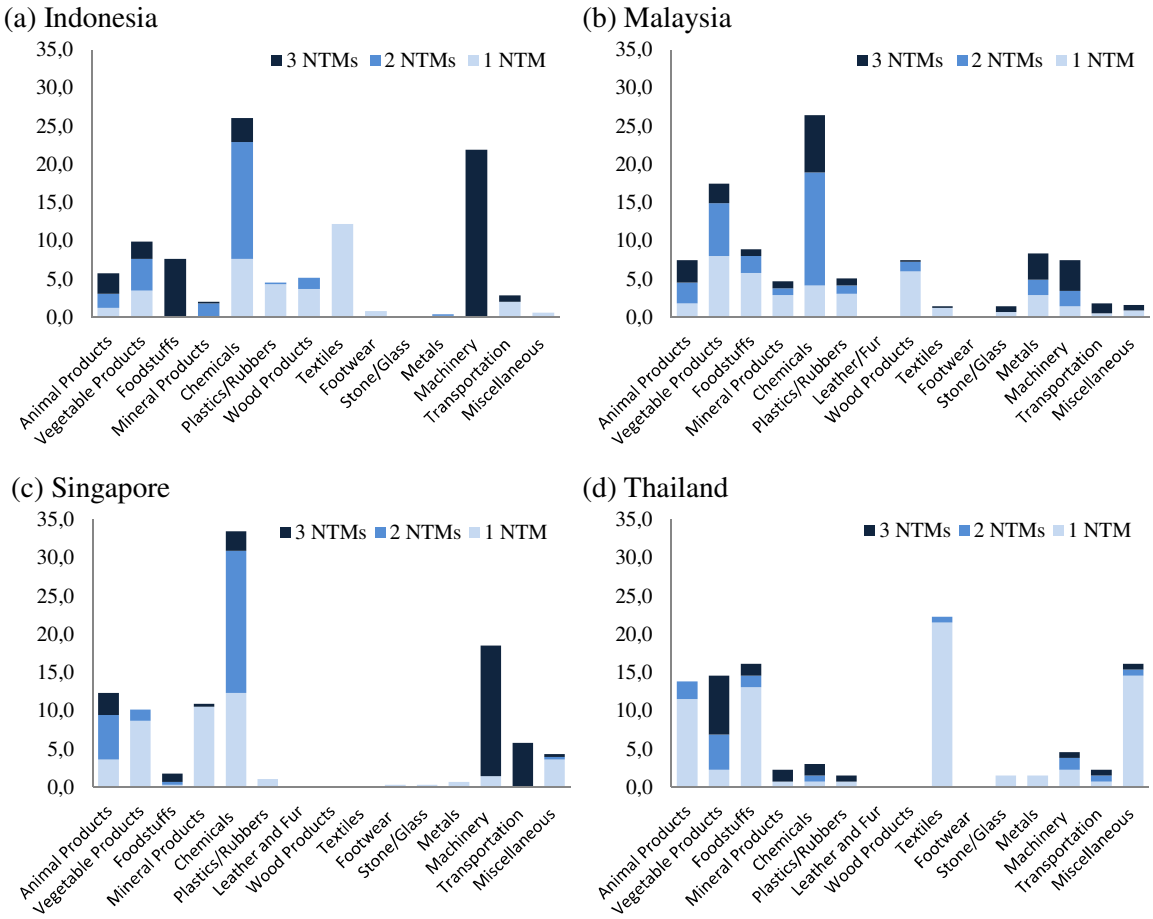
Figure 4: NTM Frequency and Coverage Ratios, ASEAN Members



Source: Adapted from Ando and Obashi (2010).

A comparison between patterns of NTM use using ASEAN Secretariat data Figure 5 shows wide variance between member countries. For instance, Indonesia and Singapore use heavy combinations of measures (2 or 3 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 heavy combinations of measures in the chemical sector, whereas other countries do not. Thailand covers a substantial proportion of products with NTMs (about 20%) in the textile sector, whereas other countries do not.

Figure 5: Incidence of Multiple NTMs, by Country and Sector



Source: Authors' calculations based on ASEAN Secretariat data (Note: ASEAN Secretariat classification is converted into MAST classification in our analysis).

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

This finding can be interpreted in two ways. On one hand, lightweight regulatory environments are good for trade, as they mean less bureaucracy and less 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 foodstuffs and agricultural products.[3] ASEAN countries may be

half-way down in such a process of regulation of 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 foodstuffs observed in the data may not be an equilibrium in the long run.

3.2. Severity

Information on the price-raising effect of NTMs in the ASEAN is very fragmentary, because, as noted, few ASEAN members have collected data according to the multilateral template while consistency of data and classifications is crucial to the statistical estimation of AVEs (because the estimation is carried out on cross-section of countries, as explained in the Annex). Thus, we report here only estimates for countries for which data are available.

Here, estimation is carried out directly on prices using bilateral (origin-destination) unit values, and then aggregated at the importer-product level. The results reported in Table 3 below are very preliminary and should be interpreted with the utmost caution.

