Regional Integration and Non-Tariff Measures in ASEAN

edited by

Lili Yan Ing
Ralf Peters
Olivier Cadot

ERIA
Economic Research Institute
for ASEAN and East Asia

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Foreword [ERIA]

It has been very interesting to observe the dynamics of globalisation over the past decade. Only a few years ago, we believed that further globalisation was inevitable as tariffs lost their relevance due to progressive trade liberalisation and the strong interdependence of global value chains. As such, non-tariff measures (NTMs) – which were widely seen as replacing tariffs – became one of our areas of research, and resulted in our first joint publication with the United Nations Conference on Trade and Development (UNCTAD): 'Non-Tariff Measures in ASEAN'.

But in the last few years trade protectionism has been gaining ground and globalisation has seen a backlash due to the rise of protectionism in some major developed countries, as exemplified by Brexit and United States President Trump's America First Policy. The United States has resorted to tariffs again as protectionist measures, igniting a trade war with China. The United States has also resorted to the use of tariffs against other major trading partners with whom it has a trade deficit, resulting in retaliation that will not benefit either party, or the world economy.

These dynamics affect the economies of Southeast Asia in different ways and to varying degrees. Net exporting countries that have a free trade agreement with both the United States and China may gain from the trade diversion, whereas other economies whose gross domestic product depend on trade volumes from both parties have started to suffer. Nevertheless, we believe that strengthening regional integration can make ASEAN more resilient to any shocks from outside the region. While tariffs have been reduced, the increasing of number of NTMs is often blamed for a lack of integration.

As part of our continuing commitment and efforts on NTM issues in the region, ERIA conducted the second phase of its 'NTMs in ASEAN Project' to analyse the dynamics of NTMs in ASEAN. The project has been led by Lili Yan Ing (ERIA) and Ralf Peters (UNCTAD), and has greatly benefited from the invaluable advice of Prof. Olivier Cadot (CEPR). The first phase of the project aims to code the NTMs of each ASEAN Member States to provide greater transparency. In the second phase, the studies utilise the 'NTMs in ASEAN Database' developed during the first phase of the project, and it is hoped the research results will encourage academics and policymakers to carry out analytical exercises using the NTM Database provided by ERIA and UNCTAD. The 'NTMs in ASEAN Database' is publicly available on the ERIA and UNCTAD TRAINS websites.

Even amidst global uncertainty, we at ERIA will keep working to strengthen regional integration. This is impossible to achieve without the genuine support of ASEAN Member States and the ASEAN Secretariat, which have worked together with us on various initiatives. We are currently working closely with ASEAN Trade Facilitation–Joint Consultative Committee (ATF–JCC) on a viable approach to design policies that address current NTM issues in region, including possible harmonisation and Mutual Recognition Agreements. ERIA, in coordination

with UNCTAD, will also provide capacity building for ASEAN Member States for the collection, classification, and analysis of NTMs, as we expect to hand over the NTM database to government officials of ASEAN Member States for regular updating to ensure transparency. We hope that our NTM Database will become a part of each ASEAN Member States' National Trade Repository and the ASEAN Trade Repository.

As one of the region's leading international organization and research institutes, ERIA will continue its efforts to serve the region by helping to deepen economic integration, narrow development gaps, and advance sustainable economic development.

Professor Hidetoshi Nishimura
President of ERIA

Foreword [UNCTAD]

Regional integration can play a fundamental role in contributing to economic prosperity and sustainable development. In this regard, the Association of Southeast Asian Nations (ASEAN) is one of the most successful regional integration efforts globally, creating the foundation for a prosperous and peaceful community of Southeast Asian Nations, by promoting regional stability and trade, and collaboration in economic, social, cultural, technical, scientific and administrative areas. The establishment of a single market and production base characterized by free flow of goods and services is among the top priorities of the ASEAN regional integration agenda.

In the last few decades, tariffs have been dramatically reduced and widely eliminated. However, effective market integration also requires non-tariff measures (NTMs) to be addressed. This includes the elimination of outright non-tariff barriers, such as quotas and non-automatic licenses, as well as regulatory cooperation on measures that have primarily non-trade objectives, such as protecting the health of humans, animals and plants, and the environment.

The Economic Research Institute for ASEAN and East Asia (ERIA), the United Nations Conference on Trade and Development (UNCTAD) and all ASEAN governments are collaborating to enhance transparency and understanding of NTMs to better cope with their complexity. Together, we have been the first to systematically map all official non-tariff measures in ASEAN, including non-tariff barriers and behind-the-border regulations such as Sanitary and Phytosanitary measures, and Technical Barriers to Trade. The information is freely available through an online database, which is used by a wide array of stakeholders: private sector exporters and importers to identify the regulations with which they must comply; policy makers and negotiators to streamline and negotiate NTMs; and researchers and government officials to assess the impact of NTMs on trade and sustainable development.

This joint initiative complements a broader global effort to enhance transparency in trade related regulations. The UNCTAD Programme on Non-Tariff Measures has worked with international and regional partners to develop an International Classification of NTMs; a standardized approach to collect NTMs data and coordinate a global effort to collect official NTMs data. The effort has been very successful: the availability of and access to data on NTMs has improved significantly in recent years and now covers more than 90 percent of world trade. Cooperation with regional partners such as ERIA is critical for high quality data, adaptation to regional necessities and sustainable support by regional and national agencies.

Drawing from the database and additional sources, ERIA and UNCTAD have prepared this volume on Regional Integration and Non-Tariff Measures in ASEAN. It aims to support policy makers to advance the national and regional agendas on NTMs for better standards of living across the ASEAN population. Innovative methods based on the newly collected data assess and quantify the impact of NTMs in ASEAN and the potential benefits from streamlining and regulatory convergence. Sound analysis is complemented by case studies and guidelines on streamlining NTMs at the national level and on regulatory cooperation at the ASEAN level. It

examines NTMs from economic, legal and institutional perspectives in the context of the regional integration process in Southeast Asia. From this extensive analysis, clear policy recommendations are identified for ASEAN policy makers.

I hope that the report will assist ASEAN Member States in advancing regional integration and boosting competitiveness that supports their sustainable economic, social and environmental development, as well as global inclusion.

Pamela Coke Hamilton
Director
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The Data on NTMs for the ASEAN countries are the result of hard work and great efforts of the 10 ASEAN national teams. The core team in developing the NTM Database also includes colleagues from ERIA –Doan Ha and Rizqy Anandhika, and from UNCTAD –Santiago Fernández de Córdoba, Fabien Dumesnil, Denise Penello-Rial, Samuel Munyaneza, Michelle Ayu Chinta Kristy, Chi Le Ngo, Maxim Gubarev, and Ming Cong Li.

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CHAPTER 1

NTMs in ASEAN
Looking Ahead: From Protection to Precaution

Pascal Lamy

The relative importance of tariff measures (TMs) versus non-tariff measures (NTMs) is changing in the Association of Southeast Asian Nations (ASEAN) as it is elsewhere: less TMs, more NTMs. The evolving landscape of obstacles to trade entails major consequences that ASEAN will have to factor into the next stages of its trade integration.

According to conventional wisdom amongst many trade economists, this shift stems from a substitution process: NTMs are replacing TMs. TMs and NTMs are equivalent and tariff equivalents are the right way to measure their trade distorting impact.

I have a different view: most NTMs are not replacing decreasing TMs. If properly defined, they serve different purposes. In short: TMs are about protection; NTMs are about precaution. Their respective evolution originates in largely unrelated concerns. Addressing their trade distorting effect consequently does not belong to the same policies or instruments. This all the more important that these features are here to stay as the balance between protection related and precaution related obstacles to trade will keep tilting on the side of the latter.

To get the right picture, let us distinguish, at the risk of oversimplification, between three categories of obstacles to international trade, i.e. factors that make trading with foreign markets more expensive than trading with the domestic market.

The first category regroups measures the purpose of which is to protect producers from foreign competition: such as quantitative restrictions (quotas), tariffs, domestic subsidies, trade defence instruments (antidumping, safeguards, anti-subsidies), import licensing.

The second category is about measures the purpose of which is to protect consumers from risks: safety or security, norms, standards, certification, traceability, and packaging requirements. They do not discriminate between domestic and foreign production.

The third category is about costs related to transport, to logistical chains or to border crossing specific processes, some of which are related to the administration of the two previous categories.

Worldwide long-term trends of the average costs of trade related to each of these, which have been observed in the past and can be expected for the future, can be roughly summarised in Table 1.1.

Table 1.1: Cost of Trade

Category	Present	Future
1	5%[1]	1%
2	20%[2]	15%
3	10%[3]	5%

Source: Author's estimation, 2017.

Category 1: obstacles have been decreasing and will keep doing so as the expansion of international value chains will keep increasing the import content of exports, thus increasing the weight of the cost of imports in the competitiveness of exports. Increasing this cost makes less and less sense for competitiveness reasons.

Category 3: should also remain on a diminishing trend as technology keeps reducing the cost of distance, and as processing trade is facilitated by various improvements.[4]

The evolution of Category 2 is more uncertain as the cost of these measures will be shaped by two opposite trends. On the increasing side, the predictable growing concern about precaution. It stems from the changing collective preferences of the wealthier and aging populations as they become more risk averse. On the decreasing side, the various processes of levelling the international playing field by regulatory convergence towards similar or equivalent precaution levels to unlock the considerable potential for economies of scale.

In the ASEAN as elsewhere, the balance resulting from these two trends will depend largely on the capacity to effectively organise regulatory convergence, a challenge which differs quite radically from the traditional pattern of trade opening in several ways.

First, because of the way the playing field is levelled. Reducing tariffs or subsidies is a relatively simple exercise, the ultimate result of which is a 'zero'; it can be traded-off (less for less, leading to zero for zero). Reducing precaution related costs of trade works very differently as the name of the game is not about getting rid of the measure (precaution cannot decrease for obvious political reasons), but reducing and ultimately eliminating the differences in the measures. Regarding upwards convergence, for the same political reasons, such a process cannot take the shape of a negotiation. It is handled mostly by regulators and not by traditional trade experts.

Second, because the political economy of trade opening, which is about navigating between the interests of producers and consumers, is turned upside down: reducing protection is supported by consumers and opposed by producers; reducing differences in precaution is supported by producers and likely to be opposed by consumers who fear 'precaution dumping'. This difference impacts the legitimisation of trade opening, as consumer's sensitivities are much more widely spread amongst populations than producers vested interests. Hence, for instance, a growing insistence on transparency of precaution convergence processes.

[1] Wordwide trade weighted average tariff.
[2] Estimation of cost of adjustment to foreign regulations for an average exporter.
[3] Estimation of logistics + border administration.
[4] Such as, for instance, the 2013 Bali Trade Facilitation Agreement.

Third, because of the 'forum' issue. Reducing protection usually happens by a combination of different trade opening streams, whether bilateral, regional or multilateral. Reducing difference in precaution is inevitably more bilateral or regional as it has to start from the highest level which is the most trade constraining. Example of global standards such as those for food within Codex Alimentarius of those within the World Organization for Animal Health are rare and will take time to be established and implemented.

Fourth, because political principles applied to reducing protection such as special and differential treatment for developing countries cannot govern precaution as it is incompatible with variable geometry. Precaution is by nature 'MFN'.

Fifth, because of the 'grey zone' between precaution and protection, i.e. when precaution is used for protection purposes. This area is under multilateral scrutiny in the WTO as per disciplines which its members have subscribed to[5]. It also leads to a growing tendency to establish a 'Chinese wall' to avoid conflicts of interest between domestic authorities in charge of trade and those in charge of consumer protection, starting with food and agriculture.

Looking ahead, ASEAN trade integration will have to move from the old world of protection to the new world of precaution. This implies a strategic focus in the two main areas it has been developing so far: regional and multilateral.

As far as regional trade integration is concerned, regulatory convergence should become the main priority, for goods (for example in food safety or in medicines authorisation), as well as for services (for example in air slots distribution of visas for tourists). A complex process that needs to be carefully organised, including in properly managing public sensitivities in getting convergence timelines which accommodate different levels of development, and in the provision of adequate technical assistance.

The only existing regional endeavor of this kind started in the European Union in 1985 when the 'internal market' process was launched. It used the two main available methodologies for regulatory convergence: harmonisation (i.e. adapting a regional single regulatory standard) and mutual recognition (i.e. regional partners accepting national standards as valid for all).

What the European Union experience tells is that such a convergence is easier for goods than for services: according to various estimations, 30 years later, the 'zero regulatory difference' has been met at 80 percent for goods and only 50 percent for services.[6]

Were ASEAN countries to adopt such a plan, proper consideration should be given to regulatory standards and international best practices, which are likely to remain the trendsetters in precaution related areas for the times to come.

[5] Namely the TBT (Technical Barriers to Trade) and SPS (Sanitary and Phytosanitary) agreements.

[6] Author's estimation 2017.

The European Union experience also shows that the main force behind regulatory convergence lies in its attractiveness for producers, who are the ones pushing for intra-regional higher economies of scale. The main obstacle, on the other hand, is expected to come from consumer organisations, who, rightly or wrongly, fear 'regulatory dumping', i.e. business pushing for downward precautionary convergence. It is up to public authorities and regulators to organise the necessary transparence and public debate in order for these sensitivities to be adequately addressed.

As far as multilateral trade rules are concerned ASEAN should push for NTMs convergence, for strengthening TBT and SPS notification disciplines and review within WTO, for building similar instruments in the services area, and for pressing for more transparency of bilateral cooperation between developed countries.

CHAPTER 2

Non-Tariff Measures in International Trade: Classification, Data and Recent World Trends

Denise Penello Rial
Alan Winters
Santiago Fernandez de Córdoba

1. Background

Regulations are increasingly shaping trade. Standards often determine market access, and the requirements imposed on the products and/or the processes for production affect trade costs in many cases. By affecting market access and costs, non-tariff measures (NTMs) could induce trade preclusion or trade diversion (Hoekman and Nicita, 2017; Essaji, 2008; UNCTAD, 2017; Staiger, 2015; Xiong and Beghin, 2014). The simplistic assumption that NTMs are the new policy instruments for protectionism, as were tariffs in the past, has led to the view that all NTMs should be removed. A more careful consideration, however, suggests that the safety, sanitary, and environmental objectives pursued by countries need enforceable regulations, and that these should undoubtedly affect imported goods as well domestic ones. These regulations are also NTMs, so policy towards NTMs should reflect the trade-off between legitimate regulatory objectives and distortions of international trade.

In recent years, most countries have significantly reduced their tariff levels for most products, and they have also promoted trade facilitation, signed trade agreements, and used aid for trade to improve trading capacity (Cadot, Malouche and Saez, 2012; Lamy, 2014; UNCTAD, 2013; WTO, 2012). This policy focus on increasing international trade has naturally drawn attention to other policies that may hinder or further increase it, and NTMs fall firmly within this class. That is, NTMs, which affect the ability of countries to take advantage of improvements in market access, either positively or negatively, have moved centre stage; and nowhere more so than in the Association of Southeast Asian Nations (ASEAN).

NTMs figure prominently in the economic and political debate that surrounds countries' export and import business: Are certain NTMs to be eliminated? If so, which ones? Are some NTM necessary for safety and do some stimulate trade? How to tell? Is there a way that countries can avoid protectionism while attaining their non-trade objectives in other areas, such as public health? In which ways may countries negotiate in this area? To answer these and other related questions, more research and investigation is necessary.

Sound economic analysis is based on data analysis. In the past, trade negotiations were influenced heavily by the quantitative analysis of tariffs. When researchers attempt to use the same tools in the area of NTM, however, they face at least two additional problems.

First, governments have, at best, only incomplete information on the NTMs in force in their trading partners and sometimes even in their own country. Second, there is the difficulty of quantifying the effects of NTMs. This can be challenging even for simple price interventions such as tariffs, but is much more so for regulatory measures that might affect market structure and/or deliver important benefits in their own right, such as sanitary or technical requirements.

Policymakers and businesses would welcome detailed information on the trade control measures taken by their partners and, of course, quantitative analysis would shed light on the costs and/or benefits of NTMs for traders, big companies or small and medium-sized enterprises (SMEs), and economies at large.[1] A necessary first step to providing such information is that there is complete transparency about the NTMs that are actually implemented. To address this need, the United Nations Conference on Trade and Development (UNCTAD) has started to create a global database on NTMs that would be useful for economic analysis and for consultation by traders. The task of data collection is vast, but even before it could start a conceptual agreement on what should be considered an NTM was needed.

UNCTAD has long experience of work in this area, going back at least to the 1980s with a collection of data on non-tariff barriers in developed countries[2] and a joint UNCTAD–World Bank research effort published in Nogues, Olechowski and Winters (1986).[3] During the 1990s data collection continued and evolved. At that time, 'core' measures were not the technical measures, such as Sanitary and Phytosanitary (SPS) or Technical regulations (TBT), but quantity and price restrictions, especially Quotas and voluntary export restrictions (VERs).

More recently, attention has shifted towards SPS and TBT, since this is perceived as the most constraining aspect of regulation in present times. This created the need to revamp the method and underlying classification of NTMs. In 2006, UNCTAD's Secretary-General established the Group of Eminent Persons on Non-Tariff Barriers (GNTB), composed of leading economists, and a Multi-agency Support Team (MAST) group composed of several international agencies[4] provided extensive support to the GNTB (UNCTAD, 2009).

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[1] An illustration of the contribution that data collection and analysis can make to negotiations is the work by the Organisation for Economic Co-operation and Development (OECD) in the 1980s to identify and quantify restrictions on agricultural trade, which was a necessary precursor to the first effective multilateral negotiation of such trade barriers in the Uruguay Round. See, for example, Cahill and Legg (1990) on the estimation of agricultural assistance using producer and consumer subsidy equivalents.

[2] A note from General Agreement on Tariffs and Trade (GATT), of 20 November 1989, MTN.GNG/NG2/W/47, 'Negotiating Group on Non-Tariff Measures', during the Uruguay Round Negotiations, mentions the Trade Control Measures Information System (TCMIS), which includes non-tariff measures applied at the border in over 100 countries. It was said to provide important inputs for the periodic review of world trading conditions and, at the same time, that UNCTAD continued to refine its methodology. See 'Introductory note on methodology employed and the problem of definition', UNCTAD/TD/B/AC.42.5, Geneva, March 1988. Other references to UNCTAD's early work are: a) study prepared by Professor O. Havrylyshyn in 1988, b) Erzan, Kuwahara, Marchese and Vossenaar (1989), UNCTAD Discussion Paper No. 21; c) Deardorff and Stern (1985) UNCTAD/ST/MD/28; d) The Inventory of Non-tariff Barriers, a report by the UNCTAD Secretariat, TD/B/940, in 1983.

[3] Non-tariff barriers (NTBs) are a subset of NTMs, implying an unnecessary negative impact on trade.

[4] Namely Food and Agriculture Organization (FAO), International monetary Fund (IMF), International Trade Centre (ITC), Organization of Economic Co-operation and Development (OECD), United Nations Conference on Trade and Development (UNCTAD), United Nations Industrial Development Organization (UNIDO), the World Bank, and World Trade Organization (WTO).

As an outcome of the discussions in these groups, a definition for NTMs was provided, as well as the related taxonomy that allows the detailed classification and development of a database of NTMs.

During the last decade, UNCTAD has been leading the global effort in NTMs. Together with its partners and regional organisations from all over the world, UNCTAD classifies and collects all NTMs into a new dataset, called TRAIN-i-Tip. As of today, this new NTMs dataset covers 109 countries and 90 percent of world trade, with nearly 80 percent of all traded goods affected by non-tariff measures.

A vivid example of this global effort is the ASEAN NTM data collection and analysis project between UNCTAD and the Economic Research Institute for ASEAN and East Asia (ERIA). The project is an ambitious yet fruitful team effort initiated in 2014 aiming to conduct thorough studies of the trade-related legislation of 10 ASEAN Member States and subsequently extend it to Regional Comprehensive Economic Partnership (RCEP) + 6 countries[5], to collect the NTM data and to classify the identified NTMs based on the aforementioned methodology. The rather unique nature of the project was predetermined by its scope, the diversity of the legal systems under consideration, accessibility of legal texts, as well as by tight deadlines targeted by ERIA and UNCTAD.

2. The Classification of Measures, a Taxonomy of Non-Tariff Measures

The work of the GNTB and the MAST resulted in the publication of the International Classification of NTM in 2012.[6] It should be stressed that it constitutes more than a mere tool for collecting data. It conciliates different approaches to NTMs into a single taxonomy. It provides a common language for all researchers and policymakers that need to engage in dialogue about these matters. More importantly, it allows for collecting data globally in a consistent and coherent way.

Before there was this International Classification of NTM, different countries, and also even some agencies involved in the MAST group, had their own approaches and lists or classifications of measures. Data collected in this way, through dissimilar approaches and classifications, could never be comparable. Thus, none of those, including UNCTAD's would be useful for a global analysis and/or negotiations. As a consequence of unifying efforts, not only is there consensus among different experts, but coherence in the approach and, more importantly, data collection efforts can be scaled to encompass more countries under a single database.

[5] The Regional Comprehensive Economic Partnership (RCEP) is a proposed free trade agreement (FTA) between the 10 member states of the Association of Southeast Asian Nations (ASEAN) (Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, the Philippines, Singapore, Thailand and Viet Nam) and the six states with which ASEAN has existing free trade agreements (Australia, China, India, Japan, Republic of Korea and New Zealand).
[6] UNCTAD/DITC/TAB/2012/2/Rev.1

This NTMs classification is now widely accepted by international organisations, think tanks, and researchers as a global standard to identify and classify NTMs. The classification and the data accompanying it, are presented as a global public good that is useful for analysis. It can be used to construct aggregate indices, as well as to support case studies.[7] Data collected, published, and shared contribute to the transparency of regulations implemented around the world.

2.1. Principles used

Economic knowledge produced through analysis is based on factual data. Therefore, it is essential that data is considered neutral, so that unbiased analysis can be based on neutral facts. The concept of NTMs in the database that UNCTAD is presenting is neutral; the inclusion of a measure does not imply either a negative or a positive impact on trade or welfare, nor the illegitimacy or illegality of the measure. There is, simply, no a priori judgement.