In the case of Indonesia, SPS regulations (type A) seem to have substantial price-raising effects on foodstuffs, although less so on beverages and tobacco.[4] Although Indonesia uses relatively heavy combinations of NTMs on the chemicals and machinery sector, judging by the sum of the AVEs for A- and B-measures, the costliest regulations, in terms of price-raising effect, are in footwear (68%) and textile & clothing (42%). Measures other than regulatory—procedures, price measures and QRs—seem to have a substantial price-raising effect in the automobile sector (close to 50%). These statistical estimates ought to be taken *extremely cautiously* given the limitations of the data and the fact that identification at the product-country level is based on interaction terms but fundamentally reflecting average effects. They should be complemented by case studies on the ground.

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

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

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 and may deserve further scrutiny, in particular 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.

Table 4: Price-based Estimates of AVEs, 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

Note: AVEs in percent, negative AVEs not taken into account in calculating section averages.
Source: Authors calculations based on multilateral NTM database using MAST classification.

Patterns are broadly similar for the Philippines (Table 4). SPS regulations seem to have price-raising effects across the board, particularly high in the case of footwear, textile and clothing, and leather. Technical regulations seem to have moderate price-raising effects, but other regulations again seem to affect heavily the automobile sector.

A similar picture emerges for Cambodia and Lao PDR (Table 5 and Table 6), with relatively high AVEs of SPS measures on foodstuffs, textile and clothing, and footwear, AVEs for TBT measures consistently above 10%, and high combined effects.

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

Note: AVEs in percent, negative AVEs not taken into account in calculating section averages.
Source: Authors calculations based on multilateral NTM database using MAST classification.

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

Note: AVEs in percent, negative AVEs not taken into account in calculating section averages.
Source: Authors calculations based on multilateral NTM database using MAST classification.

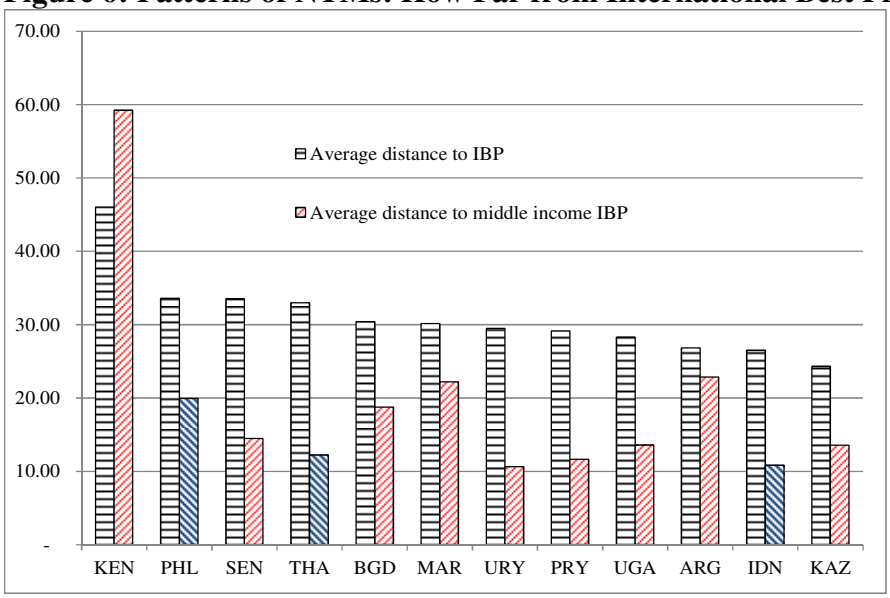
3.3. How Far from "international best practices"?

So far, the statistical analysis of NTMs has been "positive", i.e. involving no value judgment. Wide coverage may be good or bad depending on societal preferences, while 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 very tentative and partial assessment of how rational is the observed pattern of SPS measures by using certain countries as benchmarks of international best practices. The method is detailed in the Annex. Essentially, what it does is to measure, for each product, whether measures applied to that product 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 E.U. and Japan for high-income countries. As 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 made of Chile, Mauritius and Mexico. All three countries have made efforts to adopt, at least partially, some good-regulation principles (see the discussion in the next section). Thus, the distance between the patterns of NTM application between, say, Indonesia and the best-practices group can be taken as a (very preliminary) indication of the need to rethink the pattern of measures in Indonesia.

Figure 6: Patterns of NTMs: How Far from International Best Practices



Notes: International Best Practices (IBP): E.U., Japan; middle-income IBP: Chile, Mauritius, Mexico.
Source: Authors calculations based on multilateral NTM database.

The results are shown in Figure 6. Distance from the IBP group is, for all non-IBP ones except Kenya, larger than from the middle-income IBP group, suggesting that patterns of NTM use differ systematically between high-income countries (the E.U. and Japan) and developing ones. This is to be expected and suggests that the method makes sense. By and large, the comparison suggests that Indonesia, the Philippines and Thailand have patterns of NTM imposition that are "not too far" from middle-income IBP, compared to other countries in the non-IBP set. The one with the highest distance is the Philippines, suggesting that some technical assistance could be called for in order to rationalize the Philippines' regulatory regime using international experience.

4. New Thinking about NTMs

The analysis of NTMs subsumed in coverage ratios and AVE estimation concerned essentially one aspect of their economic effects: Their price-raising effects and the consequent reduction in trade flows. However, as was alluded to throughout the discussion, NTMs are often imposed for non-trade purposes and an analysis exclusively focused on their costs would miss half the story and would even risk producing misleading guidance. In order to drive the point home, consider the partial-equilibrium analysis in Figure 7.

The assumption of Figure 7 is 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 SUVs which contribute to pollution or raise fatality rates in collisions with smaller cars. In such cases, consumption of the good produces consumer surplus (the grey triangle in panel (a) of Figure 7) but also a negative externality which reduces welfare (the rectangle). The net effect of the two might well be negative, as illustrated in Figure 7.

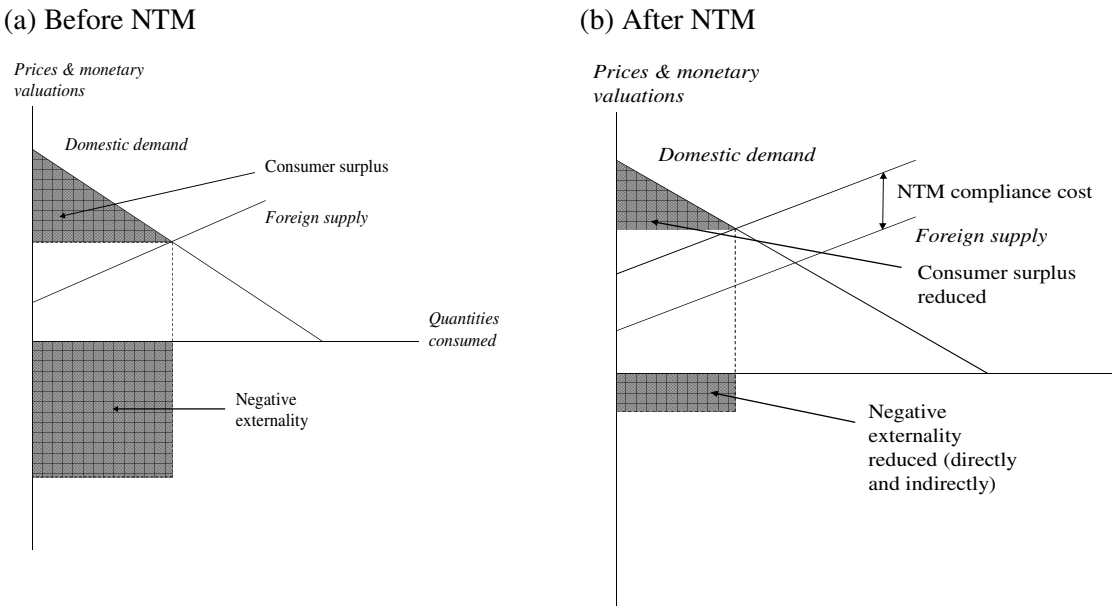
In the case of the steel beams, the government might consider a technical regulation on the quality of imported steel. The regulation would raise the price of imported steel by forcing distributors to source higher-quality steel. This would have three distinct effects:

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

The regulation's AVE would be a function of the upward shift of the foreign supply curve (the compliance cost) and of the price elasticity of demand. It could be very high, but so could be the hazard to society measured by the rectangle in the lower part of panel (a). In the case of the SUVs, the government might consider an outright ban, or a tax, with similar effects except that the externality's reduction

would in that case work only through reduced use of the good (instead of a mandated change in its characteristics).

Figure 7: Partial-equilibrium Analysis of a Welfare-enhancing NTM



In sum, a proper welfare analysis of NTMs would involve 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 a better environment. The proper way of measuring this willingness to pay is through experiments (see e.g. Beghin, *et al.* 2011). In the absence of experimental evidence, the best proxy for society's willingness to pay is the 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 above.

4.1. Approaches to NTM Streamlining: The International Experience

4.1.1. Multilateral and Regional Approaches

WTO disciplines

While general, WTO agreements include good-governance principles that provide a good start to the improvement of national regulatory environments.[5] The WTO's approach on NTMs consists of disciplines which 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 which were then widely applied in textile and clothing, steel, and other sensitive sectors, the Uruguay Round set basic disciplines on trade-relevant regulations through the SPS and TBT agreement. These two agreements provide basic disciplines which are still highly relevant to prevent protectionism from creeping into legitimate regulations, transforming NTMs 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 should 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 should phase out the precautionary measures.

The TBT agreement applies to trade-relevant regulations the fundamental principle of non-discrimination; that is, 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, in particular through the notification system (see *supra* 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.[6]

Regional efforts

The reduction of non-tariff barriers to trade features prominently in ASEAN efforts to promote economic integration in the region, reflecting a widespread view that NTBs have superseded tariffs as relevant barriers to trade. In particular, the ASEAN Economic Community (AEC) blueprint has mainstreamed the reduction of NTBs in regional integration efforts, together with improvements in trade facilitation through single windows.

ASEAN countries focused on the removal of NTMs affecting largely traded products in intra-regional trade. The products identified were minerals, electrical appliances, and machineries. In order to recognize 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 (ACCI), and the UNCTAD's Trade Analysis and Information Systems (TRAINS) database. The outcome of the analysis of NTMs was the identification of the main measures affecting intra-regional trade: namely, custom surcharges, technical masures, product characteristic requirements, and monopolistic measures (World Bank Report, 2008).