Data collection records public information of regulations that are in force with the objective of mapping all policies that affect traded goods, including those that have non-trade objectives. Another feature of this database is that data collected originates exclusively in 'Official Sources', i.e. is registered directly from legal official texts from a country, and is publicly available as enforced regulation.

All the requirements for undertaking a specific trade are included, not only those that are assumed to be a problem or imply a high cost. This is for two reasons. The first is that selection would in itself require some type of judgement and analysis prior to including the measures in the database's existence, which goes against the basic idea that data is to be used to test hypotheses. The second is that, even if a judgement was desirable, there could not be a single undisputed method to spot those measures that comply with the condition of being a barrier or obstacle to trade. This would depend on the possible approaches, but may also vary across countries, companies and time.

It is worth noting that the same data collection and classification methodology is used in all the countries where it is collected. Both national and international experts in charge of this exercise are certified by UNCTAD and have successfully completed, sometimes both in person and online, UNCTAD NTMs training courses. Ultimately, the data collection is performed by following the UNCTAD Guidelines to Collect Data on Official NTMs.[8]

2.2. Recording NTMs is not the same as quantifying them

While neutrality is sought for the reasons just noted, it does imply that the database cannot itself be used directly to identify trade distortions. Neutrality is understood in the following

[7] The fact that the classification has been agreed does not mean that it should not be periodically revised, to consider the lessons learnt from data collection, as well as changes and new challenges in the regulatory aspects of trade. The MAST Group continues to gather regularly to discuss to ensure that the Classification evolves and is adapted to the reality of international trade to cover all relevant measures.

[8] For more information: http://unctad.org/en/PublicationsLibrary/ditctab2014d4_en.pdf

context. First, measures registered in the database do not immediately provide information on their price or quantity impacts on trade or welfare. These require further analysis and information on the markets and trade flows. Second, the NTM database records what the regulations state 'on paper', and does not describe whether those requirements are implemented, or enforced.

The existence of an NTM on a specific product in a given country does not necessarily mean that the country has a more restrictive trade regime than another country which has no such NTM. That would depend on the nature, substance and application of the measure. Some NTMs might even have a positive impact on trade, although many are thought to have important restrictive and/or distortionary effects on international trade regardless of whether they are applied with protectionist intent or to address legitimate objectives. The most common NTMs are technical requirements in the areas of SPS or TBT and are intended to protect health or safety, or provide environmental protection. All NTMs are collected, included and published, irrespective of their effect.[9]

Quantification may also be complicated by the interactions between the different measures that may be applied to the same commodity. NTMs include technical measures, such as sanitary or environmental protection measures, as well instruments of commercial policy, e.g. quotas, price control, exports restrictions, or contingent trade protective measures, and also other behind-the-border measures, such as competition, trade-related investment measures, government procurement, or distribution restrictions. The Classification presents this information in different chapters or categories of policy measures so they can be separated for special analysis if required.

Thus, any study of a specific market or commodity must potentially draw on several chapters and quite complex economic analysis and data on actual transactions are often required to determine the effects of particular NTMs or their combination. As a simple example, the only effect of a tariff on a product that faces a binding quantitative import constraint is to redistribute revenue between market participants and the government. If the quota does not bind, on the other hand, the same tariff has a material effect on prices and the quantities traded.

2.3. Structure of the classification

The International Classification of NTMs offers comprehensive coverage of all NTMs and distinguishes at the most detailed level 177 types of measures. It is a taxonomy of all those policies and regulations considered relevant to today's international trade, impacting on either or both of imports and exports.

[9] Publication is in the UNCTAD TRAINS database, available through WITS software.

Box 1: Brief Description of Each Chapter in The Classification

Chapter A on SPS measures, refers to measures affecting areas such as restrictions for substances, hygienic requirements, or other measures for preventing dissemination of diseases. It also includes all conformity assessment measures related to food safety, such as certification, testing and inspection, and quarantine.

Chapter B on technical measures, refers to measures such as labelling and other measures to protect the environment. It also includes conformity assessment that relates to technical requirements such as certification, testing and inspection.

Chapter C classifies the measures related to pre-shipment inspection and other formalities performed in the exporting country prior to shipment.

Chapter D refers to contingent measures, which are measures implemented to counteract particular adverse effects of imports in the market of the importing country, including measures aimed at unfair foreign trade practices. They include antidumping, countervailing, and safeguards measures.

Chapter E includes licensing, quotas, and other quantity control measures, group measures that have the intention of limiting the quantity traded, such as quotas. It also covers those licences and import prohibitions which are not SPS or TBT related.

Chapter F includes price control measures, which are those implemented to control or affect the prices of imported goods in order to, inter alia, support the domestic price of certain products when the import prices of these goods are lower; establish the domestic price of certain products because of price fluctuation in domestic markets, or price instability in a foreign market; or to increase or preserve tax revenue. This category also includes measures, other than tariff measures, that increase the cost of imports in a similar manner (para-tariff measures).

Chapter G concerns finance measures, referring to measures restricting the payments of imports, for example when the access and cost of foreign exchange is regulated. This chapter also includes restrictions on the terms of payment.

Chapter H concerns measures affecting competition. These measures grant exclusive or special preferences or privileges to one or more limited group of economic operators. They refer mainly to monopolistic measures, such as state trading, or sole importing agencies, or compulsory use of national services or transport.

Chapter I concerns trade-related investment measures, group measures that restrict investment by requiring local content or requesting that investment should be related to export to balance imports.

Chapter J includes distribution restrictions, referring to restrictive measures related to internal distribution of imported products.

Chapter K concerns restriction on post-sales services, for example, restrictions in the provision of accessory services.

Chapter L contains measures that relate to subsidies that affect trade.

Chapter M containing government procurement restriction measures, refers to the restrictions bidders may find when trying to sell their products to a foreign Government.

Chapter N concerns restrictions related to intellectual property measures and intellectual property rights.[10]

Chapter O on rules of origin, groups the measures that restrict the origin of products, or their inputs.

Chapter P includes export measures, grouping the measures a country applies to its exports. It includes export taxes, export quotas or export prohibitions.

Source: UNCTAD, 2012.

[10] Please note that those trading activities involving imitations or copies are classified in chapter E, under E315 for prohibition of copies or imitations of patented or trademarked products.

Measures are divided into two broad categories: import measures and export measures. This is the first distinction that needs to be made. Chapters A to O reflect the requirements of the importing country on its imports. Only chapter P comprises export measures, which refer to requirements imposed by a country on its own exports. All measures imposed to condition the import of a commodity are treated as import NTMs, regardless of whether they are executed and/or verified by the exporting or the importing government; that is, the classification is based on the policy, not where it is implemented.

Import measures are further subdivided into technical measures such as sanitary, health or environmental protection measures, and non-technical measures of behind-the-border measures such as as competition, trade-related investment measures, government procurement or distribution restriction. The first group comprises three chapters (A to C): SPS, TBT, and pre-shipment inspection and other formalities. Non-technical measures are subdivided into twelve chapters (D to O). Export measures comprise only one chapter (P). Box 1 summarizes the chapters of the classification.

Each individual chapter (one digit, letters A–P) is divided into groupings using a tree/branch structure with a depth of up to three additional levels (two and three numerical digits). For example, chapter A includes nine one-digit codes, A1 through A9. Then, each of these is further differentiated by providing two-digit codes. For example, A8 includes A81 through A86, and also A89. Then, A85 is subdivided further into three-digit codes: A851, A852, A853 and A859 (see Box 2).

BOX 2: The Classification's Tree Structure

A SANITARY AND PHYTOSANITARY MEASURES
- A1 Prohibitions/restrictions of imports for SPS reasons
- A2 Tolerance limits for residues and restricted use of substances
- (…)
- A8 Conformity Assessment related to SPS
  - A81 Product registration requirement
  - A82 Testing requirement
  - A83 Certification requirement
  - A84 Inspection requirement
  - A85 Traceability requirement
    - A851 Origin of materials and parts
    - A852 Processing history
    - A853 Distribution and location of products after delivery
    - A859 Traceability requirements n.e.s.
  - A86 Quarantine requirement
  - A89 Conformity assessments related to SPS n.e.s
- A9 SPS Measures n.e.s.

B TECHNICAL BARRIERS TO TRADE
C PRE-SHIPMENT INSPECTION AND OTHER FORMALITIES
D CONTINGENT TRADE PROTECTIVE MEASURES
E NON-AUTOMATIC LICENSING, QUOTAS, PROHIBITIONS
F PRICE CONTROL MEASURES INCLUDING ADDIT. TAXES
G FINANCE MEASURES
H MEASURES AFFECTING COMPETITION
I TRADE-RELATED INVESTMENT MEASURES
(…)

Source: UNCTAD, 2012.

In the first stage of the data collection process, until 2017, measures falling within chapters J through O are not included in the collection process. So the data is available on Chapters from A to I, and Chapter P.[11]

3. Implementation

3.1. Data-collection process

The data collected are official measures currently imposed by the country and that affect their imported or exported products. They include both measures that may be checked at the customs point to allow entry or exit of the product, and those that are applied behind the border – for example, measures/requirements which condition access to the domestic market. Measures that affect only domestically produced goods are not collected. Any subjective information, such as complaints from the private sector, perceptions, and any other non-official information related to NTMs are not considered.

The steps in the data-collection process are the following:

1. Identify sources
   a. Identifying sources of information
   b. Identifying regulations (or legal texts) from each document in the sources identified
2. Register the data
   a. Identifying and classifying measures within each regulation
   b. For each measure (or requirement or requirement to be complied with), identifying and classifying affected products, affected countries, and explicitly stated objectives (if there are). Classifying affected products is done by matching the collected measure with the Harmonized System product code. This exercise is done at the most disaggregated level. For most countries/measures, the affected product is at national tariff line level, for others it is registered at 6 digits.

The first step is identifying the best source of information in each country. It may be a centralised location, where one official source compiles all legal measures, or it may be necessary to obtain it directly from the different institutions that constitute the regulatory authority over a traded product. In some of these cases, the information collected may be the only systematic one-stop point of regulations affecting a country's trade. This is a clear immediate benefit for those participating countries and, once collected, the information can then be included in a national or regional Trade Portal.

All legal documents are then obtained from these sources identified. Much effort is devoted to ensure that the data is comprehensive, in the sense that it covers all the NTMs applied on

[11] MAST members meet annually to revise the NTMs Classification. The MAST members have recently agreed to expand the taxonomy of Chapters J through O and the new NTMs Classification will soon be released with more detail taxonomy on chapters not yet collected.

imports/exports in a given country. The four principles that guide data collectors are that they need to collect all trade control requirements (measures) that:

i. Are currently applied (no matter what the date of introduction)
ii. Affect trade (i.e. imported and exported goods)
iii. Are official and mandatory (no private standards or voluntary measures)
iv. Are detailed and specific

All measures (or trade requirements) contained within each regulation (legal text) are identified and classified. The legal text is then transformed into a database format. Each measure is likely to affect certain products and countries, and there may also be objectives mentioned explicitly in the text. All of these are registered.

3.2. ASEAN–RCEP +6 NTM data collection and analysis project

The ASEAN NTM data collection and analysis effort is an ambitious project initiated by UNCTAD and the Economic and Research Institute for ASEAN and East Asia (ERIA). The project aims to conduct thorough studies of the trade-related legislation of all 10 ASEAN countries (Brunei Darussalam, Cambodia, Indonesia, Lao People's Democratic Republic (Lao PDR), Malaysia, Myanmar, the Philippines, Singapore, Thailand and Viet Nam) and six major ASEAN trading partners (+6 countries: Australia, China, India, Japan, Republic of Korea and New Zealand), to collect the NTM data and to classify the identified NTMs based on the methodology just outlined. The ambition of the project is illustrated by its considerable scope, the diversity of the legal systems under consideration and the limited accessibility of legal texts in some of the cases. For some of the countries, the collected dataset constitutes the only comprehensive compilation of trade related regulations that exists, and it is now available electronically to all.

The project was initiated in 2014 and was divided in two stages. First, in 2015 and early 2016 the NTM data for the 10 ASEAN countries was collected. From 2016 until mid-2017 the NTM data was collected for the other six nations.

3.3. Data processing and dissemination in ASEAN–RCEP

The last step in the ASEAN–RCEP NTM data collection methodology relates to data processing and dissemination. Before they can be made public, the collected NTM data are revised and normalised by UNCTAD experts before it is loaded in a central SQL server database, the UNCTAD Trade Analysis Information System (TRAINS). This process ensures the coherence of submitted NTM data between all participating countries. Once it is ready, the NTM data are then disseminated from the TRAINS database to several web applications, inter alia:

1. Integrated Trade Intelligence Portal (i-Tip) and i-Tip for ASEAN. (www.i-tip.org and www.asean.i-tip.org)
2. World Integrated Trade Solution (WITS). It is accessible at wits.worldbank.org/

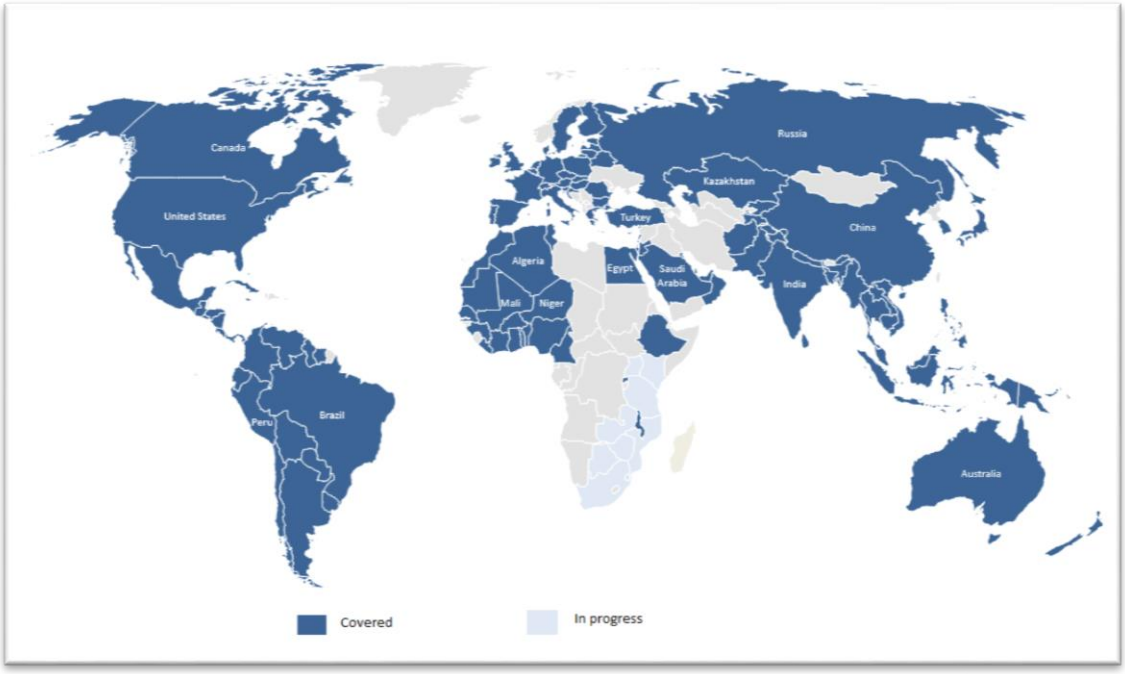
The major obstacles in achieving uniformity, coherence, and comprehensiveness of the collected data typically lay beyond the control of national data collectors. They included in various cases:

1. Limited access to implementing regulations
2. The different stages of development in countries' legal systems
3. The differences in the structure and style of legislation

3.4. Existing data

NTM data from ASEAN–RCEP +6 is now part of the global database, and filled an important gap in it. This global dataset now covers most of the world trade. The graph below shows the countries that are already available and the ones that are in the pipeline.

Figure 2.1: NTM Data Collected Shaded in Blue



Source: Authors' calculations, based on UNCTAD TRAINS database.

3.5. Initial Statistical Computations

Besides queries on specific products by a certain trader, data can also be used to build statistics, variables and/or indicators. Data are useful to create knowledge to describe a situation and/or inform responses to it. The NTM data have been designed to facilitate statistical processing. The vast array of entries in raw data can be distilled into a few meaningful indicators. Two indicators commonly used for NTMs – see Nogues, Olechowski and Winters (1986) – are the Frequency Index and Coverage Ratio. These are the incidence indicators. They are respectively: the share of products that is affected by an NTM, i.e. the number of products with one or more NTM in relation to the total number of products; and

the share of trade that is affected by at least one NTM, which is essentially the same as the frequency Index, but trade-weighted.

There are a few considerations with these initial broad indices:

a) These are measures of extent, not of depth; their parallel in terms of measuring tariffs is not the average tariff, but the proportion of products or of trade that is affected by any tariff above zero.

b) Values are strongly influenced by the level of disaggregation of the trade classification on which they are based. For example, introducing a TBT on a single 6-digit product of the HS would add 0.000189 (=1/5300) to the frequency index (it is just one of about 5300 subheadings), but 0.000833 (=1/1200) for headings at 4-digit level and 0.01 (=1/98) for chapters at 2-digit level. Of course, this potential bias can be corrected if the percentage share of coverage of a product is added up when aggregations are being used for computation of the indices, instead of a binary 1 or 0 coverage indicator. This requires that the data be available at the lower level of aggregation, but they generally are in the in the original data published by UNCTAD.

c) These incidence descriptions offer no information about the economic impact (i.e. the effects of) of NTMs, nor are they able to assess which of the entries (NTMs registered in the database) is more trade restrictive, or more development enhancing, for environment or health purposes, for example.

These two indices are useful in the first place for a very general review of countries. For example, to see if a large share of its trade is affected by any NTM, either in total or in some product group such as agriculture. It may also be used to see what share of products is affected by TBT measures, or some other NTM chapter. It is worth noting that for very common barriers, such as SPS/TBT measures, or highly regulated sectors, such as agro-food sectors, most countries record complete coverage and so the crude data often provide little distinction between regimes.

Another potentially informative calculation is the Prevalence Score or Intensity index. This takes advantage of the depth of the database by counting the number of different measures that apply to any single product, and makes it possible to see, for example, whether agricultural products face a larger number of requirements than industrial products, or vice versa. In the same line, other indices can be computed, for example the average number of measures for a country, or for any aggregation of products or sectors. It was mentioned above that these computations only describe regulatory structure, but not the economic impact. Still, these indices can be used as variables in econometric analysis in different ways.

4. How NTMs affect Trade

The indices computed from the NTM data can be used as variables in various econometric modelling exercises. One way is to include either Frequency Index or Coverage Ratio as dummy variable (scoring unity if the trade heading faces at least one NTM and zero otherwise). Depending on the analysis, it can be a broad average figure for every country, or specifically by product or product group. The same can be done for the Prevalence Score, which offers more information than a simple binary variable, and could explain better the impact of NTMs. Implicit in this is an assumption that all NTMs have the same effect on average or that different NTMs are in some sense equivalent, which could be a very restrictive assumption.

Information on NTMs can also contribute towards the computation of Ad-Valorem equivalents (AVE), which seek to move beyond the mere existence of an NTM to an assessment of the percentage costs it imposes on trade, as tariffs do. The method to compute AVEs is not covered in this note, but important references are Kee, Nicita and Olarreaga (2009), and the explanatory manual in the UNCTAD–WTO publication 'Trade Policy Analysis'.[12] This alternative has the advantage of moving towards a measure of effect of NTMs. This allows answers to several questions, such as which are the most stringent NTMs, or which are the most affected products, or which are the most affected exporters (given their export structures).

Other studies, such as Cadot and Gourdon (2015) explore estimating AVE by using the price-gap mechanism, providing estimates in a single-digit range, i.e. substantially lower than previous estimates based on Kee, Nicita, Olarreaga estimates. Price-based approaches consist of estimating the AVE of an NTM by comparing directly the price of products in the NTM's presence with that of similar products on markets without it. One major shortcoming of this estimation of NTMs AVE is the lack of availability and comparability of price data.

Still, as AVEs are inferred directly from price or indirectly from quantity comparison data in trade values, there is just one observation (at best) per product (or group products, depending on the methodology), of the overall AVE. That means that it is not possible to disentangle the different impacts of different measures applied simultaneously on the same product. Also, much of the diversity of attributes and specificities of economic impact are lost when NTM are modelled as taxes, comparable to tariffs. Moreover, the benefit to the society of better regulation is not well accounted for, e.g. prevention in the area of public health.

5. Frequency Index and Coverage Ratios on NTMs in the World

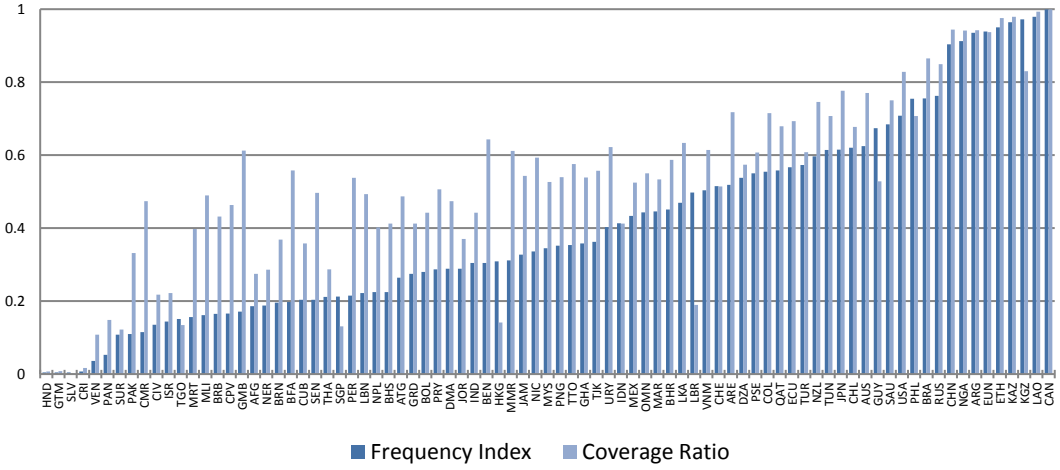
The above mentioned incidence measures are computed in this section using the most recent available data for all countries in the dataset. Rather than drawing normative conclusions, this section merely reports some stylised facts at the global and country levels.

[12] See https://vi.unctad.org/tpa/.

Figure 2.2 presents the Frequency Index for every country available in the dataset. The index takes values from almost 0 to 100 percent,[13] and normally Coverage Ratio is higher than Frequency Index, indicating that measures tend to be concentrated on the more heavily traded products.