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 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, or red for clearcut NTBs.[7] ASEAN member countries were supposed to submit lists of NTMs which the ASEAN secretariat would then classify into 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 (CEPT) for AFTA (CCCA).[8]

However, the ATIGA mechanism suffers from an incentive problem as governments are expected to provide information that will then be put on a

bargaining table, although they have an incentive to hoard it instead. It also expects governments to set up inter-ministerial coordinating mechanisms to centralize information on 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 (ACCSQ) was working on the implementation of the Hanoi Plan of Action in terms of standards harmonization and Mutual Recognition Arrangements (MRAs).[9]

In agricultural products, with regard to sensitive products (mostly agriculture products), ASEAN is currently developing an MRA for the acceptance or recognition of conformity assessment procedures among ASEAN countries associated with food inspection and certification systems. The draft MRA is targeted to be finalized 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 E.U., where the E.U. Commission sets broad guidelines in Regulations and Directives and lets member countries adapt their own legislation, ensuring that key provisions are sufficiently close to enable mutual recognition.

In electrical and electronic equipment, 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 (ATRC) was finalized as early as 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 (CTD) is

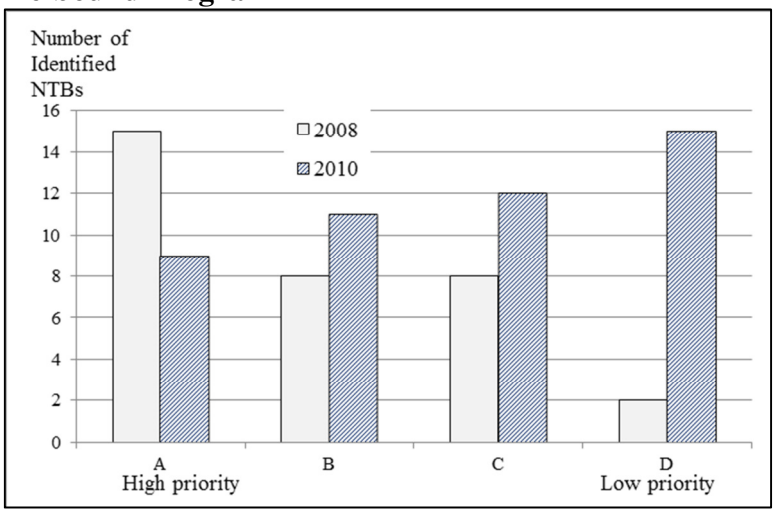
developed for the registration of pharmaceutical products, which is to serve as a basis for application of the MRA.

Lately, ASEAN has established a work programme on NTMs which is so called Work Programme on Streamlining ASEAN NTMs 2013-2014. Among others, ASEAN Member States (AMSs) aim to establish an NTM inventory using the WTO-consistent UNCTAD classification and put in place an NTM information portal at the country and ASEAN levels; review and streamline NTMs through agreed principles; and, 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 Easter and Southern Africa (COMESA) Secretariat has set up an NTB monitoring mechanism with assistance from donors (see World Bank 2008). Unlike ASEAN's, the COMESA mechanism relies on the private sector to flag issues with NTBs rather than on member countries; thus, 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.

However, while more NTBs were being identified, 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 by the private sector.

Figure 8: Postponing Action on NTBs in the East African Community Time-bound Program



Source: World Bank (2012)

In sum, whereas some progress is being achieved in key sectors for 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 they are approached from a 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.

4.1.2. 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 which are difficult to track down. Importers of intermediate products can be hurt by poorly designed or administered technical or sanitary standards. If those importers are also exporters—it is often the case—poor NTM design will hurt national competitiveness as much as market access.

Thus, viewing the elimination of NTBs through the lens of mutual concessions is not the best approach—it might even be counterproductive if it induces governments to postpone reform out of a desire to keep "bargaining chips" for future negotiations. Instead, one should 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 become different. 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 in wide-ranging regulatory reform programs. Mexico is one, and its experience in this regard is particularly interesting because it was starting with a heavily regulated and distorted economy. It is summarized in Box 3.

Box 3: Mexico's Experience with Regulatory Reform

The drive for regulatory reform in Mexico came in early 1995 when the so-called "Tequila crisis" of December 1994 highlighted the need to modernize the economy. As tariffs could not be raised to protect jobs because of the country's regional engagements under NAFTA, it became clear that all the government could do was to reduce the costs faced by domestic producers because of heavy regulations.

Mexico embarked in a top-down program of regulatory reform driven by a small group of high-level technocrats with strong support from the Presidency. 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. However, 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. In the early days, UDE gathered credibility and clout by initially targeting "low-hanging fruits"—regulatory reforms that were easy and widely seen as urgent, but 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. This shamed ministries into eliminating the silliest formalities, leading to the elimination of 45% of them by 1999 (IFC, 2008).

A second step in the institutionalization of the regulatory reform process consisted in the creation of the Economic Deregulation Council, a consultative body bringing together representatives of 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 silly, harmful or special-interest driven regulations. Distortionary regulations often make their way through the political process because of an 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 harmful measures. UDE would review ministries strategically, starting with friendly ones (Trade and Foreign affairs) and turning to more difficult ones (Interior, Communications, Transportation) later on (Salas, 2009).

The third and final step came with the passage of the Federal Administrative Procedures Act (LFPA) 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 Regulatory Impact Assessments (RIAs) with new regulation projects (Salas, 2009). 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. However, key limits to its power, such as the exclusion of all tax-related matters, were maintained because of Finance-ministry opposition.