Normally, national trade values are used as weighs for the Coverage Ratio, but this has two potentially offsetting problems. First, as mentioned above, countries may focus their regulatory efforts on products that have higher import values. In this way, there could be more regulation of products that are highly relevant in the import basket. Second, on the other hand, the more restrictive regulation is, the lower the volume of trade recorded for it. Following this logic, there could be less trade for products that are highly regulated (as a consequence, a prohibitive restriction receives a zero weight). This reduces the utility of the coverage ratio for inference about its effects on trade at national level, because the net effect of the positive and negative biases cannot be known a priori, expecting both higher and lower trade. It is then useful to compare the coverage ratio using national and international trade weighing, i.e. using world trade (instead of national) values for each product as weights.

Figure 2.2: Frequency and Coverage Ratios in the World

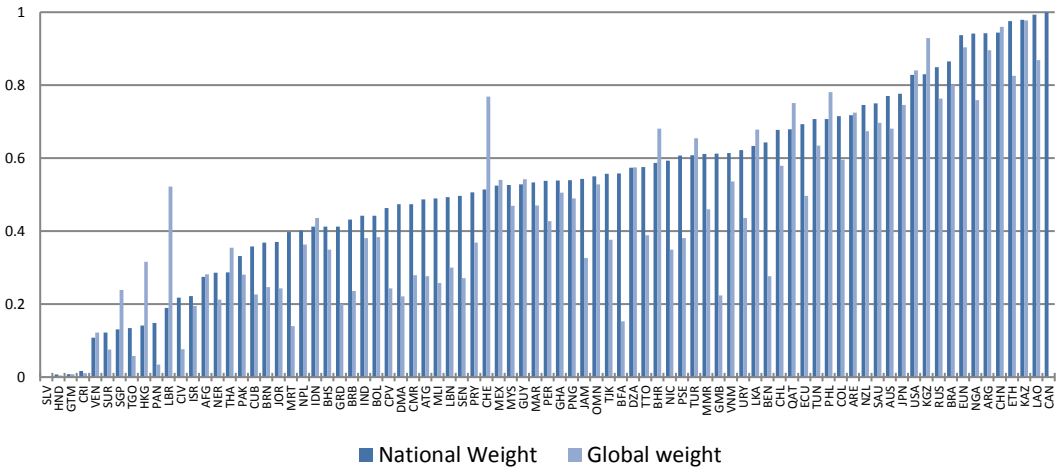


AFG=Afghanistan; ARG=Argentina; AUS=Australia; BEN=Benin; BFA=Burkina Faso; BOL=Bolivia (Plurinational State of); BRA=Brazil; BRN=Brunei Darussalam; CAN=Canada; CHL=Chile; CHN=China; CIV=Côte d'Ivoire; COL=Colombia; CPV=Cabo Verde; CRI=Costa Rica; CUB=Cuba; ECU=Ecuador; ETH=Ethiopia; EUN=France; GHA=Ghana; GMB=Gambia; GTM=Guatemala; HND=Honduras; IDN=Indonesia; IND=India; JPN=Japan; KAZ=Kazakhstan; KHM=Cambodia; LAO=Lao PDR; LBR=Liberia; LKA=Sri Lanka; MEX=Mexico; MLI=Mali; MMR=Myanmar; MYS=Malaysia; NER=Niger; NGA=Nigeria; NIC=Nicaragua; NPL=Nepal; NZL=New Zealand; PAK=Pakistan; PAN=Panama; PER=Peru; PHL=Philippines; PRY=Paraguay; RUS=Russian Federation; SEN=Senegal; SGP=Singapore; SLV=El Salvador; TGO=Togo; THA=Thailand; TJK=Tajikistan; URY=Uruguay; USA=United States; VEN=Venezuela (Bolivarian Republic of); VNM=Viet Nam.
Source: Authors' calculations, based on UNCTAD TRAINS database.

[13] See Box 3 on notes for graphs. It describes the statistical cleaning process applied on the raw data

Figure 2.3 shows Coverage Ratio computed using both global and national weights. As expected, it is more common that values for the Coverage Ratio are higher when using national weights, rather than global weights. This suggests regulation is concentrated on those products that are often imported. Of course, world trade weights reflect big countries' trade more closely and so one might think about a further weighting refinement which uses the unweighted average of the shares of each product in countries' import bundles – i.e. it disregards the size of each country's total imports. This is not done here. The standard values in most publications are usually based only on national weights.

Figure 2.3: Coverage Ratio

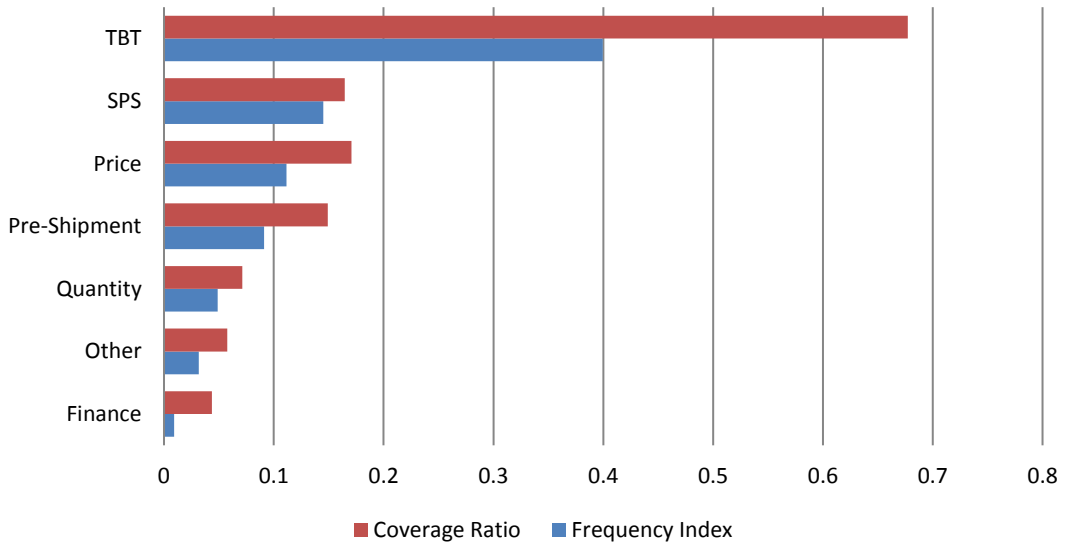


AFG=Afghanistan; ARG=Argentina; AUS=Australia; BEN=Benin; BFA=Burkina Faso; BOL=Bolivia (Plurinational State of); BRA=Brazil; BRN=Brunei Darussalam; CAN=Canada; CHL=Chile; CHN=China; CIV=Côte d'Ivoire; COL=Colombia; CPV=Cabo Verde; CRI=Costa Rica; CUB=Cuba; ECU=Ecuador; ETH=Ethiopia; EUN=France; GHA=Ghana; GMB=Gambia; GTM=Guatemala; HND=Honduras; IDN=Indonesia; IND=India; JPN=Japan; KAZ=Kazakhstan; KHM=Cambodia; LAO=Lao PDR; LBR=Liberia; LKA=Sri Lanka; MEX=Mexico; MLI=Mali; MMR=Myanmar; MYS=Malaysia; NER=Niger; NGA=Nigeria; NIC=Nicaragua; NPL=Nepal; NZL=New Zealand; PAK=Pakistan; PAN=Panama; PER=Peru; PHL=Philippines; PRY=Paraguay; RUS=Russian Federation; SEN=Senegal; SGP=Singapore; SLV=El Salvador; TGO=Togo; THA=Thailand; TJK=Tajikistan; URY=Uruguay; USA=United State; VEN=Venezuela (Bolivarian Republic of); VNM=Viet Nam

Source: Authors' calculations, based on UNCTAD TRAINS database.

Figure 2.4 shows average values for both Frequency Index and Coverage Ratio in every Chapter of the NTM Classification, and for all countries combined. The types of measures that are most often used across the board (and not for a specific sector) are TBT. Two thirds of trade are affected by TBT measures. As expected, SPS measures are used for a narrower group of products; these are typically only agro-food products. These measures affect around sixteen per cent of trade. The non-technical ones, especially Quantity and Price measures and Pre-Shipment measures, also apply to a sizeable share of trade. Combined, they affect almost a quarter of global trade.

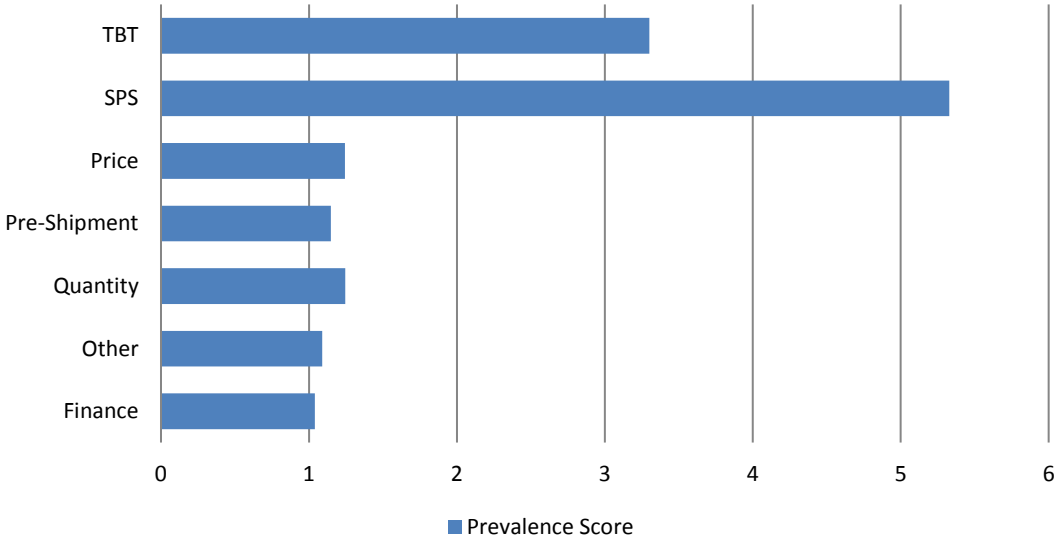
Figure 2.4: Frequency Index and Coverage Ratio by NTM Chapter



NTM = non-tariff measure; SPS = sanitary and phyto-sanitary; TBT = technical barriers to trade.
Source: Authors' calculations, based on UNCTAD TRAINS database.

When it comes to the counting, i.e. the number of different measures that are imposed on any single product, it is SPS measures that have the highest values: an average higher than five measures per product (counting each different type of code only once per product). There are more than three TBT measures on a product on average, and one of each of the other categories. This is computed on products that are traded with at least one country (the average includes zero values for those products with no NTM, and does not include all those measures that affect the products partially. See Box 3 for more details).

Figure 2.5: Prevalence Score by NTM Chapter

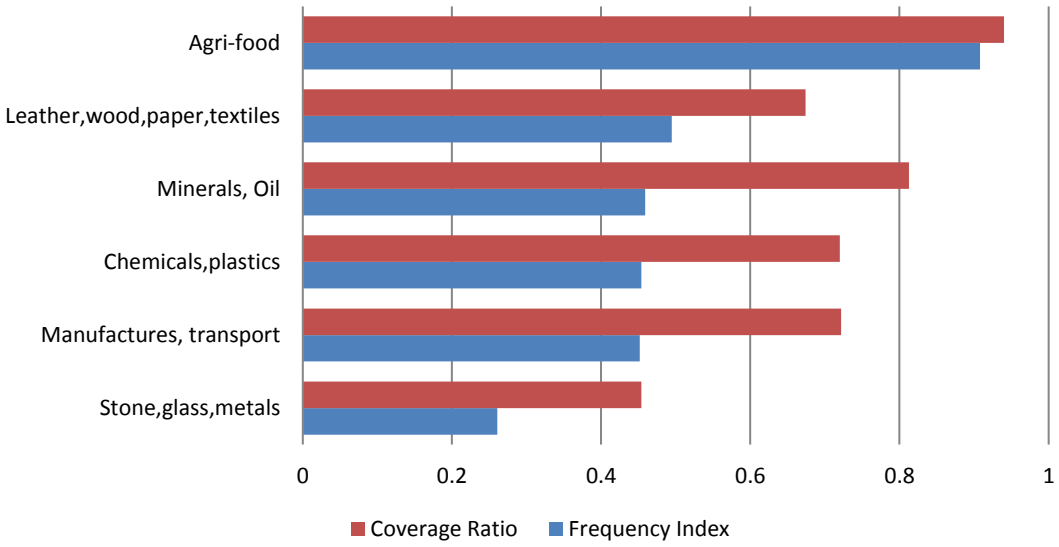


NTM = non-tariff measure; TBT = technical barriers to trade; SPS = sanitary and phyto-sanitary.
Source: Authors' calculations, based on UNCTAD TRAINS database.

Those values show that, while non-technical measures are widely used, the technical and especially the SPS measures are used more intensively, and could pose supplementary difficulties for traders to comply with each of them. This lends support to the idea that using this Prevalence Score as a variable in economic models may have more explanatory power that a binary Frequency Index or Coverage Ratio.

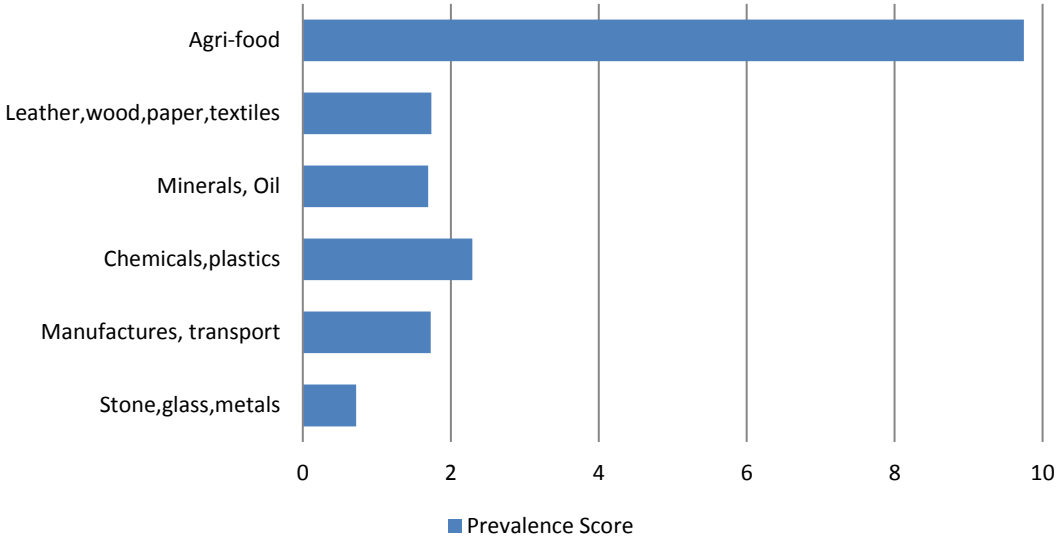
Figures 2.6 and 2.7 show information by sector. The agro-food sector appears to be the most regulated. Almost every product in this sector faces at least an NTM, and also it has the highest score for the number of measures affecting every product. There are almost ten measures on average on any product in the agro-food sector. For the rest of the sectors, they only face one or two, on average. Still, those measures affect about half of the traded lines in those sectors and a larger share of trade, indicating that countries tend to regulate more those products that are most traded in their countries.

Figure 2.6: Frequency Index and Coverage Ratio for Sectors



Source: Authors' calculations, based on UNCTAD TRAINS database.

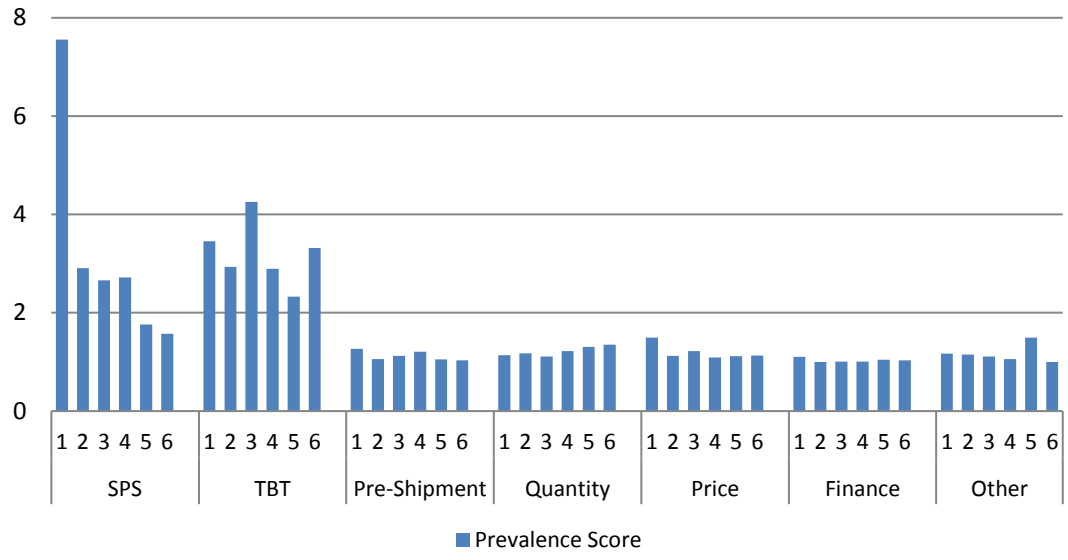
Figure 2.7: Prevalence Score Average Number of Measures



Source: Authors' calculations, based on UNCTAD TRAINS database.

In Figure 2.8, information on Prevalence Score is disaggregated by chapter and product group. SPS measures, which are very common on agro-food products, have the highest average number of NTMs. There are almost eight SPS measures, on average, on every product in the agro-food sector. There are SPS measures on other products as well, and their number is not negligible, especially on chemicals and plastics, and the sector grouping Leather, Wood, Paper, and Textiles, and Minerals and Oils. Measures from the TBT chapter are also in ample use, especially on chemicals and plastics, but there are TBT measures on agro-food products and manufactures as well. In general, the manufactures group is affected more by TBT measures than by any other type of measure, and TBT measures are widespread across the board.

Figure 2.8: Average Prevalence Score by NTM Chapter and Product Groups



NTM = non-tariff measure; SPS = sanitary and phyto-sanitary; TBT = technical barriers to trade.
Sectors: 1 = Agri-food; 2 = Minerals, Oil; 3 = Chemicals, plastics ; 4 = Leather, wood, paper, textiles ; 5 = Stone, glass, metals ; 6 = Manufactures, transport.
Source: Authors' calculations, based on UNCTAD TRAINS database.

Box 3: Notes for Graphs

1. All figures are done using only import measures. It can be interpreted as market access conditions. Nevertheless, for operators within the country, being importers, exporters, or producers, it could be relevant to see all measures – import and export
2. The indices are computed using the actual trading basket of the country – their actual imports, in this case. This means that if Frequency Index is lower than 1, there are products being imported that do not have any regulation. Calculations use the average trade import value for years 2014, 2015 and 2016
3. Computations uses bilateral NTM data. The bilateral trade value is considered in each case for the Coverage Ratio (national weighing)
4. To show more variation in the data, those measures that are 'horizontal' are dropped. These are the measures that are applied across the board, and not for a specific group of products (specifically, those single measures affecting at least 95 percent of the products in a country). This avoids the Frequency Index and Coverage Ratio equalling 1 when these are used, which are usually of more of an administrative nature. They are indeed mandatory, and they should remain in the database, but they are not included in the computation of the figures here to highlight the variability across countries and products groups.
5. Furthermore, those NTM that are applied under 'Partial Coverage' are also dropped to ensure consistency in the data across countries (UNCTAD, 2019 forthcoming). The raw NTM data report which specific products are affected at Tariff Line level, which is more finely disaggregated than the HS 6-digit level used here. This admits the possibility of selecting as 'affected' either any product with at least one tariff line effected, or other options, such as considering those HS-6 products that have some desired minimum share coverage, say 50 percent coverage at HS-6 level. This is expected to result in a higher Frequency Index and Coverage Ratio. However, this is not done here. In this note, only products with all its tariff lines affected within a HS-6 are considered 'affected' products.
6. Prevalence Score is computed counting only once each distinct NTM code on every product. If any measure code appears multiple times in the original database on the same product, they are included in the average count only with value equal to 1. There are some countries that present systematically higher numbers of measures. The reason for the existence of higher numbers of measures of the same kind (same NTM code) on one single product lies largely in the legislative structure of each country, as some countries disaggregate affected products below the HS 6-digit level in their regulations, while others take broader groups for the same kind of requirement.

Source: Authors' calculations, based on UNCTAD TRAINS database

6. Conclusions

Despite the widespread use of NTMs, there is still a significant transparency gap. Systematic and comparable information about the use of NTMs in government policy is generally not available. However, building a comprehensive NTMs database requires a very significant coordination effort and large resources. The NTM database is a global public good, designed to enhance transparency and benefit all countries of the world. UNCTAD leads and coordinates

the global effort on NTMs to fill the gap, setting the standards for data collection processes across countries. However, the implementing and financing partners are just as central to the endeavour.

As this chapter has shown, the collected data are based on a comprehensive set of mandatory and official regulations that are currently imposed by the country and that affect imported or exported merchandise products. Detailed information for each NTM comprises the sources of information, the measures, and the affected products and countries; these have all been gathered and translated into a qualitative and quantitative database to facilitate general access to all the policy measures that might have an economic impact on trade.

Developing the MAST classification is also a continuous effort. The MAST group met in September 2017 to consider needed changes in the classification, plus the possibility of adding new chapters, e.g. on government procurement, rules of origin, subsidies, or intellectual property. Not all of these areas will necessarily be included in the second version of the NTM classification; that will depend on the agreement of the experts and on the possibilities of collecting good quality data.

The study of the data collected allows a much broader menu of analysis than has been available heretofore and thus also enhances the range and quality of policy advice that is possible. The relatively scarce knowledge of the implications of NTMs, compared to tariffs, is particularly troubling for policymakers, trade negotiators, and development agencies, which need information and analysis so as to direct their efforts for maximum gains. Furthermore, NTMs are complex and their effect on regional and international trade is often indirect and very case-specific.

The incidence measures and the AVEs proposed in this chapter are informative by themselves, and may be used to study the regulatory practices in different regions, or specific sectors. These variables may also be used in other economic models that to date have lacked the NTM dimension. Thus, for example, the database supports a new research agenda on the effects of NTMs on trade and its responsiveness to shocks, and, more controversially, on the determinants of the extent and protective effect of NTMs.

The database also provides a basis for a series of case studies of specific sectors/country pairs. These will require researchers to delve more deeply into the characteristics of the NTMs than the database itself can do, but the latter will provide a definitive list of what official barriers there are and also the broader context in which the country/sector under investigation operates.

One specific case study that commands attention is the United Kingdom's plan to leave the European Union. If, as seems likely, this entails the United Kingdom leaving the European Single Market, we will have an immensely valuable natural experiment for the role of NTMs. Maintaining the completeness of the database will require an effort to identify any new NTMs and eliminations of NTMs that arise (or changes in the span of those that already exist), but the prospect of being able to use the shock to identify the effects of changes in NTMs should make the early and careful documentation of the NTMs in question a high priority. Of course, the effects of the exit will mainly impinge upon the United Kingdom, but it is potentially of

interest to any country that trades with the European Union or the United Kingdom (i.e. every country).

Concerning the result of the computed incidence values using the NTM database shown above, the perception that trade is highly regulated is reaffirmed. For example, it is rare to find any product in the agro-food sector without any NTM, and at the same time this sector has the highest number of measures applying simultaneously to the products. The second conclusion from this preliminary overview is that TBT measures are widespread across all products, and are used quite often by countries. The TBT measures cover 70 percent of world trade. The other types of measures are less numerous but nevertheless cover a sizeable share of trade as they appear to be concentrated on the products that are most traded by countries.

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CHAPTER 3

Impacts of NTMs on Trade and Welfare: A Case Study of ASEAN

Ken Itakura

1. Introduction

NTMs may affect positively or negatively on quantity and/or price of traded goods. According to the United Nations Conference on Trade and Development (UNCTAD) (2015) classification, all NTMs are grouped into 16 chapters according to their characteristics. The first distinction is whether a NTM is an import related or export related measure. Within the import related NTMs, the second distinction separates them into technical or non-technical measures. The taxonomy of NTMs under the UNCTAD–Multi-Agency Support Team (MAST) goes beyond the 16 chapters to divide each chapter's branch into sub-chapters. Given the wide array of NTMs, as discussed in Chapter 2, it is not hard to see why the economic effect of NMTs is complex, therefore ambiguous, as they may act together, generating positive or negative impact when aggregated.

The Economic Research Institute for ASEAN and East Asia (ERIA) and UNCTAD have taken a lead in the formidable task of gathering and classifying information on NTMs in ASEAN countries and creating a publicly accessible database (asean.i-tip.org). Using this newly developed database, Ing and Cadot (2017) attempt to estimate ad valorem equivalents of NTMs for Association of Southeast Asian Nations (ASEAN) countries. Once the ad valorem equivalents are estimated they can be used for counterfactual experiments conducted with applied economic models. It should be noted that the ambiguity of NTMs' economic effect may persist even when the ad valorem equivalents are estimated. Despite this persistence, Ing and Cadot (2017) can be a desirable approach to quantitatively studying the economic effect of NTMs when the country coverage expands beyond ASEAN in subsequent studies.

An alternative approach would be to narrow the definition of NTMs. According to the OECD, 'non-tariff measures are measures other than normal tariffs which have the effect of restricting trade between nations.[1] In this study, we assume that the NTMs' trade-restricting effect can be indirectly captured by fixed costs, which deter firms from entering the market. Given this assumption, we have two main objectives in this study.

[1] http://www.oecd.org/tad/ntm/

First, we quantitatively estimate the fixed costs for the ASEAN countries by implementing a heterogeneous firms model of international trade. Second, we conduct experimental simulations for the welfare effect of lowering the fixed costs, by using the computable general equilibrium (CGE) model with heterogeneous firms. However, with this assumption, we forgo the potentially positive effect of introducing NTMs. For example, some ASEAN countries may lack a measure to protect the natural environment, or to establish safety standards, or to protect workers, and so on. If the country were to set up a new measure, this would have economic benefits, despite the potential effect of restricting trade. In this study, we do not consider the inception of such policy measures.

To obtain quantitative estimates of the fixed costs, we introduce a heterogeneous firms module into our CGE model, by following the recent development in CGE modeling. Dixon and Rimmer (2011) propose an encompassing model of different trade specifications such as Armington (1969), Krugman (1980) and Melitz (2003), and in this paper we referred to as the AKME module. Stimulated by their work, Oyamada (2013) developes a prototype global CGE model incorporating the AKME module, and Oyamada (2014) investigates the properties of the AKME module focusing on preference parameters. More recently, Dixon et al. (2016) conduct a thorough analysis on their own AKME module. Dixon et al. (2016) and Oyamada (2014) are amongst a few studies that introduced the AKME module into the CGE model. Amongst the handful of studies, Balistreri and Rutherford (2012) examine the difference in trade specifications on CGE simulation outcomes. We introduce the AKME module into the standard GTAP model (Hertel 1997 and McDougall 2003), following the modeling strategy in Dixon and Rimmer (2011) and Oyamada (2013).

We obtain three different kinds of fixed cost by calibrating the CGE model with heterogeneous firms. They are the fixed costs of entry, of domestic sales, and of exporting. All firms bear the first fixed cost of starting up their business to enter the market. Some firms are productive enough to make a profit in the domestic market or in foreign markets. Thus, given the fixed costs and their productivity level, not all the firms are able to sell domestically or internationally. These fixed costs have the effect of restricting trade between countries, so we may indirectly capture the correspondence to the NTMs' economic effect. Once the fixed costs are obtained, we conduct experimental simulations for the welfare effect, by asking what happens if the fixed costs of domestic sales and of exporting are lowered.

We applied this methodology to the ASEAN countries' manufacturing industry. The ASEAN countries have been lowering import tariffs even before the establishment of the ASEAN Economic Community (AEC) in 2015. As a destination of their exports and a source of their imports, ASEAN has become increasingly important to the member countries (Table 3.1). Given the AEC's tariff reduction, it can be argued that the relative importance of NTMs has been increasing. Also, as production networks or the global value chain has spread in the region, it can be interesting to explore how the fixed costs, as a proxy for the NTMs, affect them if they were lowered within the ASEAN countries.

For this purpose, we provide a brief overview of the AKME module and the CGE model in the next section, followed by a description of the database and simulation settings. After reporting the results, a summary concludes the study. The preliminary result shows that the lowered fixed costs has profound effects on trade and welfare.

There are several caveats in this study that should be noted with caution. First, because we do not have access to the NTM data as this study is conducted, we cannot establish the quantitative link between fixed costs and NTMs to gauge their share of the fixed costs. Second, potential benefits of introducing NTMs are ignored as we focus on the trade-restricting nature of the NTMs. Third, as we describe later in this chapter, simulation experiments are designed for the aggregated manufacturing sector. Given these caveats, the results on trade and welfare effects presented in this chapter should be considered as illustrative outcomes based on experiments with a prototype CGE model.

Table 3.1. Total Export and Import, and Shares of ASEAN, 2011 (billion USD, %)

	Export (USD)	ASEAN (%)	Import (USD)	ASEAN (%)
Brunei Darussalam	9.2	10.7	5.2	31.4
Cambodia	10.1	8.3	12.1	49.8
Indonesia	209.2	14.7	205.1	24.3
Lao PDR	3.3	36.4	5	58.1
Malaysia	239	19.1	225.2	27.8
The Philippines	68	12.4	91.9	20.2
Singapore	302.4	25.5	275.6	15.5
Thailand	248.5	18.4	262.6	14.7
Viet Nam	97.3	12.4	131.6	16.5

Source: Author's calculation, based on Aguiar et al. (2016).

2. Model

Following Dixon and Rimmer (2011) and Oyamada (2013), we develop a CGE model of global trade with heterogeneous firms. The salient features in this version of the model are the treatment of domestic market and the agent based import sourcing.

2.1. AKME Module's System of Equations

We briefly describes the AKME module implemented in a CGE model. In region s the good X_s is an aggregate of domestically supplied good D_s and imported good Q_{rs} from region r, shown in Equation (3.1).

$$X_s = \theta_s \left(\delta_s \widetilde{N_s} D_s^{\frac{\sigma-1}{\sigma}} + \sum_r \delta_{rs} \widetilde{N_{rs}} Q_{rs}^{\frac{\sigma-1}{\sigma}} \right)^{\frac{\sigma}{\sigma-1}} \tag{3.1}$$

A constant elasticity of substitution (CES) function is used for the aggregation, with substitution elasticity $\sigma > 1$, scaling parameter θ_s, and the CES weight δ_s for the domestic good and δ_{rs} for the imported good. The number of firms suppling their goods in region s is $\widetilde{N_s}$, and the ones exporting their goods from region r to s is $\widetilde{N_{rs}}$.

The price index dual to the CES aggregate of good X_s is defined in Equation (3.2), where price p_s corresponds to the domestic good D_s and tariff-inclusive price $(1-\tau_{rs})p_{rs}$ for the imported good Q_{rs} with the bilateral tariffs τ_{rs}.

$$P_s = \left(\delta_s^{\sigma}\widetilde{N_s}p_s^{1-\sigma} + \sum_r \delta_{rs}^{\sigma}\,\widetilde{N_{rs}}\{(1+\tau_{rs})p_{rs}\}^{1-\sigma}\right)^{\frac{1}{1-\sigma}} \tag{3.2}$$

Each firm produces a different variety of the good by using composite input Z_r and paying fixed cost to set up the business in region r, H_r. Additionally, firms selling their products to domestic market r incur another fixed cost F_r, whereas exporting firms face fixed costs F_{rs} to serve foreign markets. Firms set the profit maximising markup price p_r for domestic market and p_{rs} for foreign markets, given their productivity φ and price of the composite input $\boldsymbol{p}_r$, where $\eta = -1/\sigma$ in Equation (3.3) and (3.4).

$$p_r = \left(\frac{1}{1+\eta}\right)\frac{\boldsymbol{p}_r}{\varphi_r} \tag{3.3}$$

$$p_{rs} = \left(\frac{1}{1+\eta}\right)\frac{\boldsymbol{p}_r}{\varphi_{rs}} \tag{3.4}$$

The unit input price is determined by the balance of output volumes and the composite input Z_r net of fixed costs in Equation (3.5).

$$\widetilde{N_r}\frac{D_r}{\varphi_r} + \sum_s \widetilde{N_{rs}}\frac{Q_{rs}}{\varphi_{rs}} = Z_r - \widetilde{N_r}F_r - \sum_s \widetilde{N_{rs}}\,F_{rs} - N_r H_r \tag{3.5}$$

The proportion of firms in region r supplying to domestic market E_r and to foreign market E_{rs} is related to the average productivities of the firms in the corresponding market, respectively φ_r and φ_{rs} (Equation (3.6) and (3.7)).

$$E_r = \left(\frac{\gamma}{\gamma-\sigma+1}\right)^{\frac{\gamma}{\sigma-1}}\varphi_r^{-\gamma} \tag{3.6}$$

$$E_{rs} = \left(\frac{\gamma}{\gamma-\sigma+1}\right)^{\frac{\gamma}{\sigma-1}}\varphi_{rs}^{-\gamma} \tag{3.7}$$

Each firm's productivity level is drawn from the Pareto distribution with the shape parameter γ. The firm's products supplied to domestic D_r and/or abroad Q_{rs} relative to the corresponding fixed cost F_r or F_{rs} are associated with the average productivities (Equation (3.8) and (3.9)).

$$\varphi_r = \frac{\gamma - \sigma + 1}{\gamma(\sigma - 1)} \left(\frac{D_r}{F_r} \right) \tag{3.8}$$

$$\varphi_{rs} = \frac{\gamma - \sigma + 1}{\gamma(\sigma - 1)} \left(\frac{Q_{rs}}{F_{rs}} \right) \tag{3.9}$$

Number of firms N_r is determined in Equation (3.10), equating total value of fixed costs to total value of products adjusted by substitution elasticity.

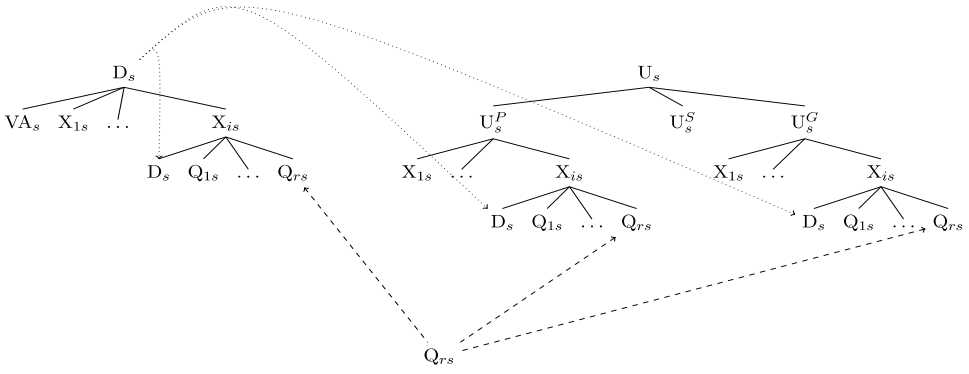
$$\boldsymbol{p}_r \left(\widetilde{N_r} F_r + \sum_s \widetilde{N_{rs}} F_{rs} + N_r H_r \right) = -\eta \left(\widetilde{N_r} p_r D_r + \sum_s \widetilde{N_{rs}} p_{rs} Q_{rs} \right) \tag{3.10}$$

The system of equations (3.1) through (3.10) are incorporated into a CGE model.

2.2. CGE model

The AKME module is incorporated into a CGE model of global trade, namely the standard GTAP model (Hertel (1997) and McDougall (2003)). Modified for the incorporation, structure of the model is summarised in Figure 3.1. Tree at the lefthand side is for domestic producers' nested demand structure. For the production of D_s , the value added composite VA_s and intermediate inputs X_{is} form a input composite by the Leontief production function, where $i \in I$ for the traded goods. The value added composite by CES function is made up of skilled and unskilled labor, capital and specific factors such as land and natural resources, which all of them are exogenously given.

Figure 3.1. Schematic View of the Model Structure



Source: Author.

Domestically produced good D_s is supplied to producers for intermediate input use, to private household for consumption, and to government household for public expenditure. Recall from Equation (3.1), domestically supplied good D_s is aggregated with imported goods Q_{rs} to form the composite good X_{is}.

In the right-hand tree, representative household's utility U_s, the basis of welfare measure, is derived from sub-utilities of private household U_s^P, government household U_s^G and savings U_s^S, via the Cobb–Douglas-type function. The private household's utility is, then, determined by the constant difference elasticity function of the composite goods X_{is}, whereas for the government household utility by the CES function. Because of the non-homotheticity in private household's utility, the adjustment to sift distribution parameter of expenditure is introduced by following McDougall (2003).

3. Data and Simulation Experiments

We rely on the database, the Global Trade Analysis Project (GTAP) Data Base version 9.2 (Aguiar et al., 2016), to calibrate the fixed costs as well as to curry out simulations for the welfare effect of lowering the fixed costs. The GTAP Database stores vast economic information covering 57 industrial sectors for 141 regions. Because the focus of this study is on the ASEAN countries and for experimental purpose, we aggregate the database to three sectors and 10 regions (see Appendix Table A.1 and A.2). We assume that producers in primary sector (Prim) and services sector (Srvc) are under the perfect competition and their production technologies are constant returns to scale. Primary sector employs the specific factors of production such as land and natural resources. We also assume that firms in the manufacturing sector (Mnfc) are operating under the imperfect competition, and the AKME module is applied to this sector. As for the regional aggregation, the database has all the ASEAN member countries except for Myanmar. Key parameters used in the AKME module are substitution elasticity σ and γ, and they are set at 3.4 and 5.0 for all regions, taken from Aguiar et al. (2016) and Balistreri et al. (2011). The value of extensive margin is set at 0.6, following Zhai (2008) for the calibration. Number of firms in each region is normalised to be unity for the calibration.

As a result, we obtain share of fixed costs in total cost as reported in Table 3.2. Given the region-generic parameter values, there are not much variations in the calibrated share of fixed costs on average. It is around 10 percent in the total cost for a firm to set up business or start operating in the ASEAN countries (H_r). Having established the business, a firm may incur further fixed cost to supply domestically (F_r), which amount to about 4 to 8 percent. Or a firm may run up 11 to 14 percent fixed costs to export (F_{rs}) additionally if it serves all foreign markets.

Table 3.2. Share of Fixed Costs in Total Cost on Average (%)

	H	F	sum F_{rs}
Brunei Darussalam	9.9	7.4	12.9
Cambodia	10.0	5.4	13.7
Indonesia	10.0	8.5	10.6
Lao PDR	10.3	4.2	12.7
Malaysia	10.0	5.6	13.3
The Philippines	10.2	6.0	11.6
Singapore	9.9	3.9	15.7
Thailand	10.0	5.7	13.1
Viet Nam	10.2	5.7	12.6

H = cost of set up business, F = fixed cost to domestic supply, sum F_{rs} = fixed cost to export
Source: Author's computation.

With the estimated fixed costs, it is possible to conduct a set of simulation experiments to examine the effect of lowering the fixed costs. There are three simulation experiments to implement in this study, and they are;

S1 Lower the fixed cost to export $\boldsymbol{F_{rs}}$

S2 Lower the fixed cost to domestic sales $\boldsymbol{F_{r}}$

S3 All of the above (S1+S2) at the same time.

We assume these experiments applied to the ASEAN countries, and that the degree of lowering the fixed cost is set to be 20 percent.[2] We can think of the ASEAN Economic Community reducing the barriers to trade for the intra-regional trade. All the simulations are implemented by using the GEMPACK economic modeling software (Harrison and Pearson 1996).

4. Simulation Results

Table 3.3 reports the simulation results on the ASEAN countries' manufacturing export volume change. Because of the lowered fixed cost to export to ASEAN, it is clear that all manufacturing export volume increase (S1). However, the large changes in export volume to ASEAN are explained as their export destinations are shifted from the rest of world to the ASEAN countries. When the fixed cost to domestic sales is reduced (S2), similar shifts are observed for all ASEAN countries, this time from export to domestic markets, resulted in falls in export volume both in ASEAN and total, except for Brunei Darussalam. The reduced fixed cost to

[2] The degree of reduction in the fixed cost is set arbitrary. Following the studies in reduction of NTBs, it is possible to carry out simulation experiments with a range, for example, from 7 percent (Hayakawa and Kimura, 2014), 20 percent (Petri and Plummer, 2016), to 50 percent (Francois et al., 2011).

domestic sales generates more profit for firms in Brunei Darussalam, and the increased profit attracts more firms to enter domestic market and export to the rest of world. This effect of new entrants outweighs the negative export volume change to ASEAN, for the total export volume change in Brunei Darussalam (5.0). As the two reductions in fixed costs are combined together (S3), the effects on manufacturing export volume are mixed, depending on which effect of lowering fixed cost dominates others.

Table 3.3 Effect of Lowering Fixed Costs on Manufacturing Export Volume (%)

	ASEAN			Total		
	S1	S2	S3	S1	S2	S3
Brunei Darussalam	33.5	-0.8	30.6	19.5	5.0	22.8
Cambodia	22.2	-15.4	4.1	3.3	-8.8	-5.5
Indonesia	20.1	-17.9	-1.0	3.9	-11.4	-8.1
Lao PDR	11.5	-15.1	-3.6	3.8	-11.8	-7.2
Malaysia	16.7	-12.6	2.2	1.9	-6.1	-4.6
The Philippines	17.0	-18.4	-3.8	1.2	-11.9	-10.7
Singapore	16.6	-6.6	9.0	5.5	-0.9	4.0
Thailand	16.5	-17.3	-2.8	2.0	-11.6	-9.6
Viet Nam	18.7	-18.8	-2.8	1.1	-12.1	-10.9

Note: S1: lower F_{rs}, S2: lower F_r, S3: S1+S2
Source: Author's simulation results.

Table 3.4 reports the results on manufacturing import volume. Import volumes increase as the fixed costs to export from the ASEAN countries are decreased (S1). The more firms export, the more demands for intermediate inputs and primary factor inputs to support the increased production activities. This derived demand for intermediate inputs explains the increased import of intermediate inputs. The rise in primary factor demands is translated into higher income, which also explains the import volume increase with higher consumption of imported goods. As the fixed cost to domestic sales is lowered, then shift towards domestic market diminishes the import volume (S2). The magnitude of negative impacts are outstanding for most of the ASEAN countries. Number of firms in Singapore and Brunei Darussalam are significantly increased. Total effects on import volume (S3) can be seen as a combination of the two simulation experiments.

Welfare effects are reported in Table 3.5. The logic to explain the welfare gains from lowering the fixed costs is following. The less a manufacturing firm incurs the fixed costs to export and to sell domestically, the more firms will enter into the markets. Although output per firm decreases because of the new entrants, aggregate sales and export volume increase. This indicates that more variety of goods becomes available and it contributes to higher sub-utilities, thereby leading to the overall welfare gain. It implies that the preference for variety dominates the price increase which is caused by the entry of firms with lower productivity. However, due to the higher prices, there is an exception found in Lao PDR's small negative welfare result in S2.

Table 3.4. Effect of Lowering Sunk Costs on Manufacturing Import Volume (%)

	ASEAN			Total		
	S1	S2	S3	S1	S2	S3
Brunei Darussalam	13.8	-12.5	-0.6	2.2	-11.2	-9.4
Cambodia	17.2	-13.8	2.1	6.3	-8.7	-2.6
Indonesia	15.6	-11.8	2.3	3.1	-10.8	-7.7
Lao PDR	19.8	-15.3	3.3	11.3	-10.8	0.3
Malaysia	16.6	-11.3	3.9	4.4	-9.6	-5.4
The Philippines	17.6	-13.3	2.3	4.2	-9.9	-6.0
Singapore	18.6	-15.0	1.3	6.1	-10.0	-4.3
Thailand	18.2	-13.2	2.8	4.6	-10.8	-6.6
Viet Nam	16.7	-11.4	3.9	2.7	-7.5	-4.8

Note: S1: lower F_{rs}, S2: lower F_r, S3: S1+S2
Source: Author's simulation results.