International support was key. 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 XXth century, in the United Kingdom, the U.S., New Zealand, and elsewhere (in particular, the OECD regulatory reform agenda). UDE got support in many ways, including technical assistance from peer agencies in Canada, the U.K., and the U.S.; and this support was important to overcome isolation and keep the flame alive.

However, 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 down 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 in later on, the agency was without a head for several months.

Source: Haddou (2011), authors' interviews

Mexico's experience suggests that four key ingredients need to be present to make regulatory reform viable:

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 setup* revolving around a strong oversight body with independence, competence, and high-level political support;

4. Engagement of national administrations, in particular middle-level civil servants, in a regulatory impact assessment (RIA) process for new regulations and NTMs, taken seriously and used in conjunction with systematic exposure and consultation with stakeholders.

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

4.2. Toward a Balanced Approach

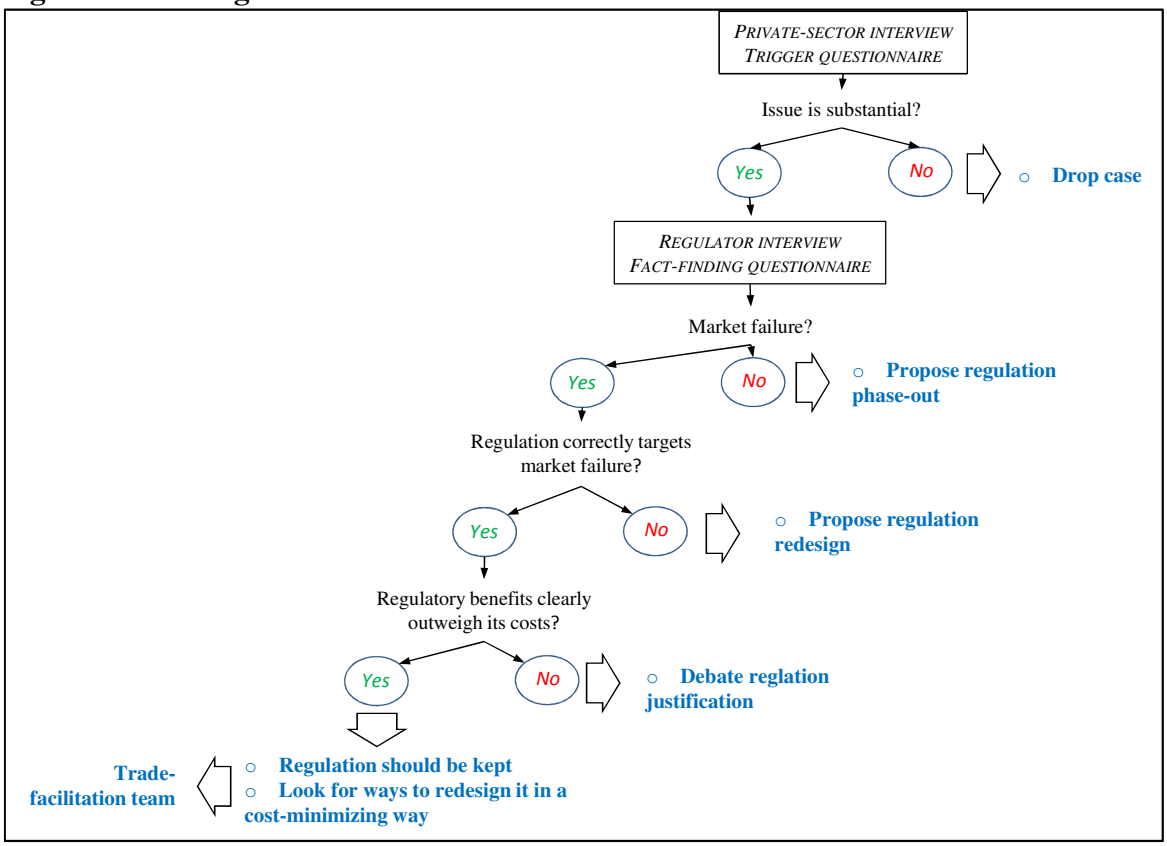
The analysis so far suggests that progress on NTM-streamlining agendas will require a shift of focus, away from analogies with tariff negotiations, toward domestic regulatory-improvement reforms emphasizing regulatory governance as much as the measures themselves. In other words, efforts to negotiate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

4.2.1. 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, mis-informed 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) justifying government intervention. This step is crucial, as it is the one putting the whole analysis on sound micro-economic foundations. 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, say, 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, if the benefits of the regulation offset its costs. This may be highly technical if done quantitatively; in most cases, the analysis will be revealing 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 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.

Figure 9: The Logical Flowchart of an NTM Review



Source: World Bank (2011).

While 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 can be technical. It is akin to a "regulatory impact assessment" (RIA), a tool for regulatory quality that has been adopted widely in OECD countries. In developing ones where administration have limited capacities and local researchers can also provide limited support, RIA or the type of regulatory review proposed in this section can be a heavy burden. The solution to this problem favored by consulting firms advising on regulatory improvements has been to water down RIA to the point where it consists only in checking boxes, where it becomes useless. 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. We now turn to the institutional setup involved.