Table 3.5. Effect of Lowering Sunk Costs on Welfare (%)

	S1	S2	S3
Brunei Darussalam	0.5	1.0	1.5
Cambodia	2.4	0.6	2.8
Indonesia	0.3	2.2	2.4
Lao PDR	2.4	-0.1	2.1
Malaysia	1.4	4.1	5.3
The Philippines	0.3	1.5	1.7
Singapore	3.1	3.0	5.7
Thailand	1.5	3.5	4.8
Viet Nam	0.7	3.2	3.8

Note: S1: lower F_{rs}, S2: lower F_r, S3: S1+S2
Source: Author's simulation results.

5. Summary

We assumed that the trade-restricting effect of NTMs can be indirectly captured by fixed costs which prevent firms from entering into market. Given this assumption, we estimated the fixed costs to entry, domestic sales, and export for the ASEAN countries' manufacturing industry, by calibrating the CGE model with heterogeneous firms. Adopted the country-generic parameter value, we obtained the fixed costs that are similar in terms of the share in total cost for the ASEAN countries. However, these fixed costs have the effect of restricting trade between countries as revealed in the experimental simulations of lowering them. Profound total trade volume effects are observed for reducing the fixed cost to export, and exports within ASEAN significantly rise. On the other hand, the lowered fixed cost to domestic sales has large negative impact on trade volume. As for the overall welfare gain, the lowered fixed costs lead to higher welfare for nearly all the cases for ASEAN countries.

Several limitations to this study warrant further investigation, not to mention the ongoing development on the CGE model with heterogeneous firms. The relation between NTMs and the fixed costs can be further reviewed with burgeoning literature as presented in this book. There is a scope for the region specific parameters to be utilised for future study. Also, it would be interesting to consider the economic effect of lowering fixed cost to entry, which is not included in this study.

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Appendix

Table A.1. Sectoral Aggregation

No.	Sector	GTAP 57 sectors
1	Prim	Paddy rice; Wheat; Cereal grains nec; Vegetables, fruit, nuts; Oil seeds; Sugar cane, sugar beet; Plant-based fibers; Crops nec; Cattle, sheep, goats, horses; Animal products nec; Raw milk; Wool, silk-worm cocoons; Forestry; Fishing; Coal; Oil; Gas; Minerals nec; Meat: cattle, sheep, goats, horse; Meat products nec; Vegetable oils and fats; Dairy products; Processed rice; Sugar; Food products nec; Beverages and tobacco products.
2	Mnfc	Textiles; Wearing apparel; Leather products; Wood products; Paper products, publishing; Petroleum, coal products; Chemical, rubber, plastic prods; Mineral products nec; Ferrous metals; Metals nec; Metal products; Motor vehicles and parts; Transport equipment nec; Electronic equipment; Machinery and equipment nec; Manufactures nec.
3	Srvc	Electricity; Gas manufacture, distribution; Water; Construction; Trade; Transport nec; Sea transport; Air transport; Communication; Financial services nec; Insurance; Business services nec; Recreation and other services; PubAdmin/ Defence/ Health/ Educat; Dwellings.

Source: Author's aggregation.

Table A.2. Regional Aggregation

No.	Region	GTAP 141 regions
1	Brunei	Brunei Darussalam.
2	Cambodia	Cambodia.
3	Indonesia	Indonesia.
4	LaoPDR	Lao People's Democratic Republ.
5	Malaysia	Malaysia.
6	Philippines	Philippines.
7	Singapore	Singapore.
8	Thailand	Thailand.
9	VietNam	Viet Nam.
10	RestofWorld	Australia; New Zealand; Rest of Oceania; China; Hong Kong; Japan; Korea; Mongolia; Taiwan; Rest of East Asia; Rest of Southeast Asia; Bangladesh; Nepal; Pakistan; Sri Lanka; Rest of South Asia; Canada; United States of America; Mexico; Rest of North America; Argentina; Bolivia; Brazil; Chile; Colombia; Ecuador; Paraguay; Peru; Uruguay; Venezuela; Rest of South America; Costa Rica; Guatemala; Honduras; Nicaragua; Panama; El Salvador; Rest of Central America; Dominican Republic; Jamaica; Puerto Rico; Trinidad and Tobago; Caribbean; Austria; Belgium; Cyprus; Czech Republic; Denmark; Estonia; Finland; France; Germany; Greece; Hungary; Ireland; Italy; Latvia; Lithuania; Luxembourg; Malta; Netherlands; Poland; Portugal; Slovakia; Slovenia; Spain; Sweden; United Kingdom; Switzerland; Norway; Rest of EFTA; Albania; Bulgaria; Belarus; Croatia; Romania; Russian Federation; Ukraine; Rest of Eastern Europe; Rest of Europe; Kazakhstan; Kyrgyzstan; Tajikistan; Rest of Former Soviet Union; Armenia; Azerbaijan; Georgia; Bahrain; Iran Islamic Republic of; Israel; Jordan; Kuwait; Oman; Qatar; Saudi Arabia; Turkey; United Arab Emirates; Rest of Western Asia; Egypt; Morocco; Tunisia; Rest of North Africa; Benin; Burkina Faso; Cameroon; Cote d'Ivoire; Ghana; Guinea; Nigeria; Senegal; Togo; Rest of Western Africa; Central Africa; South Central Africa; Ethiopia; Kenya; Madagascar; Malawi; Mauritius; Mozambique; Rwanda; Tanzania; Uganda; Zambia; Zimbabwe; Rest of Eastern Africa; Botswana; Namibia; South Africa; Rest of South African Customs ; Rest of the World.

Source: Author's aggregation.

CHAPTER 4

Ad Valorem Equivalents of Non-tariff Measures in ASEAN*

Lili Yan Ing
Olivier Cadot

1. Introduction

Just between October 2018 and May 2019, import restrictiveness measures of the G20 countries increased more than 3.5 times the average since May 2012 (WTO, 2019).

The recent spread regulations has triggered debates amongts economist about their effects on international trade (Swinnen, 2016). Non-Tariff Measures (NTMs), a broad aggregate of measures that includes not only regulations (sanitary and technical), but also more directly trade-related measures such as quantitative restrictions or anti-dumping, have spread as substitues for declining tariffs (Moore and Zanardi, 2011; Aisbett and Pearson, 2012; Beverelli, Boffa and Keck, 2014; Orefice, 2015). In the same line of reasoning, many studies view regulations as devices often imposed to protect domestic producers (Fischer and Serra, 2000; Anderson, Damania and Jackson, 2004; Maertens and Swinnen, 2007; van Tongeren, Beghin and Marette, 2009; Marrette and Beghin, 2010; Beghin et al., 2012).

Partly as a result of these concerns, NTMs are addressed specifically in the 'deep-integration' clauses of a number of regional agreements (Dür, Baccini and Elsig, 2014; Cadot and Gourdon, 2016) and in recent negotiations such as the Regional Comprehensive Economic Partnership (RCEP) (Egger et al., 2015; Berden and Francois, 2015). A related strand of the literature surveyed by Swinnen (2016), going back to the work of Otsuki, Wilson and Sewadeh (2001), emphasises the compliance costs imposed by regulations, in particular on exporters from developing and emerging countries (Swinnen, 2007; Henson and Jaffee, 2007; Fontagné, Disdier and Beestermöller, 2016; Swinnen et al. 2015).

However, looking at product regulations through a 'trade-only' lens and branding them as hidden protectionism whenever they raise the price of imported products is a potentially misleading approach. In many historical cases, product regulations were imposed, after public scandals, under pressure not from domestic producers but from consumers – those who are predicted to lose from higher prices (McCluskey and Swinnen, 2011; Mo et al., 2012; Meloni and Swinnen, 2015, 2016). Markets for consumer goods are ripe with market failures – adverse selection, moral hazard, externalities – calling for government intervention, and the determination of optimal regulation in their presence is often a complex problem (van

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Tongeren, Beghin and Marette, 2009; Sheldon, 2012; Li and Beghin, 2014; Xiong and Beghin, 2014; Swinnen, 2016).

The issue of whether NTMs should be viewed exclusively or primarily through the prism of business compliance costs is not just academic. While deregulation has been on the agenda of conservative governments since the 1980s, some have recently pushed forward a new and radical deregulatory agenda. For instance, in 2011, the British government adopted a law requiring one regulation to be eliminated for each new one adopted, in any area of government action. The law was subsequently tightened to two and then to three regulations to be eliminated for each one adopted.[1] The United States government adopted a similar approach in an executive order issued by the White House in January 2017 stipulating that '[u]nless prohibited by law, whenever an executive department or agency (agency) publicly proposes for notice and comment or otherwise promulgates a new regulation, it shall identify at least two existing regulations to be repealed'.[2] The justification provided in paragraph (b) of the executive order is exclusively focused on the capping of business costs, stating that '[f]or fiscal year 2017, which is in progress, the heads of all agencies are directed that the total incremental cost of all new regulations, including repealed regulations, to be finalized this year shall be no greater than zero, unless otherwise required by law or consistent with advice provided in writing by the Director of the Office of Management and Budget (Director)'.[3] The executive order makes no mention of the cost of non-regulation in the face of market failures. This stands in contrast to the approach adopted in the 'regulatory lookback' initiative adopted under the Obama administration (also by executive order), which promoted the systematic use of ex post impact evaluation (Sunstein, 2013).

This paper takes a balanced view of NTMs, in the spirit of Swinnen (2016), and suggests a way to implement it empirically. It contributes to a literature that has recently attempted to estimate NTM compliance costs through their ad valorem equivalents (AVEs) (Kee and Nicita, 2006; Kee, Nicita and Olarreaga, 2009; Dean et al., 2009; Rickard and Lei, 2011; Nimenya, Ndimira and Frahan, 2012; Cadot and Gourdon, 2015, 2016; Grübler, Ghodsi and Stehrer, 2016). These attempts have encountered a number of difficulties, some relating to data and some to estimation. As for data, until recently there was no comprehensive cross-country NTM database, so researchers had to rely on World Trade Organization (WTO) notifications, 'special trade concerns', and other partial databases. This problem has been largely overcome thanks to a large-scale effort by multilateral institutions, in particular the United Nations Conference on Trade and Development (UNCTAD) and the World Bank, as well as regional ones, in particular Economic Research Institute for ASEAN and East Asia (ERIA). There is now a consistent database, collected according to similar protocols across countries, available for 85 countries.

[1] *The New York Times*, Editorial, 22 June 2017.

[2] Presidential Executive Order on Reducing n and Controlling Regulatory Costs (30 January 2017), Section 2 (a). See https://www.whitehouse.gov/the-press-office/2017/01/30/presidential-executive-order-reducing-regulation-and-controlling

[3] Exec. Order No. 13771, 82 Fed. Reg. 9339 (July 30, 2017)

The database relies on the UNCTAD Multi-Agency Support Team (MAST) classification of NTMs, which also has been used for WTO notifications since 2012. This is the database we use here.

As for estimation, the early literature exploited variation in dollar trade values to infer the AVE of NTMs, using estimates of the price elasticity of import demand at the product level from the World Bank (Kee, Nicita and Olarreaga, 2006). However, when the price elasticity of import demand is unity, trade values do not vary with compliance costs; thus, it is mathematically impossible to retrieve AVEs from variations in trade values. Recent papers (Bratt, 2014; Kee and Nicita, 2016; Grübler, Ghodsi and Stehrer, 2016) have thus turned to a different approach identifying AVEs from variation in trade volumes rather than values but using the same conversion formula. However, as we will argue below, this leads to wrong identification if, by AVE, one means the tariff equivalent of compliance costs. We propose here a different approach relying on trade unit value, which makes it possible to disentangle compliance-cost effects from demand-enhancing effects stemming from the correction of market failures.

Another problem is that the traditional approach relies on the estimation of import functions or bilateral trade flows at the product level on cross-sections of countries. This approach can only yield average effects across countries, not individual country effects. Papers like Kee, Nicita and Olarreaga (2009) offer a smart way out of this problem by interacting NTM variables with country variables such as gross domestic product (GDP) per capita or endowments, making it possible to simulate country-specific AVEs on the basis of country characteristics. However, these are simulated values, not truly country-specific estimates. We propose an alternative approach that relies on the estimation of bilateral trade flows on two-way panels (product × importer × exporter) at the Harmonized System (HS) chapter-level (HS2) with importer, exporter, and product-fixed effects and interaction terms between NTM variables and importer dummies. Thus, instead of interacting NTM variables with a single, continuous country-characteristic variable (say, GDP per capita), we interact them with a full vector of importer dummies. This allows us to get truly country-specific effects.

Our basic explanatory variable is the number of NTMs of the same type imposed by an importing country on a product. The reason for using the count of NTMs is that anecdotal evidence suggests that it is their cumulative burden that most concerns the private sector. For instance, Cass Sunstein, Administrator of the United States Office for Information and Regulatory Affairs from 2009 to 2012, noted that:

> [a] special problem, and one that makes the project of simplification all the more imperative, is that agencies currently impose high cumulative burdens on the private sector. Requirements may be sensible taken individually, but taken as a whole, they might be redundant, inconsistent, overlapping, and immensely frustrating, even crazy-making (to use the technical term). In fact, the problem of cumulative burdens may have been the most common complaint that I heard during my time in government. (Sunstein, 2013: 588)

One drawback of our approach based on trade unit values is that unit values are undefined for zero trade flows. Thus, we identify AVEs only at the intensive margin, on existing (non-zero) trade flows. There is unfortunately no fix for this problem. Moreover, our approach yields average effects across products within each chapter, not individual product effects. Thus, compared to Kee, Nicita and Olarreaga (2009), there is a trade-off: Whereas they obtain product-specific but not country-specific estimates, we obtain country-specific but not product-specific estimates. Which one is the most appropriate ultimately depends on the user's needs.

We find that, in Association of Southeast Asian Nations *(*ASEAN) countries, the compliance costs associated with sanitary and phytosanitary (SPS) measures on agri-food products range, on average, between 3.7 percent of their cost, insurance and freight (CIF) import price (the Philippines) and 16.6 percent (Viet Nam). Cambodia, the Lao People's Democratic Republic, and Myanmar (the CLM countries) tend to have high estimated compliance costs, which stand in contrast to the limited capabilities of their SPS infrastructures. Amongst the larger ASEAN economies, for which data are probably most reliable, we find fairly high compliance costs for animal products (primarily meat), in particular in Thailand (21.2 percent) and Indonesia (16.1 percent). We also find high compliance costs for fats and oils in Viet Nam (38.8 percent). For food, beverages and tobacco, the highest compliance costs are found in Singapore (11.3 percent), in line with what can be expected in a high-income country.

Our estimates of the compliance costs associated with technical barriers to trade (TBT) measures imposed by ASEAN countries on manufactured products range from an average of 2.8 percent (Cambodia) to 5.7 percent (Indonesia). We find fairly high compliance costs in the textile sector in Singapore (9.9 percent) and Malaysia (9.4 percent). Besides the CLM countries, we also find relatively high compliance costs in the automobile sector in Viet Nam (12.9 percent) and in Thailand (8.7 percent). By and large, although these estimates should be interpreted cautiously, it is fair to say that, as in Ing et al. (2016), we do not find patterns very suggestive of strong lobbying interference.

The rest of this paper is organised as follows. Section 2 explains conceptual issues in the measurement and interpretation of NTM AVEs in the presence of market failures. Section 3 discusses data and data sources. Section 4 explains econometric estimation issues and our proposed approach for the country-specific AVE of NTMs. Section 5 presents the estimation findings for the 10 ASEAN Member States. Section 6 concludes.

2. Interpreting NTM AVEs

As discussed in the introduction, if one leaves aside political-economy issues, technical measures (SPS and TBT) are, in many cases, primarily domestic instruments aimed at correcting market failures, although they affect trade incidentally when they are applied to tradable goods. To lay down the issues in a simple framework, in this section we cast the problem of how a benevolent government should set the level of stringency of an NTM as an optimal-standard problem in the presence of market failures.

Let a representative consumer i in the domestic economy maximise a quasi-linear utility function of two goods [4], an imported good x of quality q, and a composite z of other goods:

$$U^i(z_i, q, x^i) = z_i + u(qx^i) \tag{4.1}$$

where $u' > 0$ and $u'' > 0$. The composite good is taken as the numéraire and accordingly has a unit price. The world price of good x, p^*, is constant (consumer i's country of residence is small). Its domestic price is $p = p^*(1 + a)$ where a is the ad-valorem equivalent of the NTM imposed by the government. There is only one variety of good *x* available on the market, and it is characterised by a level of quality q. Assume that it is a credence good, i.e. one for which consumers cannot observe quality at the time of purchase. Consumer i thus maximises her utility only by choice of the quantity consumed x^i and not by choice of quality. For brevity, we do not model the supply side (including quality choice by foreign producers) and simply note that there is no mechanism to ensure that the market delivers the optimal level of quality. The only instrument at the government's disposal is a standard s with $a = a(s), a' > 0$, where a higher value of s means a stricter standard.

Consider first a case where the standard affects good x's price while failing to affect its quality, say because it is not properly designed. At the consumer's optimum, $u'(x^i) = p^*[1 + a(s)]$ and

$$\frac{dx^i}{ds} = \frac{p^* a'(s)}{u''(x^i)} < 0. \tag{4.2}$$

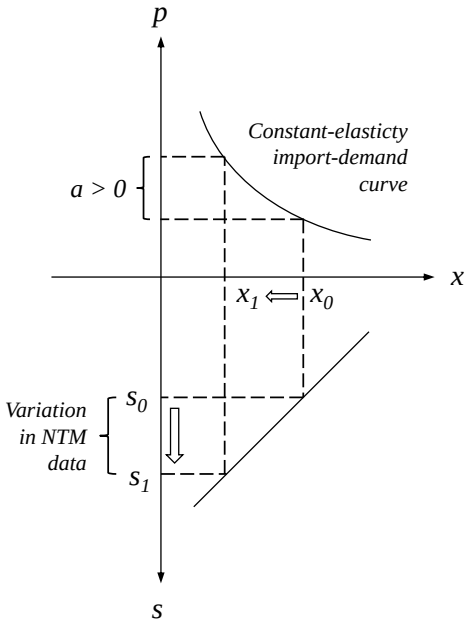
Let $v^i = v(p, y^i)$ be consumer i's indirect utility function given an income y^i. A benevolent government maximising a Rawlsian welfare function solves $\max_s \sum_{i=1}^N v^i$. By the envelope theorem,

$$\sum_i \frac{\partial v^i}{\partial s} = -Np^* a' < 0 \tag{4.3}$$

[4] With a quasi-linear utility function, the marginal utility of income is constant at 1, simplifying the optimal-standard problem.

implying a corner solution at $\boldsymbol{s = 0}$ (the standard is a a pure deadweight loss). This is the way trade economists typically look at NTMs and is illustrated in Figure 4.1. Suppose that there are two countries with the same preferences but different standard stringency levels. Starting from the bottom axis (pointing South), the downward shift from $\boldsymbol{s_0}$ to $\boldsymbol{s_1}$ is the variation in standard stringency between the two. The induced leftward shift in $\boldsymbol{x}$, from $\boldsymbol{x_0}$ to $\boldsymbol{x_1}$, on the horizontal axis pointing East, is given by the trade data. Combining the two with the elasticity of import demand in the figure's upper quadrant gives the standard's AVE (on the vertical axis pointing North).

Figure 4.1: AVE Determination in the Absence of Market Failure



NTM = non-tariff measure.
Source: Authors.

Consider now a richer case where the standard raises the quality of good $\boldsymbol{x}$: $q = q(s), q' > 0$. Now the standard enters directly the utility function:

$$U^i\left(z^i, s, x^i\right) = z^i + u\left[q(s)x^i\right]. \tag{4.4}$$

At consumer i 's optimum, $q(s)u'\left(x^i\right) = p^*[1 + a(s)]$, so

$$\frac{dx^i}{ds} = \frac{p^*a'(s) - q'(s)u'\left(x^i\right)}{qu''(x^i)} \tag{4.5}$$

which can be positive if the marginal effect of the standard on quality q' i sufficiently strong. Applying again the envelope theorem, at the optimum standard s^*, the government's first-order condition is

$$\sum_i \frac{\partial v^i}{\partial s} = N x^i \left[q'(s) u'\left(x^i\right) - p^* a'(s) \right] = 0. \tag{4.6}$$

Comparing equation (4.6) with (4.5), it is clear that, at the optimum standard, $dx^i/ds\big|_{s=s^*} = 0$. Moreover, small deviations from this indicate whether the applied standard is higher or lower than the optimum:

$$\frac{dx^i}{ds} > 0 \implies p^* a'(s) < q'(s) u'\left(x^i\right) \implies \frac{\partial v^i}{\partial s} > 0 \implies s < s^*. \tag{4.7}$$

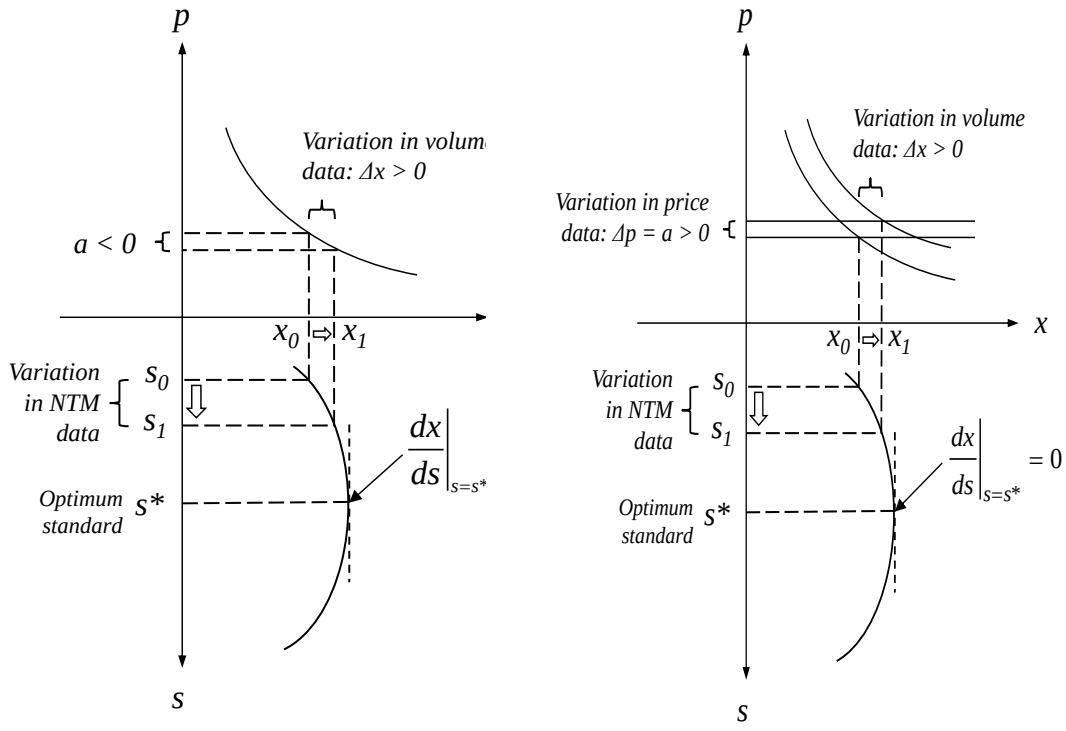
Thus, in this setting a stricter standard can encourage consumption (and thus imports) of good x, in spite of a positive AVE; and if it does so, by equation (4.7) we know that it is not strict enough. This case is illustrated in Panel (a) of Figure 4.2, which also shows the problem that this situation raises in interpreting standard econometric results. Suppose that we compare again two situations, one with a lenient standard s_0 and one with a slightly stricter standard s_1, shown again along the lower axis pointing South. Now, instead of a monotone relationship between standard stringency and imports x, equations (4.5) and (4.6) imply a non-monotone relationship with a stationary point at s^* (where the curve is vertical in the figure) at which x does not react to s. As both s_0 and s_1 are lower than s^*, x rises with s, as shown on the horizontal axis. This yields a negative AVE shown on the vertical axis pointing North.

Yet, the reality is not that the AVE is negative: It is that a positive AVE is more than offset by the benefits that the standard confers in overcoming a market failure. The problem with Panel (a) of Figure 4.2 (and with the estimation of AVEs from variation in trade volumes, using the elasticity of import demand to retrieve the AVE) is that it assumes an unchanged demand. But the formulation in equation (4.4), in which utility directly depends on s, is inconsistent with the assumption of an unchanged demand.

Panel (b) of Figure 4.2 shows how the problem can be fixed. Instead of relying on the variation in trade volumes, the estimation of AVEs should rely on the variation in prices, which, under the small-country assumption (i.e. with a flat foreign supply curve, as shown in the figure), correctly gives the AVE even when the demand curve is shifting. Variation in volumes can then be used, separately, to assess whether or not the stricter standard (s_1) is closer to the optimum than the more lenient one (s_0). If the AVE is positive and the variation in volumes is also positive, as illustrated in Figure 4.2, a tightening of the standard from s_0 to s_1 brings it closer to the optimum. If the AVE is positive and the variation in volumes is negative (not illustrated), a tightening of the standard brings it away from the optimum.

Figure 4.2: Negative Measured AVE in the Presence of Asymmetric Information

(a) Demand curve assumed constant (b) Demand curve not assumed constant



NTM = non-tariff measure.
Source: Authors.

Finally, consider a case where the utility of individual i depends not only on the quantity and quality of good x, but also on the quantity consumed by other consumers $j \neq i$ through a negative externality. Now

$$U^i\left(z^i, s, x^i, x^{-i}\right) = z^i + u\left[x^i q(s); x^{-i}\right] \tag{4.8}$$

Where $x^{-i} = \sum_{j\neq 1} x^j$, $u_1 = \partial u^i / \partial\left(x^i q\right) > 0$, and $u_2 = \partial u^i / \partial x^{-i} < 0$. Without an adequate policy instrument, consumers do not internalise the externality their consumption exerts on others and (4.5) still applies. By contrast, the government takes it into account and sets

$$\sum_i \left\{\frac{\partial v^i}{\partial s} + \sum_{j\neq 1} \frac{\partial v^i}{\partial x^j}\frac{dx^j}{ds}\right\} = \sum_i \left\{x^i\left[q'(s)u_1\left(x^i\right) - pa'(s)\right] + u_2 \sum_{j\neq 1}\frac{dx^j}{ds}\right\} = 0 \tag{4.9}$$

At the optimum standard s^*, $dx^j/ds = 0\ \forall\ j$, so the term in u_2 vanishes and equation (4.9) boils down to equation (4.6) with u' replaced by u_1. Thus, the optimal level of the standard does not change in the presence of the externality because, at the optimum, it does not affect consumer behaviour (its AVE just offsets its marginal benefit), which implies that it cannot 'correct' excessive consumption. The only change between the cases with and without externality is that deviations from the optimum standard are costlier in the presence of the

externality (a standard that is too lenient has now two distinct negative effects on welfare: the old asymmetric information problem is not corrected, and, in addition, there is too much consumption of good x).

In such a situation, the appropriate policy response is to add a second instrument (say, a Pigovian tax) to deal specifically with the externality, in addition to the standard, which deals with the asymmetric information problem. This case helps explain why, in the data, some products are affected by several NTMs at the same time. Multiple NTMs may reflect bureaucratic proliferation and redundancy, as discussed in the introduction, but it is important to keep in mind that when there are several market failures, several instruments are called for.

The simple analytics presented in this section suggest a number of observations. First, AVEs should be estimated only from variation in price data – that is, empirically, from variation in trade unit values. This will yield valid estimates of AVEs under two key assumptions: (i) the importer country is small (i.e. the foreign supply curve is infinitely elastic), and (ii) NTM compliance costs are borne by the producer and passed through in the form of a proportional increase in the export price, which is a plausible assumption for technical measures (TBT and SPS) and for anti-dumping measures subject to price undertakings, but not for quantitative restrictions or other measures affecting only the domestic retail price.

Second, estimation of the elasticity of trade volumes to changes in the stringency of NTMs does not yield information on AVEs, but it yields information on whether standard-type ('technical') measures are more or less stringent than the optimum in the presence of market failures. If trade volumes are increasing in measure stringency, measures are looser than the optimum; if they are decreasing, measures are stricter than the optimum.

In this paper, we define the AVE of NTMs as the tariff equivalent of their compliance costs, and we estimate them using price data, leaving the exploration of variations in trade volumes for future research.

3. Data

We use three primary sources of data. Our NTM data come from two sources. For ASEAN countries, it is the ASEAN–ERIA–UNCTAD 2015 Database on Non-tariff Measures (http://asean.i-tip.org). For other countries, the NTM data are from the UNCTAD NTM database, available on the World Bank's World Integrated Trade Solution (WITS) portal. Both databases are fully consistent and the data collection for ASEAN countries was coordinated by ERIA and UNCTAD. For trade unit values, we use the CEPII's Trade Unit Values (TUV) database (see Berthou and Emlinger, 2011). To clean out outliers in terms of unit values, we run an auxiliary ordinary least squares regression of unit values on product dummies at the HS 6–digit level (5,000 dummies), retrieve the residuals, rank them by centile, and drop observations falling in the top and bottom centile of the distribution of residuals.

A widely discussed issue in gravity estimation is how to handle zero trade flows. This is typically done by using estimators, which can handle zero flows, such as zero-inflated Poisson or negative binomial estimators. In the case of unit values, 'zero flows' are not observations where the dependent variable is zero, but where it is undefined. This means that information from dyad-product combinations where no trade takes place cannot be used to retrieve NTM compliance costs and has to be discarded. Thus, our compliance-cost estimates use only information retrieved from the 'intensive margin' of trade, that is, from variation in the terms of transactions actually taking place.

4. Estimation

Let i and j designate respectively the origin and destination countries of a trade flow, and k a product (at the HS 6–digit level in the data). Our basic unit of observation is an (i, j, k) triplet. Let m index NTM types defined according to the MAST classification (at the two- or one-digit level, depending on the case). Time is not indexed as there is only a single year of data. Let p_{ijk} be the CIF unit value of product k exported from i to j. Let $\mathbf{G}_{ij}$ be a vector of gravity-like determinants of trade unit values including the log of distance and other determinants of trade costs between i and j excluding tariffs and NTMs (entered separately) as well as i's and j's log-GDP per capita, which are absorbed by exporter and importer fixed effects respectively. Let τ_{ijk} be the bilateral tariff applied by j on product k imported from i (MFN or preferential, depending on the case). Let x_{jkm} be an integer variable recording the number of NTMs of type m imposed by country j on product k. Finally, let δ_i, δ_j and δ_k be exporter, importer and product fixed effects, respectively. To avoid cluttering the notation, let us omit chapter indices, keeping in mind that estimation is performed at the chapter level, so everything in equations (4.10) to (4.14) is chapter-specific. Our baseline equation, for a given chapter, is

$$\ln p_{ijk} = \mathbf{G}_{ij} \,.\, \boldsymbol{\beta}_1 + \beta_2 \ln(1+\tau_{ijk}) + \sum_m \beta_{3m} x_{jkm} + \sum_j \sum_m \beta_{4jm}(x_{jkm}\delta_j) + \sum_i \delta_i + \sum_i \delta_j + \sum_k \delta_k + u_{ijk}. \quad (4.10)$$

To derive the proportional effect of an additional NTM of type m on the price of good k, let

$$z_{ijk} = \mathbf{G}_{ij} \,.\, \boldsymbol{\beta}_1 + \beta_2 \ln(1+\tau_{ijk}) + \sum_i \delta_i + \sum_j \delta_j + \sum_k \delta_k + u_{ijk} \quad (4.11)$$

and note that

$$\ln p_{ijk}(x_{jkm}) = z_{ijk} + \sum\nolimits_m \beta_{3m} x_{jkm} \sum\nolimits_j \sum\nolimits_m \beta_{4jm}(x_{jkm}\delta_j) \quad (4.12)$$

$$\ln p_{ijk}(x_{jkm}-1) = z_{ijk} + \sum_{m'\neq m} \beta_{3m'} x_{jkm'} + \beta_{3m}(x_{jkm}-1) + \sum_j \sum_{m'\neq m} \beta_{4jm'}(x_{jkm'}\delta_j) + \beta_{4jm}[(x_{jkm}-1)\delta_j]$$

so

$$\Delta \ln(p_{ijk}) = \ln\left[\frac{p_{ijk}(x_{jkm})}{p_{ijk}(x_{jkm}-1)}\right] = \beta_{3m} + \beta_{4jm}\delta_j \tag{4.13}$$

which implies that

$$AVE_{jm} = \frac{\Delta p_{ijk}(x_{jkm})}{p_{ijk}(x_{jkm}-1)} = \frac{p_{ijk}(x_{jkm})}{p_{ijk}(x_{jkm}-1)} - 1 = \exp(\beta_{3m} + \beta_{4jm}\delta_j) - 1. \tag{4.14}$$

We estimate equation (4.10) on exporter–importer–product panels, using fixed effects by exporter, importer, and product, chapter by chapter, to limit the size of the database. As the 'within' transformation raises complex issues in two-way panels (Baltagi, 2005: 160), estimation by chapter reduces the data's dimensionality by limiting the number of product fixed effects. It also allows us to disaggregate to the two-digit level only the most relevant NTMs for the chapters under estimation (for instance, SPS for food products) while keeping other NTMs at the one-digit level.

In what follows, we will report as importer-specific AVEs the sum of the direct and interacted terms in (4.10). That is, let s be a section and c a chapter, let $s(c)$ be the section to which chapter c belongs, and w_{cs} be the share of chapter c in section s, using world trade flows. Let also $\hat{\beta}_{3cm}$ be the direct effect of NTM m on unit values estimated on chapter c and $\hat{\beta}_{4jcm}$ the interacted effect of NTM m imposed by importing country j, also estimated on chapter c. Re-introducing chapter indices, the AVEs reported at the chapter level (i.e. the raw estimates from chapter panels) are

$$AVE_{jcm} = 100 \times \exp\left[\left(\hat{\beta}_{3m} + \hat{\beta}_{4jm}\right) - 1\right] \tag{4.15}$$

For readability, we will mostly report section averages in which chapter AVEs are aggregated into section averages using world trade weights:

$$AVE_{jsm} = 100 \times \exp\left\{\left[\sum\nolimits_{c \in s} w_{cs}\left(\hat{\beta}_{3cm} + \hat{\beta}_{4jcm}\right)\right] - 1\right\}. \tag{4.16}$$

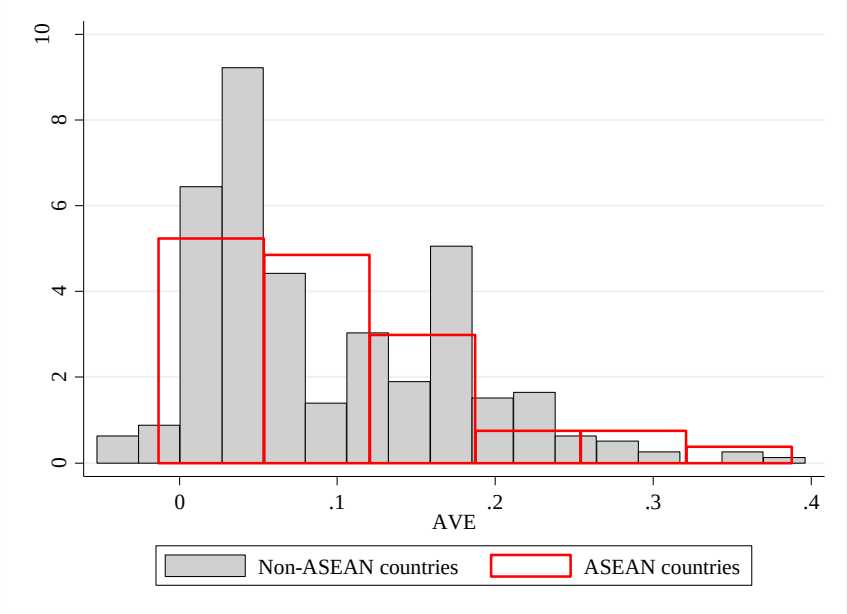
Note that, as AVEs are estimated here directly from variation in unit values, the price elasticity of import demand does not enter the formula (unlike in the case of estimation from dollar trade values or volumes).

5. Results

5.1. Food and Agricultural Products

We start with an analysis of food and agricultural products, for which we focus on SPS measures (type A in the MAST classification), after which we will turn to manufactured products, for which we will focus on TBT measures (type B).

Figure 4.3: Distribution of Average AVEs, SPS Measures on HS Sections 1–4



ASEAN = Association of Southeast Asian Nations, AVE = ad valorem equivalent, HS = Harmonized System, SPS = sanitary and phytosanitary.
Notes: Estimation carried out on exporter–importer–product panels at the HS 6 level, by chapter, for Chapters 1–24 (Sections 1–4), using robust standard errors. Chapter estimates aggregated to sections by averaging. Estimation includes fixed effects by importer, exporter, and HS 6 product. Estimates with p-values over 0.1 are set to zero. AVEs in algebraic form, so .2 = 20 percent. Density in percent on the vertical axis.
Sources: Authors' calculations using ASEAN–ERIA–UNCTAD 2015 Database on Non-tariff Measures, UNCTAD NTM database, and the CEPII's TUV and BACI databases.

Figure 4.3 shows the overall distribution of AVEs for SPS measures, by importing country and by HS section, for Sections 1–4 only, for ASEAN Member States (in empty red bars) and other countries (in grey bars).[5] It can be seen that the two distributions are quite similar (the one for ASEAN countries is coarser because there are fewer countries in that category), implying that SPS measures do not seem to have very different compliance costs in ASEAN countries compared to elsewhere. At the importer-section level, 99.1 percent of the AVEs are non-negative, as predicted by intuition and the model of Section 2. The median AVE at the country-section level is 6.24 percent and the simple average (across all non-ASEAN importers and sections) is 6.58 percent. For ASEAN countries, the median and mean AVEs are respectively 6.51 percent and 6.69 percent.

[5] HS Sections 1–4 are respectively (i) animal products, (ii) vegetable products, (iii) fats & oils, and (iv) food, beverages & tobacco. They correspond to Chapters 1–24.

Table 4.1 shows a breakdown of average AVEs for SPS measures, by HS section and ASEAN importer, for agri-food products (Sections 1–4). Across all sections, the highest averages are observed for Viet Nam (16.6 percent), Myanmar (12.1 percent), the Lao PDR (11.9 percent), and Thailand (11.7 percent). The highest AVEs are observed for animal products (Section 1) and fats & oils (Section 3). For animal products, the highest AVE is observed in the Lao PDR (26.0 percent) and Cambodia (23.4 percent). Such high compliance costs are noteworthy in view of the limited technical capabilities of those countries' SPS enforcement and monitoring infrastructure, suggesting bureaucratic friction (especially in contrast with Singapore's 8 percent, given that Singaporean consumers are likely to be more safety- and quality-sensitive for meat and fish products). To some extent, the same remark applies to Indonesia (16.1 percent) and Viet Nam (17.2 percent). For fats & oils, Myanmar's 26.3 percent and Viet Nam's 38.8 percent suggest the same remark applies.

Table 4.1: Average AVEs, SPS Measures, by Section and Importer (%)

HS Section	BRN	IDN	KHM	LAO	MMR	MYS	PHL	SGP	THA	VNM
Animal products	12.4	16.1	23.4	26.0	8.9	6.2	9.2	8.0	21.23	17.2
Vegetable products	6.0	4.4	2.8	4.4	8.9	5.47	0.5	7.4	5.8	5.1
Fats & oils	14.0	6.0	0.1	18.5	26.3	18.4	0.0	16.1	11.5	38.87
Food, beverage & tobacco	3.1	3.8	4.0	-1.3	4.3	4.9	4.9	13.8	8.1	5.5
Simple average	*8.9*	*7.6*	*7.6*	*11.9*	*12.1*	*8.8*	*3.7*	*11.3*	*11.7*	*16.6*

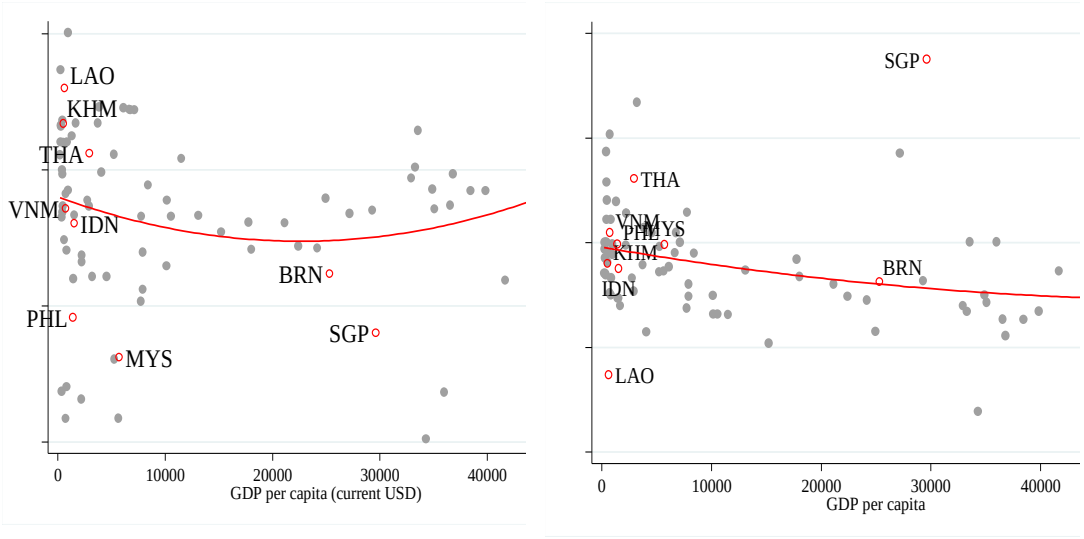
AVE = ad valorem equivalent, HS = Harmonized System, SPS = sanitary and phytosanitary.
Notes: AVEs are in percent. BRN: Brunei Darussalam; IDN: Indonesia; KHM: Cambodia; LAO: Lao PDR; MMR: Myanmar; MYS: Malaysia; PHL: the Philippines; SGP: Singapore; THA: Thailand; VNM: Viet Nam. Estimates that are exactly equal for two countries correspond to cases where the interaction terms are not significant, leaving only the direct term which is common to all countries. AVEs in algebraic form, so .2 = 20 percent.
Sources: Authors' calculations using ASEAN–ERIA–UNCTAD 2015 Database on Non-tariff Measures, UNCTAD NTM database, and the CEPII's TUV and BACI databases.

To get a feel for where ASEAN countries stand relative to the rest of the world in terms of compliance costs for SPS measures on agri-food products, Figure 4.1 shows estimated AVEs against GDP per capita for two important sections: animal products (Section 1, which includes meat and fish products), and food, beverages & tobacco (Section 4, which includes all manufactured food products). For animal products, whereas one would expect a rising curve reflecting a higher valuation of food safety by affluent consumers, the curve is U-shaped. This striking pattern suggests that there may be overkill in terms of SPS measures in poor countries. Note, however, that an AVE is the proportional rise in the price of a product due to the imposition of an NTM. If NTMs' compliance costs were the same irrespective of the product (the price of maintaining a strict cold chain is the same for cheap or for expensive seafood), AVEs would appear higher, in percentage terms, for low-unit value products. We know from Hallak and Schott (2011) that unit values rise with the importing country's GDP per capita. Thus, there is some logic in observing high AVEs for poor countries. However, this statistical

explanation is likely to be only part of the story, as anecdotal evidence on the ground does suggest bureaucratic redundancy and illogical enforcement in poor countries. Panel (a) in Figure 4.4 suggests that, within ASEAN, this applies to the Lao PDR and Cambodia. As for prepared foods, panel (b) suggests a negative relationship between SPS AVEs and GDP per capita, with Singapore a strong outlier. There is no obvious explanation for this finding, which deserves further scrutiny.