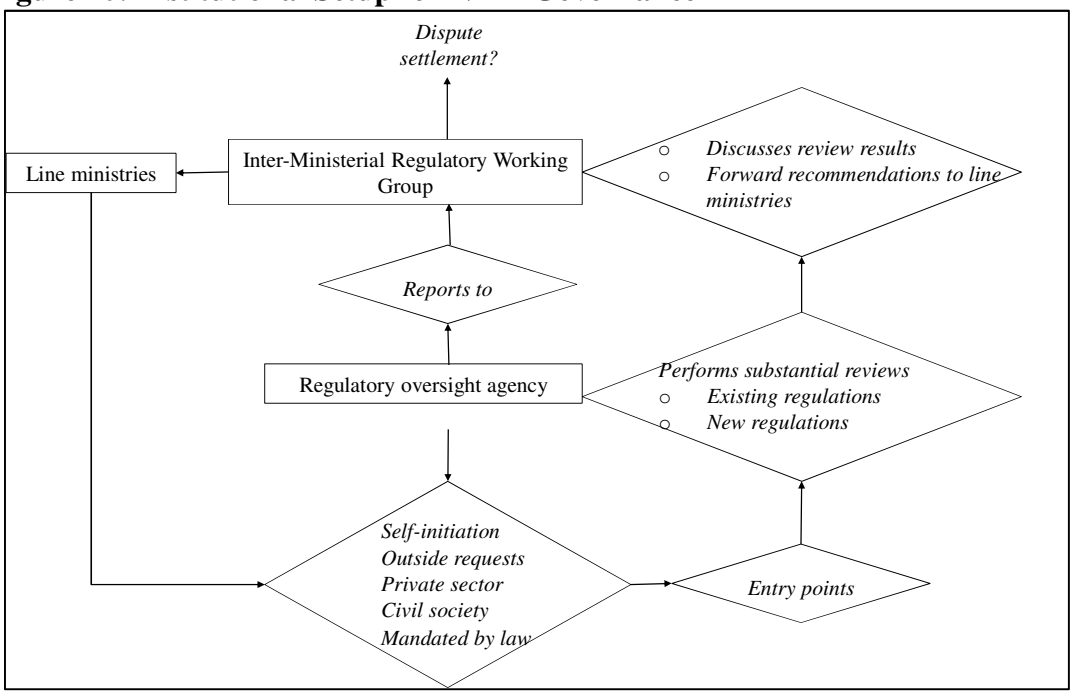
4.2.2. An Institutional Setup

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 the authority of one of them. Instead, the regulatory oversight body should be either under the Prime Minister's or President's authority or outright independent.

Regulatory governance in the proposed setup would consist of subjecting 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 with analytical capabilities to review proposed or existing regulations. The agency could also self-initiate inquiries based on its own assessment. The result of analytical reviews following the logic set out in Figure 9 would be presented in the form of reports with recommendations to either green-light, modify, or eliminate regulations.

Recommendations would then be examined by an inter-ministerial regulatory working group, possibly including non-government stakeholders as well, where line ministries would be sitting together with others. Exposing issues in an objective way, based on factual analysis, would be expected in most cases to suggest how to resolve issues. In cases with strong vested interests, a dispute-settlement mechanism could be considered ratcheting the issue to a higher level.

Figure 10: Institutional Setup for NTM Governance



Source: Adapted from World Bank (2011).

The most crucial element of this institutional architecture would be for the regulatory oversight body to have the resources and skills to carry out credible reviews. For that, it should be given legal existence and be endowed with sufficient resources to be able to recruit young, skilled experts rather than "borrow" 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 would be multiple, including both economies of scale, increased clout, and a balanced authority over the private and public sector.

5. Concluding Remarks and Recommendations

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

- The ASEAN region suffers from a transparency gap in terms of NTMs as information is incomplete and the existing data does not follow the same classification as other regions in the world, making comparisons difficult;
- Based on the fragmentary data available, the use of NTMs in the ASEAN region appears to be similar to what it is in other regions;
- The price-raising effect of NTMs in the ASEAN region seems substantial, in particular on foodstuffs and textile and clothing;
- However patterns of NTM use seem to be reasonably close to "international best practices".

In terms of avenues for progress,

- The ASEAN's sectoral approach to MRAs seems promising, although it is progressing slowly;
- The notify-negotiate-eliminate approach does not seem to produce significant advances.
-

This report has proposed an alternative route based on setting up country-level regulatory-oversight agencies with strong analytical capabilities to carry out NTM reviews in member countries. The ASEAN Secretariat could play a key 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-three years.

References

Ando, M. and A.Obashi (2010), The pervasiveness of non-tariff measures in ASEAN – evidences from the inventory approach, Mia Mikic (ed.) *"Rising Non-Tariff Protectionism and Crisis Recovery*," Studies in Trade and Investment, United Nations Economic and Social Commission for Asia and the Pacific (ESCAP), 2587, October.

Andriamananjara, S., J. Dean, R. Feinberg, M. Ferrantino, R. Ludema, and M. 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.

APEC-OECD (2005), *APEC-OECD Integrated Checklist on Regulatory Reform: A Policy Instrument for Regulatory Quality, Competition Policy and Market Openness*. Joint Official Document.

ASEAN (2012), *ASEAN Economic Community Scorecard 2012*. Jakarta: ASEAN Secretariat.

Beghin, J., A.-C. Disdier, S. Marette, and F. van Tongeren (2011), 'Measuring Costs and Benefits of Non-Tariff Measures in Agri-Food Trade', Ames, IO: Iowa State University Working Paper 11001.

Cadot, O. and J. Gourdon (2013), 'Measuring the Effect of NTMs on Trade and Prices: New Evidence', *fourthcoming*.

Cadot, O.and M. Malouche (eds.) (2011), *Non-tariff Measures: Fresh Evidence on Trade Policy's New Frontier*. London/Washington, DC: CEPR/The World Bank.

Ferrantino, M. (2006), 'Quantifying the Trade and Economic Effects of Non-Tariff Measures', OECD Trade Policy Working Paper 28.

Fontagné, L. and C. Mitaritonna (2013), "Assessing barriers to trade in the distribution and telecom sectors in emerging countries"; *World Trade Review* 12, 57-78.

Haddou, A. (2011), 'Streamlining NTMs in Mexico'; in Cadot, O.and M. Malouche (eds.), *Non-tariff Measures: Fresh Evidence on Trade Policy's New Frontier*. London/Washington, D.C.: CEPR/The World Bank.

IFC (2008), *Regulatory Transformation in Mexico, 1988-2000*. Washington, D.C.: IFC.

Jaffee, S.and S. Henson (2004), 'Standards and Agro-Food Exports from Developing Countries: Rebalancing the Debate', Washington, D.C.: The World Bank, Policy Research Working Paper 3348.

Kee, H. L., A. Nicita, and M. Olarreaga (2009), 'Estimating Trade Restrictiveness Indices', *Economic Journal* 119, pp.172-199.

Laird, S. (2009), 'Basic Information on WTO Rules on Non-tariff Measures', Note prepared for *Workshop on Non-tariff Measures: Introduction to Issues and Challenges*, organised by the Ministry of Trade and the World Bank Office Jakarta (Multi Donor Facility Trade and Investment Climate, MDFTIC) at the MOT, Jakarta on 10-11 December 2009.

Salas, F. (2009), 'Institutionalizing Regulatory Improvement: Lessons from Mexico', *mimeo*.

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.

World Bank (2008b), 'Non-tariff Measures on Goods Trade in the EAC', Report #45708-AFR.

World Bank (2008c), *Regulatory Transformation in the Republic of Korea*. Washington, D.C.: IFC/World Bank.

World Bank (2008d), *Regulatory Transformation in Mexico, 1988-2000*. Washington, D.C.: IFC/World Bank.

World Bank (2008e), 'Non-tariff Measures on Goods Trade in the East African Community', Report # 45708-AFR, Washington, D.C.: The World Bank.

World Bank (2009), *Streamlining Non-tariff Measures: A Toolkit for Policy Makers*. Washington, D.C.: The World Bank.

World Bank (2011), *Lessons for Reformers: How to Launch, Implement, and Sustain Regulatory Reform*. Washington, D.C.: IFC/World Bank.

World Bank (2012), Burundi: DTIS update; Washington, D.C.: The World Bank.

WTO (2012), *Looking beyond International Cooperation on Tariffs: NTMs and Services Regulations in the XXIst Century*. Geneva: World Trade Organization.

Annex

Quantity-based estimation of ad-valorem equivalents (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, *et al.* (2009). The estimation was carried out product by product at the HS6 level (four thousand regressions) using the following import equation:

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

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, ε_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) is imposed by *c* on that particular product, and $\mathbf{x}_c$ is a vector of characteristics of country *c* 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). Moving it to the left-hand side of the equation and adding an error term u_c , (1) can be rewritten as:

$$\ln\left(\frac{M_c}{1 + \varepsilon_c t_c}\right) = \beta_0 + \beta_1 NTM_c + \mathbf{x}_c\boldsymbol{\beta} + \mathrm{NTM}_c\mathbf{x}_c\boldsymbol{\gamma} + u_c \quad (2)$$

Estimation is carried out by OLS with White-corrected standard errors. Unlike in Kee, *et al*., NTMs have not been 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 of (1) evaluated with $NTM_c = 1$ and $NTM_c = 0$ gives

$$\frac{M_c(1)}{M_c(0)} - 1 = \frac{\Delta M_c}{M_c} = e^{\beta_c^{NTM}} - 1 \quad (2)$$

Similarly taking the ratio of (1) evaluated with a tariff at rate *t* and no tariff,

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

Equating the two gives

$$e^{\beta_c^{NTM}} - 1 = \varepsilon_c t_c \tag{5}$$

or

$$\tilde{t}_c = AVE_c = \frac{e^{\beta_c^{NTM}} - 1}{\varepsilon_c} \tag{3}$$

Note that the estimated AVE is country-specific for two reasons: (i) the inclusion of interaction terms in **Error! Reference source not found.** and (ii) the use of outside, country-specific data for the price elasticity of import demand. Data is from COMTRADE (trade flows), UNCTAD (tariffs and endowments data), WDI (GDP per capita), and the multilateral NTM database.

Price-based estimation of AVEs

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

$$\ln p_{od} = \beta_0 + \beta_1 NTM_c + \beta_2 \ln(1 + t_c) + \mathbf{x}_{od}\boldsymbol{\beta} + NTM_c \mathbf{x}_{od}\boldsymbol{\gamma} + \delta_o + \delta_d + u_{od} \tag{4}$$

where *o* stands for country of origin, *d* for country of destination, and δ_o and δ_d are exporter and importer fixed effects. Again, (4) is estimated product by product by OLS without instrumentation.