Figure 4.4: AVE of SPS Measures and GDP Per Capita, Sections 1 and 4

(a) Animal products (Section 1) **(b) Food, beverages & tobacco (Section 4)**



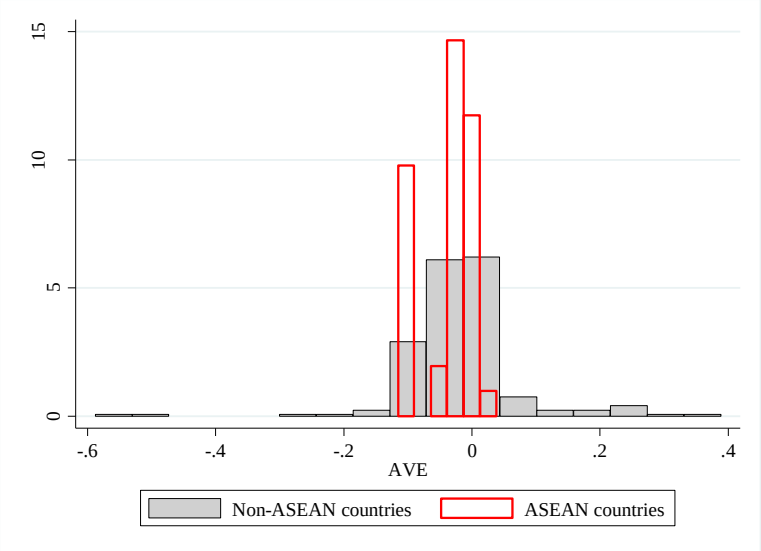
AVE = ad valorem equivalent, GDP = gross domestic product, SPS = sanitary and phytosanitary.
Notes: BRN: Brunei Darussalam; IDN: Indonesia; KHM: Cambodia; LAO: Lao PDR; MYS: Malaysia; PHL: the Philippines; SGP: Singapore; THA: Thailand; VNM: Viet Nam. AVEs on the vertical axis in algebraic form, so .2 = 20 percent.
Sources: Authors' calculations using ASEAN–ERIA–UNCTAD 2015 Database on Non-tariff Measures, UNCTAD NTM database, and the CEPII's TUV and BACI databases.

Turning to measures other than SPS, induced changes in trade unit values should not be interpreted as compliance costs, but rather as the reaction of foreign producers to measures imposed by the importing country, which depend on the type of measure and underlying market structure. We will henceforth ignore type-C measures (pre-shipment inspection), which typically affect broad swathes of products, rendering identification difficult and somewhat pointless.

Type-D measures (contingent protection, including anti-dumping, safeguard, and countervailing duties) have erratic effects. The same indeterminacy relating to the exact type of measures and the reaction of producers affected applies to type-E measures (quantitative restrictions, henceforth QRs). If QRs are administered via non-automatic import licenses granted to domestic importers, domestic prices rise, but there is no reason to expect CIF unit values to rise as well. If, by contrast, measures take the form of voluntary export restraints

(VERs), one may reasonably expect producers to raise their prices, as Japanese automakers did in the face of United States VERs in the 1980s. Figure 4.5 shows that in the case of ASEAN importers, there are practically no cases of price rises, suggesting that quantitative restrictions take the former form (import licenses granted to domestic importers).

Figure 4.5: Distribution of Average AVEs, Quantitative Restrictions on Agri-food Products



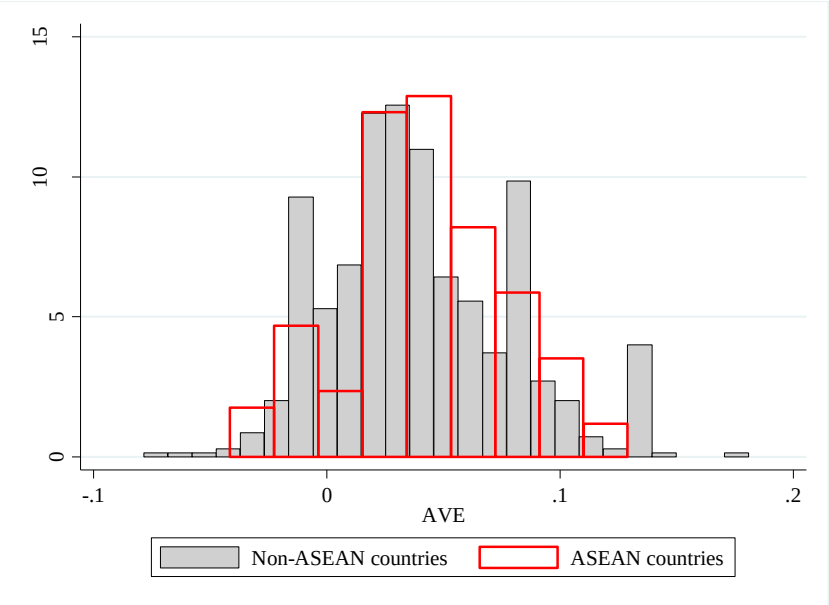
ASEAN = Association of Southeast Asian Nations, AVE = ad valorem equivalent.
Note: Estimation method is the same as for Figure 4.3. AVEs in algebraic form, so .2 = 20 percent.
Sources: Authors' calculations using ASEAN–ERIA–UNCTAD 2015 Database on Non-tariff Measures, UNCTAD NTM database, and the CEPII's TUV and BACI databases.

All in all, results for food and agricultural products are in line with intuition. SPS measures impose non-trivial compliance costs, although these are below 10 percent for the big three: Indonesia, Malaysia, and Singapore. Amongst large ASEAN economies, they are over 10 percent only for Viet Nam and Thailand. Other measures seem to lead, on average, to reduced trade unit values. Thus, although consumers face higher domestic prices, it seems that those measures do not have negative effects on national welfare, although this conclusion must, of course, be drawn very cautiously because of the numerous measurement issues and confounding influences faced by the estimation.

5.2. Manufactured Products

In the case of manufactured products, NTMs of interest are essentially type-B (TBT). Estimation proved trickier than in the case of food products, possibly because of mix-ups between TBT and SPS measures in the data collection and classification. At the importer-section level, 81.2 percent of the AVEs of TBT measures are non-negative, which is substantially less than in the case of SPS measure on agri–food products. The full distribution is shown in Figure 4.6. The median AVE at the country-section level is 4.09 percent and the simple average (across all non-ASEAN importers and sections) is 4.51 percent. For ASEAN countries, the median and mean AVEs are respectively 5.06 percent and 5.00 percent.

Figure 4.6: Distribution of Average AVEs, TBT Measures on Manufactured Products



ASEAN = Association of Southeast Asian Nations, AVE = ad valorem equivalent, TBT = technical barriers to trade.
Notes: Estimation carried out on exporter–importer–product panels at the HS 6 level, by chapter, for Chapters 28–43, 50–89, and 93 (Sections 6–8, 11–17, and 19), using robust standard errors. Chapter estimates aggregated to sections by averaging. Estimation includes fixed effects by importer, exporter, and HS 6 product. Estimates with p-values over 0.1 are set to zero. AVEs in algebraic form, so .2 = 20 percent. Density in percent.
Sources: Authors' calculations using ASEAN–ERIA–UNCTAD 2015 Database on Non-tariff Measures, UNCTAD NTM database, and the CEPII's TUV and BACI databases.

Table 4.2 shows a breakdown of average AVEs for TBT measures, by HS section and ASEAN importer, for manufactured products (Sections 6–16, 18, and 20). In the chemicals sector, the highest average AVE is observed in Indonesia (7.3 percent). In the textile sector, the highest are in Singapore (9.9 percent) and Malaysia (9.4 percent). In the steel sector (metal products), the highest are in Indonesia (10.3 percent) and the Philippines (9.3 percent). In the transport equipment sector, which includes automobiles, excluding Myanmar (probably a statistical aberration), the highest average AVE is in Viet Nam (12.9 percent). Across all sections, the highest average AVEs are observed in Indonesia (5.7 percent), Viet Nam (5.4 percent), Malaysia (5.2 percent), and Singapore (5.0 percent).

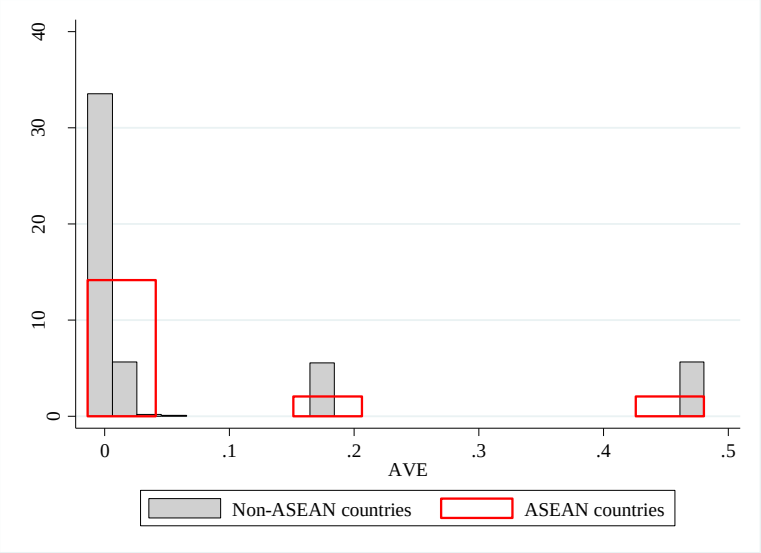
Table 4.2: Average AVEs, TBT Measures, by Section and Importer (%)

HS Section	BRN	IDN	KHM	LAO	MMR	MYS	PHL	SGP	THA	VNM
Chemicals	3.3	7.3	0.8	4.4	-0.9	5.6	-0.4	0.6	0.3	0.7
Plastics & rubber	3.1	5.1	3.1	-2.5	-4.2	3.1	2.4	3.1	7.7	10.5
Leather	4.9	5.7	-1.4	-1.4	-1.4	4.8	-1.9	4.9	-1.4	-1.4
Textile & apparel	4.8	6.9	7.2	7.8	7.8	9.4	6.9	9.9	7.1	7.8
Footwear	2.5	5.1	2.1	2.1	2.1	2.1	1.8	2.5	2.1	2.0
Cement etc.	7.1	5.0	3.9	3.9	3.9	3.9	4.3	9.4	7.8	6.0
Metals & metal product	3.6	10.3	4.7	6.6	4.1	5.1	9.3	5.2	4.7	8.6
Machinery	8.1	4.1	-2.8	4.5	3.3	7.0	2.7	3.3	3.3	1.8
Transport equipment	4.8	1.5	7.5	6.9	12.9	6.1	5.5	6.3	8.7	12.9
Simple average	*4.7*	*5.7*	*2.8*	*3.6*	*3.1*	*5.2*	*3.4*	*5.0*	*4.5*	*5.4*

ASEAN = Association of Southeast Asian Nations, AVE = ad valorem equivalent, HS = Harmonized System, TBT = technical barriers to trade.
Notes: AVEs are in percent. BRN: Brunei Darussalam; IDN: Indonesia; KHM: Cambodia; LAO: Lao PDR; MMR: Myanmar; MYS: Malaysia; PHL: the Philippines; SGP: Singapore; THA: Thailand; VNM: Viet Nam. Estimates that are exactly equal for two countries correspond to cases where the interaction terms are not significant, leaving only the direct term which is common to all countries.
Sources: Authors' calculations using ASEAN–ERIA–UNCTAD 2015 Database on Non-tariff Measures, UNCTAD NTM database, and the CEPII's TUV and BACI databases.

As for other measures than TBT, Figure 4.7 shows that, upon the imposition of contingent-protection measures, trade unit values tend to rise for ASEAN countries like for others. This may reflect the use of price undertakings, although more research is needed on this issue.[6]

Figure 4.7: Distribution of Average AVEs, Contingent-protection Measures on Manufactured Products



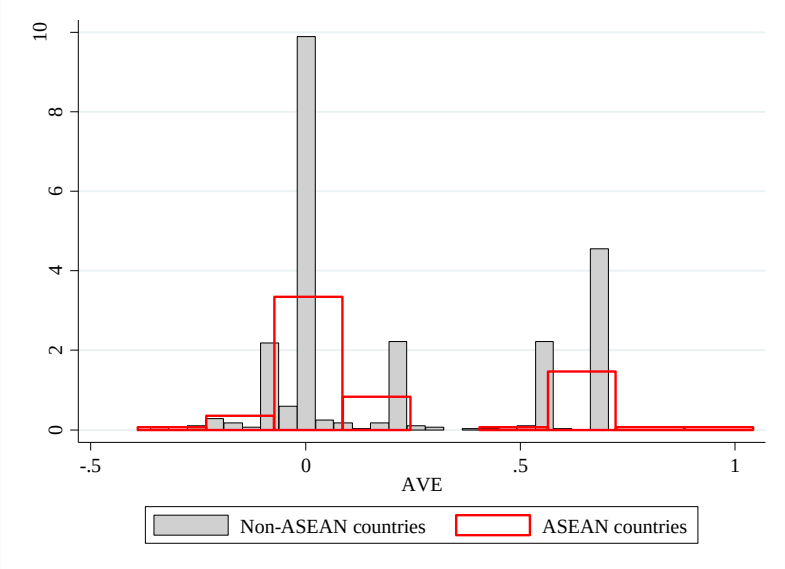
ASEAN = Association of Southeast Asian Nations, AVE = ad valorem equivalent.
Notes: Estimation method is the same as for Figure 4.3. AVEs in algebraic form. Density in percent.
Sources: Authors' calculations using ASEAN–ERIA–UNCTAD 2015 Database on Non-tariff Measures, UNCTAD NTM database, and the CEPII's TUV and BACI databases.

[6] The ASEAN Trade Repository contains no information on price undertakings imposed by ASEAN members.

As for QRs, effects are widely spread out, although the majority are positive, suggesting that some market power is conferred to foreign producers (Figure 4.8).

Given that contingent protection measures and quantitative restrictions both appear to raise the price charged by foreign producers to ASEAN importers, they are likely to be welfare reducing, in addition to their domestic redistributive effects (from consumers to domestic producers) in the case of contingent protection and to license holders in the case of QRs.

Figure 4.8: Distribution of average AVEs, quantitative restrictions on manufactured products



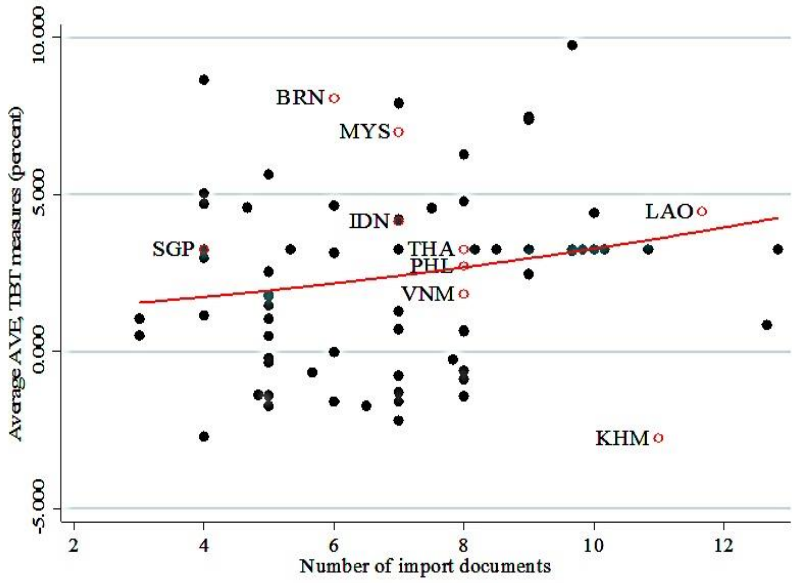
ASEAN = Association of Southeast Asian Nations, AVE = ad valorem equivalent.

Notes: Estimation method the same as for Figure 4.3. AVEs in algebraic form. Density in percent.

Sources: Authors' calculations using ASEAN–ERIA–UNCTAD 2015 Database on Non-tariff Measures, UNCTAD NTM database, the CEPII's TUV and BACI databases, and the World Bank's World Development Indicators.

How do estimated AVEs relate to trade facilitation? Figure 4.9 shows the correlation between the number of documents needed to import a product, on average, as reported in the World Bank's Doing Business indicator, and the average AVE of TBT measures, in the all-important machinery sector, which includes not just industrial machinery, but a host of household equipment products. The positive correlation suggests that there is a link between the documentary burden imposed on producers/traders and the price they charge to their clients. However, this linkage is weak. For instance, in the Lao PDR, the ASEAN Member State with the largest number of import documents, the average AVE in the manufacturing sector is below 5 percent and barely higher than that of Singapore, a best-practice country. This, incidentally, suggests an important point to keep in mind in the interpretation of AVEs, in line with the discussion in the introduction. The major differentiating factor between the two cases (Lao PDR and Singapore) is apparently not the level of the AVE, but what consumers pay for. Singapore has a competent technocracy capable of enforcing technical regulations, so the AVE can be taken as the price to pay for addressing market failures, in accordance with equation (4.6). Lao PDR, by contrast, is not yet at the level of Singapore's capabilities, at least in 2017 when this paper is being written. Thus, the situation is more likely to correspond to equation (4.3), a case where the technical regulation serves no purpose.

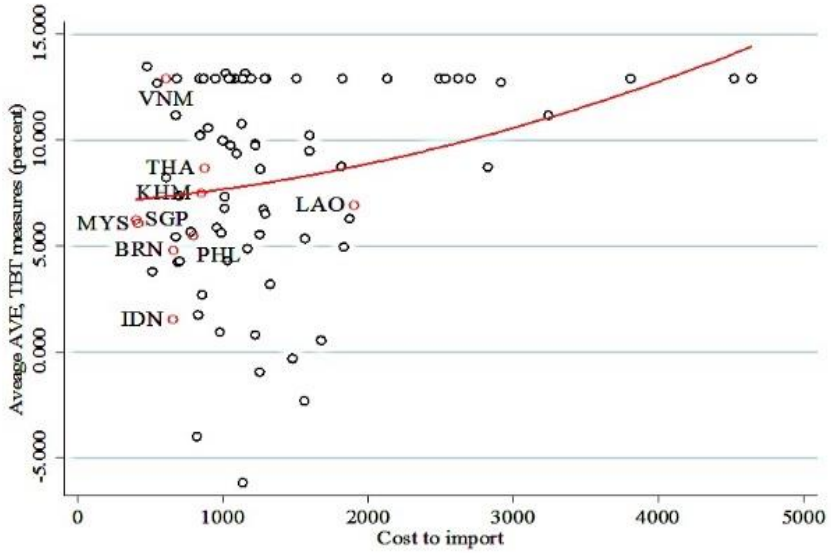
Figure 4.9: AVEs of TBT Measures and Documentation Burden across Countries, Machinery Sector



AVE = ad valorem equivalent, TBT = technical barriers to trade.
Notes: AVEs on vertical axis in percent; 5.000 = 5 percent. BRN: Brunei Darussalam; IDN: Indonesia; KHM: Cambodia; LAO: Lao PDR; MYS: Malaysia; PHL: the Philippines; SGP: Singapore; THA: Thailand; VNM: Viet Nam.
Sources: Authors' calculations using ASEAN–ERIA–UNCTAD 2015 Database on Non-tariff Measures, UNCTAD NTM database, the CEPII's TUV and BACI databases, and the World Bank's World Development Indicators.

Figure 4.10 shows the correlation between the average cost to import a product in the transportation equipment sector (largely dominated by the automobile sector), as reported in the The World Bank's Doing Business indicator, and the average AVE of TBT measures. Again, the positive correlation suggests that exporters tend, on average, to pass through the cost of bringing products in a market onto the price charged to buyers in that market. Interestingly, most ASEAN countries are low-cost importers, and most of them (with the notable exceptions of Viet Nam and Thailand) have lower TBT AVEs than predicted by the fitted curve.

Figure 4.10: AVEs of TBT Measures and Cost to Import Across Countries, Automobile Sector



AVE = ad valorem equivalent, TBT = technical barriers to trade.
Notes: AVEs on vertical axis in percent. BRN: Brunei Darussalam; IDN: Indonesia; KHM: Cambodia; LAO: Lao PDR; MYS: Malaysia; PHL: the Philippines; SGP: Singapore; THA: Thailand; VNM: Viet Nam. Cost to import in US dollars per container. Points stacked horizontally correspond to country/sections for which the interaction term was not significant at 10 percent, leaving only the direct term common to all.
Sources: Authors' calculations using ASEAN–ERIA–UNCTAD 2015 Database on Non-tariff Measures, UNCTAD NTM database, the CEPII's TUV and BACI databases, and the World Bank's World Development Indicators.

All in all, while noisier than those for SPS measures on agri-food products, AVE estimates for TBT measures on manufactured products also accord broadly with intuition, except for the 18.8 percent of negative ones, which likely reflect measurement problems. By and large, the cost of complying with TBT measures seems limited and, in many cases, well below 10 percent.

6. Concluding Remarks

Our findings suggest relatively low AVEs for TBT measures on manufactured products, both for ASEAN countries and for the sample as a whole at 4.5 percent and 5 percent, respectively. This is true even in sensitive sectors such as chemicals, machinery, or transport equipment. In all ASEAN countries, estimated AVEs for TBT measures are well below 10 percent. We find slightly higher AVEs for SPS measures on agricultural and food products, both for ASEAN countries and for the sample as a whole at 6.5 percent and 6.7 percent, respectively, with more dispersion within ASEAN, where countries like the Lao PDR, Myanmar, Thailand and Viet Nam have averages over 10 percent.

Our estimates fall broadly in the same range as those recently obtained by Grübler, Ghodsi and Stehrer (2016: Table 4.1), although their estimates are obtained from a very different approach using the variation of trade flows and the Poisson pseudo-maximum likelihood (PPML) estimator, they found an average AVE of 2.9 percent overall (counting non-significant estimates) and 8.2 percent counting only estimates significant at the 10 percent level or more, excluding intra-European Union trade. However, 45 percent of their estimated AVEs are negative, so the average is likely to hide wider dispersion of estimates in their case than in ours.

Our results should be interpreted with caution for several reasons. First, there remain a number of technical issues. The figures reported in this paper are section-level averages of panel estimates obtained at the chapter (HS 2) level. Raw estimates at the chapter level are relatively more erratic than they are once averaged at the section level. They are also fairly sensitive to the estimation approach. For instance, while ordinary least squares and weighted least squares (using trade weights) yield somewhat similar estimates, using as the key explanatory variable a dummy variable equal to 1 when one or more NTMs are imposed by a country on a product and 0 otherwise, instead of the count of NTMs, yields erratic and somewhat implausible estimates.