Data is from CEPII (BACI unit-value database) for bilateral unit values and all other variables are as before. Let $\beta_c^{NTM} = \beta_1 + \sum_k \gamma_k x_k$; raw estimates of β_c^{NTM} from (4) were very highly dispersed, so large outliers were reduced using the "squashing function"

$$\tilde{\beta}_c = 1 - e^{-\beta_c^{NTM}} \tag{5}$$

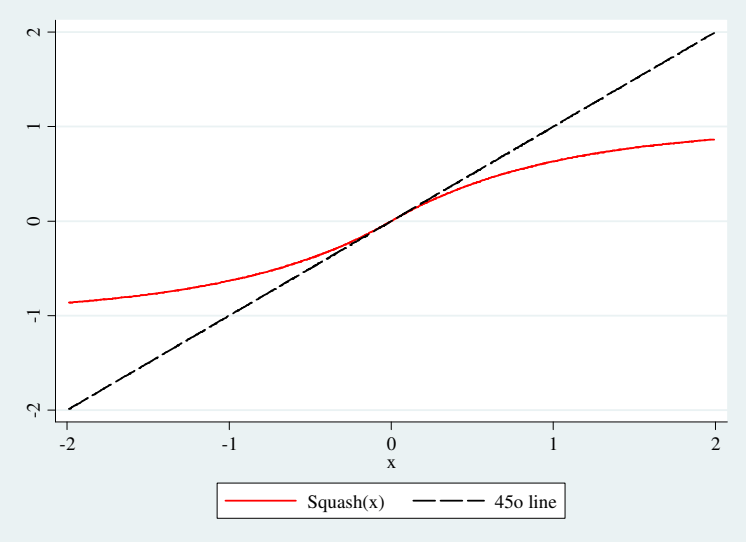
a contraction widely used in situations where large estimates must be squeezed between a pre-determined band (here set between -100% and 100%). Between -0.5 and 0.5 (-50% and 50%), where most of our estimates lie, the squashing function returns values very close to the original ones (Figure A1).

Finally, AVEs are calculated as

$$\tilde{t}_c = AVE_c = e^{\tilde{\beta}_c} - 1 \tag{6}$$

which follows directly from the semi-log form of (4).

Figure A1: Squash Function for a Normally-distributed Random Variable



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 one hundred. That is, letting i and j be two countries, $k = 1,\ldots,K$ index products, and $n = 1,\ldots,N$ index NTMs,

$$D^{ij} = \frac{100}{KN} \sum_{k=1}^{K} \sum_{n=1}^{N} \left| d_{kn}^{i} - d_{kn}^{j} \right| \tag{7}$$

where

$$d_{kn}^{i} = \begin{cases} 1 & \text{if measure } n \text{ is imposed on product } k, \\ 0 & \text{otherwise.} \end{cases} \tag{8}$$

The bilateral distance ranges from zero when the vectors of product/measure pairs are just identical in the two countries to one hundred when there is no overlap at all between product/measure pairs. We define an IBP group made of countries that make at least some use of regulatory impact assessment (RIA). It includes the two

high-income countries in the database (the E.U. and Japan) and a small group of middle-income countries consisting of Chile, Mauritius, and Mexico. Chile and Mexico use RIA[10] while Mauritius is currently putting in place an institutional setup to do so with technical assistance from the World Bank.

The bilateral distance between the E.U. 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 very low at 14.59%, essentially because Mexico and Chile have very similar patterns of SPS measures (bilateral distance of 7.14). However, the average distance within the IBP group is much larger (33.2) because of the substantial difference between the two sub-groups (high-income and middle-income). At 24.7, the average distance within the group of non-IBP countries, which comprises Argentina, Bangladesh, Indonesia, Kazakhstan, Kenya, Morocco, Paraguay, the Philippines, Senegal, Uganda and 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.

ENDNOTES

[1] Product categories are customarily defined at the harmonized system's 6-digit level, which comprises a nominal total of over 5,000 goods. Most countries trade fewer than that.

[2] However, using ASEAN Secretariat data, Ando and Obashi (2010) report a 100% 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 (i.e. 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' nomenclature as NTMs. For instance, Ando and Obashi (2010) mention the VAT as one of Indonesia's para-tariff measures; 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% frequency ratios).

[3] Note that Ando and Obashi (2010) report a 90% NTM frequency ratio for agri-food products in Malaysia.

[4] Estimates on food, beverages and tobacco may be imprecise because most countries impose heavy regulations on tobacco, so the counterfactual is based on few observations.

[5] See Laird (2009) for more details.

[6] The licenses considered here are non-automatic licenses. Licenses delivered automatically as proof of compliance with technical or SPS regulations are covered by those articles. Incidentally, NTM datasets 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.

[7] First, non-tariff measures that are non-transparent, discriminatory, without scientific basis, and with the availability of better alternatives has to be eliminated immediately, classified as Red Box. Second, NTMs that are transparent but discriminatory and cannot be justified or identified

as barrier is subject to negotiation and classified as Amber Box. Third, NTMs that are transparent, non-discriminatory, with scientific basis, and in the absence of better alternatives are acceptable and classified as Green Box.

[8] See Ando and Obashi (2010) for more details.

[9] See http://www.usasean.org/regions/asean/afta/harmonized-standards.

[10] On Mexico's experience, see Haddou (2012).

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