Second, as argued in the introduction and in Section 2, even if AVEs accurately represent compliance costs, they can mean very different things depending on whether they have a counterpart in the correction of a market failure. This depends, inter alia, on the technical capabilities of domestic regulatory agencies. For instance, we find an AVE of –1 percent on chemicals in Myanmar. Yet, Myanmar has stiff regulations on the importation of pharmaceuticals, covering the conditions in which they are stored, the skills of employees, and so on, which should push up prices. The explanation of this paradox is that the regulations go largely unenforced. According to anecdotal evidence, there is wide circulation of cheap, but harmful counterfeit drugs in the country. The juxtaposition of unenforced regulations and cheap imports is just the type of configuration that can produce negative AVEs, but those are meaningless; only a detailed case story can give the true story. In other words, low AVEs do not necessarily reflect smooth, efficient import processes; instead, they may reflect the government's inability to address market failures.

This chapter aims to identify separately (i) NTM compliance costs through AVEs estimated on trade unit values, and (ii) NTM stringency, relative to the social optimum, through their effects on volumes imported. Here, we report only the compliance-cost side of the story; the estimation of NTM stringency, which raises specific difficulties, is left for future research.

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CHAPTER 5

Non-tariff Measures and the Impact of Regulatory Convergence in ASEAN

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1. Introduction

Non-tariff measures (NTMs) are increasingly moving to the forefront of 'deep' regional integration efforts. Their overall impact is estimated to be two to three times higher than current tariffs (UNCTAD, 2013; Kee et al., 2009), as explained in Chapters 2 and 4.

NTMs are neutrally defined as policy measures, other than ordinary customs tariffs, that can have an economic effect on international trade (UNCTAD, 2010). NTMs thus include a wide array of policies. On the one hand, traditional trade policy instruments, such as quotas or price controls, which are often termed non-tariff barriers (NTBs). On the other hand, NTMs also comprise sanitary and phytosanitary (SPS) measures and technical barriers to trade (TBT) that stem from important non-trade objectives related to health and environmental protection. These technical NTMs therefore overlap with a wider regulatory realm.

While technical NTMs also, on aggregate, increase trade costs, their primary regulatory objectives make them indispensable. They ensure food safety, protect harvests against pests and invasive species, regulate the trade of hazardous substances and waste, prohibit the trade of endangered species, and regulate many more areas of our life to promote a sustainable future. These policies are necessary and elimination is not an option.

Regulatory convergence is an important way to reduce trade costs while fully maintaining their regulatory benefits. Coordinating non-tariff policy regimes, especially behind-the-border SPS measures and TBT, is a challenge. But regional initiatives can be a more flexible tool than multilateral negotiations to achieve mutually beneficial deep economic integration.

In this chapter, we quantify the price impact of domestic and foreign regulatory frameworks and estimate the mitigating and price-reducing effect of regulatory convergence.

Section 2 of this paper briefly presents the classification and collection of the hard data around which this paper is built. We use a global dataset of comprehensive NTM data that UNCTAD has collected with many partners in recent years. It crucially includes data on the Association of Southeast Asian Nations (ASEAN) Member States that was collected in 2014–2016 in collaboration with ERIA.

Section 4 elaborates on ways to measure regulatory convergence. A recently developed measure of distance in regulatory structures is introduced and visualises the current level of regulatory convergence within ASEAN and with some other large trading partners.

Section 5 estimates the quantitative impact of domestic and foreign technical regulations as well as regulatory convergence. Using a regression model to explain trade unit values, we find that regulatory convergence can substantially reduce the costs effect of NTMs.

Section 6 concludes and provides a policy outlook.

2. Non-tariff Measures Data Classification and Collection

2.1. A Common Language: The UNCTAD–MAST NTM Classification

Recognising the proliferation and increasing importance of NTMs, the United Nations Conference on Trade and development (UNCTAD) has actively worked on the topic since the early 1980s. Given the scarcity of available information, UNCTAD began to identify and classify NTMs in 1994. In 2006, UNCTAD established a Group of Eminent Persons and a Multi-Agency Support Team (MAST)[1] to thoroughly revise the data collection approach to reflect the growing complexity of NTMs. An essential step was the development of an internationally agreed and recognised classification for NTMs. This 'common language' facilitates collection, analysis and dissemination of data on NTMs, with the final objective to increase transparency and understanding about NTMs (UNCTAD, 2014).

The UNCTAD–MAST (2013) classification of NTMs has 16 chapters of different measure categories (left side of Table 5.1). Chapters A to O refer to import-related NTMs, whereas Chapter P covers measures that countries impose on their own exports. Another essential distinction is between technical measures (Chapters A, B and C) and non-technical measures (Chapters D to O).

Technical measures comprise SPS and TBT measures and related pre-shipment requirements. These measures are imposed for objectives that are not primarily trade-related: for example, human, plant, and animal health, and the protection of the environment. Even if equally applied to domestic producers, they nevertheless regulate international trade and are thus considered NTMs. This does not, however, imply any a priori judgement about their impact and legitimacy.

Non-technical measures cover a wide array of policies, including 'traditional' trade policies such as quotas, licences (Chapter E), price controls, and para-tariff measures (Chapter F). The full list is presented in Table 5.1. As most non-technical measures have objectives and mechanisms that discriminate against foreign producers, this specific chapter refers to them as non-tariff barriers (NTBs).

[1] Multi-Agency Support Team: UNCTAD, WTO, World Bank, UNIDO, FAO, ITC and OECD.

Each chapter is further broken down into more detailed measures types (example of SPS measures on the right side of Table 5.1). The 'tree structure' allows for a rather fine-grained classification of measures. For example, the SPS chapter (A) consists of 34 NTM codes at the finest level of detail. In total, the UNCTAD–MAST classification has 178 disaggregated codes.

Table 5.1: UNCTAD–MAST Classification of Non-Tariff Measures

Import-related Measures	Technical measures	A	Sanitary and Phytosanitary (SPS) measures	*Tree structure – for example:* A Sanitary and Phytosanitary (SPS) measures A1 Prohibitions/restrictions of imports for SPS reasons A11 Temporary geographic prohibition (…) A2 Tolerance limits for residues and restricted use of substances (…) A3 Labelling, marking, packaging requirements (..) A4 Hygienic requirements (…) A5 Treatment for the elimination of pests and diseases A51 Cold/heat treatment A52 Irradiation (…) A6 Requirements on production / post-production processes (…) A8 Conformity assessment A81 Product registration A82 Testing requirement A83 Certification requirement A84 Inspection requirement A85 Traceability requirement A851 Origin of materials and parts A852 Processing history (…) A86 Quarantine requirement A89 Other conformity assessments
		B	Technical barriers to trade (TBT)	
		C	Pre-shipment inspections and other formalities	
	Non-technical measures	D	Contingent trade-protective measures	
		E	Non-automatic licensing, quotas, prohibitions and quantity-control measures	
		F	Price-control measures, including additional taxes and charges	
		G	Finance measures	
		H	Measures affecting competition	
		I	Trade-related investment measures	
		J	Distribution restrictions	
		K	Restrictions on post-sales services	
		L	Subsidies (excl. export subsidies)	
		M	Government procurement restrictions	
		N	Intellectual property	
		O	Rules of origin	
Export-related measures		P	Export-related measures	

Source: Authors' illustration, based on UNCTAD (2013).

2.2. Collected Data in ASEAN and the Rest of the World

On the basis of this classification, UNCTAD leads an international effort with many national, regional and international partners to collect comprehensive data on NTMs. Data already exists for over 60 developed and developing countries. Great progress was made during the 2013–2016 period when a coverage of 80 percent of world trade was reached. A milestone was the collaboration with ERIA that led to the collection in the ASEAN region.

All data is published online and is accessible free of charge through several web-portals.[2] The database also allows quick access to full-text regulations of many countries.

Data about 'official' NTMs is collected by extensively reading and analysing national legislative documents, such as laws, decrees, or directives. Once a relevant regulation is identified, each specific provision is classified into one of the 178 detailed NTM codes. For each measure, the affected products are also classified in detail.[3]

The main focus of this article is on SPS and TBT measures, for which there are 58 distinct types in the NTM classification. Figure 5.1 shows the number of distinct technical measures that are applied to an average agricultural (Figure 5.1a) or manufactured product[4] (Figure 5.1b) in ASEAN. It is clear that there tends to be a variety of different technical requirements for each product, especially in agricultural sectors where SPS measures are frequent. In the rest of this article, we will take advantage of the depth of the NTM data and assess both the intensity of technical regulation as well as the bilateral similarity of regulatory patterns.

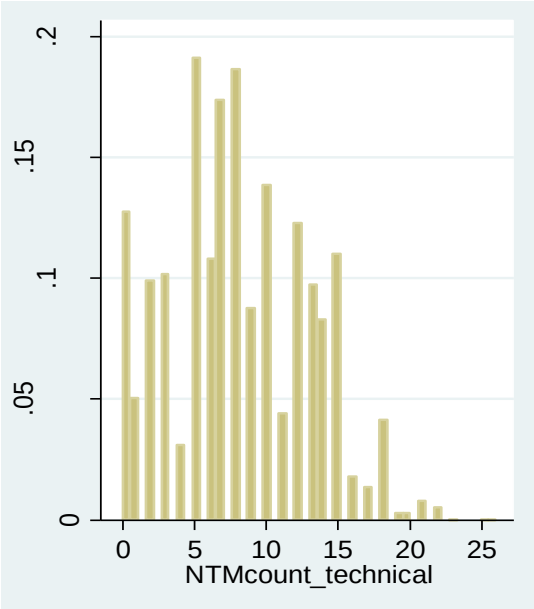
[2] UNCTAD–ERIA asean.i-tip.org, UNCTAD's TRAINS portal trains.unctad.org; World Bank WITS platform at wits.worldbank.org; and ITC MAcMap at www.macmap.org

[3] Product classification is done at the national tariff line level or at 6-digits of the Harmonized System (HS), which distinguishes about 5,200 different products.

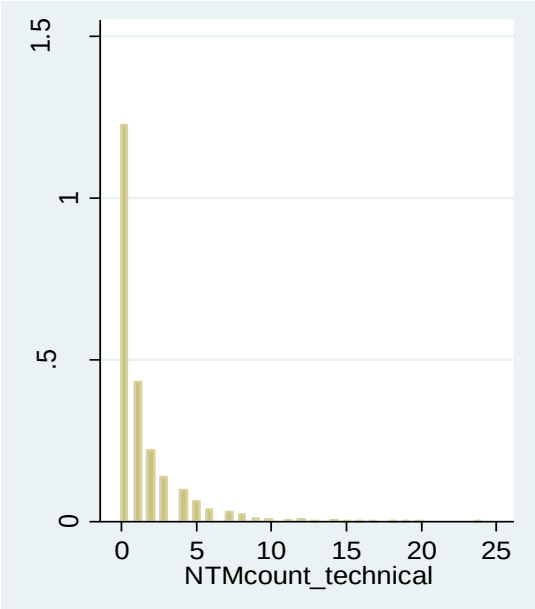
[4] At the HS 6-digit level.

Figure 5.1: Distribution of Number of Distinct Technical NTMs in ASEAN

a) only agriculture



b) only manufacturing



Source: Authors' calculations.

It should be noted that even 178 distinct measure types remain a generalisation of the sheer limitless complexity of NTMs. For product-specific trade negotiations and export decisions, an in-depth review of full-text regulatory documents is inevitable. However, the categorisation of measures and respective affected products provides an essential entry point for a wider assessment of the prevalence and impact of NTMs. It allows for a comparative perspective across countries and sectors, and helps to narrow down priorities.

3. Assessing 'Regulatory Distance' in ASEAN

3.1. Introducing the Complexity and Dimensions of Regulatory Convergence

Recognising the necessity of SPS measures and TBT to protect health, safety, and environment entails that such NTMs need to be harmonised rather than eliminated. However, due to the complexity of these measures, it is extremely difficult to assess the current level and impact of regulatory convergence or divergence.

Many researchers have investigated the impact of very specific requirements applied to specific products; and they have found some compelling cases. For example, Wilson, Otsuki and Majumdsar (2003) examine the impact of residue limits of tetracycline (an antibiotic) in beef. They found that beef imports are significantly lower for importing countries that have a more stringent residue limit. They estimate that regulatory convergence towards the international standard set by Codex Alimentarius would increase international trade of beef by about USD 3.2 billion.

However, even for a single product there are usually many more requirements. Figure 5.2 helps to visualise the dimensions and complexity of regulatory convergence. The figure illustrates just a few NTMs applied to a specific product across three countries.

Let us stick to the previous example of tolerance limits of residuals of antibiotics in beef. And let us assume that countries X and Y apply such NTMs, and country Z does not. In the UNCTAD–MAST classification, these measures would be classified as NTM code A21 for 'tolerance limits for residues of or contamination by certain substances' (see Section 2). The regulatory pattern across the three countries is summarised in the first row of Figure 5.2.[5]

Figure 5.2: Example of NTM Data Mapping with Respect to 'Regulatory Distance'

NTM types and codes for a specific product at HS-6 level: e.g. beef	Country X	Country Y	Country Z
A21: Maximum residue limit	1	1	0
A62: Animal raising processes	1	1	0
A83: SPS certificate	0	1	0
A14: Special authorisation	0	0	1

b) data-analysis of 'distance in regulatory structures'

a) in-depth analysis of specific regulations to compare the stringency of measures

Source: Authors' illustration.

But there are many other types of NTMs that apply to beef. As shown in Figure 5.1, there is an average of about 10 different SPS and TBT measure types (according to the UNCTAD–MAST classification) applied to any given agricultural product in ASEAN. For a specific beef product, there may be SPS requirements regarding inspection, certification, labelling, packaging, regulations on animal growth processes, and hygienic and transport conditions. Only a few examples are illustrated in the other rows of Figure 5.2

In the next section, we introduce a concept that makes use of the structure visualised in Figure 5.2, providing us with the possibility of a wider sectoral- and country-level perspective on regulatory convergence.

[5] Even within the same NTM type for beef, the residuals of dozens of other substances may be regulated. The regulated substances as well as the stringency for each substance tend to vary across countries. It takes an enormous amount of in-depth analysis of specific regulations to compare the stringency of measures – just for a single product and measure type.

3.2. A Wider Approach: Measuring the Distance in Regulatory Structures

The overall table in Figure 5.2 shows a pattern of NTMs across countries that lets us take a more 'structural' approach to regulatory convergence. The following method of summarising and evaluating these structural patterns in UNCTAD NTM data was introduced by us in Cadot, Gourdon, Asprilla, Knebel and Peters (Cadot et al., 2015). We call it 'distance in regulatory structures', or simply 'regulatory distance'.

The basic concept is quickly understood with the help of Figure 5.2. In the example, countries X and Y both apply maximum residue limits (MRL, A21) of certain substances to the product. Both also require certain animal raising processes (A62). So far, the regulatory structure would appear to be similar. In other words, the 'regulatory distance' is short. However, country Y also requires an SPS certification procedure. With this third measure, the regulatory distance between countries X and Y increases slightly. Finally, country Z regulates imports with a different regulatory approach and requires a special authorisation. This type of discretionary restriction differs substantially from the more specific and transparent criteria that countries X and Y use to regulate the import of the product. Therefore, the regulatory distance is large between country Z and countries X and Y.

The example focuses on a single product and compares three countries, but the method allows seeing the bigger picture as well. The respective average regulatory distance can easily be aggregated to the sector level or across all goods; and comparisons can be made between any number of countries. For each product, the table presented in Figure 5.2 would actually have 58 rows for each type of technical NTM; and a column for each country. In our sample, we have this data for each of the roughly 5,200 distinct products classified in the Harmonized System (HS 6-digit), and for 10 ASEAN countries as well as 36 other countries.

Formally, the distance in regulatory structures can be expressed and aggregated as follows.

The specific NTM type (l) applied by an importing country (i) to a specific product (k) coming from an exporting country (j) in a given year (t) is defined as a 'dummy' variable[6]:

$$n_{ijkt}^{l} = \begin{cases} 1, & \text{if country } i \text{ applies NTM type } l \text{ to product } k \text{ from origin } j \text{ in year } t \\ 0, & \text{if no such NTM is applied} \end{cases}$$

The regulatory distance (RD) between two countries *i* and *j* for the same NTM type, product and year is therefore:

$$RD_{ijkt}^{l} = \left| n_{ijkt}^{l} - n_{jikt}^{l} \right| \text{, for } i \neq j$$

[6] It is feasible that an importer applies several different regulations that are classified under the same NTM code (for example, two different certificates – a health certificate and a veterinary certificate). In such cases, still only a '1' is counted for this importer–product–NTM combination.

If both countries apply the same measure, the regulatory distance is *0*; if they do not, the equation yields *1*. To actually analyse regulatory **patterns**, it has to be aggregated across measures and products. The overall regulatory distance between countries i and j, across all products and measure types in a given year, is then:

$$RD_{ij.t} = \frac{1}{L\,K}\sum_{l}^{L}\sum_{k}^{K}\left|n_{ijkt}^{l} - n_{jikt}^{l}\right|$$

where L is the number of different NTM types that we aggregate, and K the number of different products over which the average is built.[7] As opposed to a possible trade-weighted aggregation, the simple, unweighted aggregation minimises the potential downward endogeneity bias where in the following sub-section, the methodology is applied to ASEAN to illustrate the current state of regulatory distance.

3.3. Regulatory Distance in ASEAN

The logic of regulatory convergence and therefore the scope of using the regulatory distance measure are only relevant with respect to technical behind-the border measures. Outright 'barriers' could be reduced or eliminated, but not harmonised. In the following, we therefore focus on the regulatory distance of technical measures.

While data for more countries is available, we concentrate our discussion of regulatory distance on ASEAN and a few developed countries for comparative purposes.

A special statistical technique called 'multidimensional scaling' lets us visualise all bilateral regulatory distances between the countries in our sample. Essentially, the aggregation method described in Section 3.2 yields a single figure

e for the regulatory distance between each pair of countries. Figure 5.3 (for agricultural sectors) and Figure 5.4 (for manufacturing sectors) then plot all of these distances onto a two-dimensional graph with the best possible fit. The distance between two country-points in the graph therefore reproduces the calculated regulatory distance measure. The graphs are best understood as maps, where distances between country-points imply regulatory distances just like geographical distance.

It is important to point out that there is no 'more' or 'less' regulation in these graphs, only relative positions of similarity. The absolute position towards the left, right, top, or bottom of a graph therefore has no significance.[8] However, the United States, the European Union, or Japan may be taken as reference points for high levels of regulation. Lao PDR may serve as a reference for rather low levels of NTM prevalence, as discussed in Chapter 2.

[7] L refers to the total of all 58 possible SPS and TBT measure types; K refers to all, unweighted products in the respective sectors (all products, agriculture, and manufacturing).

[8] The centre of the graph at coordinates (0;0) represents the point that is 'closest' to the average of countries of the sample. With a limited set of countries in the sample, this point also has little significance. The axis scales are relevant when comparing across different graphs, as they do relate to the absolute values of regulatory distance.

Generally, regulatory distance is much lower in manufacturing sectors. The scaling of the axes in Figure 5.3 and Figure 5.4 is different and therefore exhibits intra-sector patterns rather than allowing for comparisons across figures/sectors. For example, even the distant points of the European Union and the United States in the manufacturing sector (Figure 5.4) only represent a regulatory distance of 0.10. By comparison, the very close points of Malaysia and Thailand in the agricultural sector (Figure 5.3) actually correspond to a slightly larger regulatory distance of 0.11.

Figure 5.3 and Figure 5.4 show certain levels of grouping, i.e. regulatory similarity within the ASEAN region vis-à-vis the three highly regulated markets of the United States, the European Union, and Japan. The large regulatory distance between these developed countries is quite notable. It could be argued that large supply, demand, technology and infrastructure make these countries trade powerhouses, but that regulatory convergence is not a contributing factor. However, particularly in the agricultural sectors (Figure 5.3), we also see significant dispersion between the ASEAN economies. Given the diversity of ASEAN countries in terms of level of development, geography, history, culture and language, this may be expected.

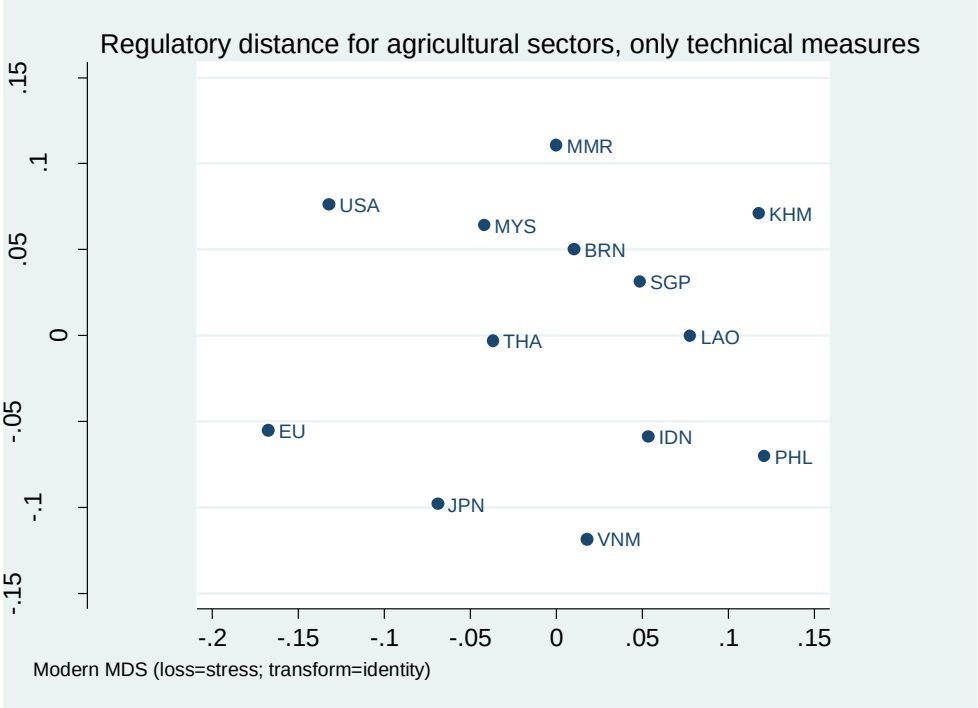
Comparing the agricultural and manufacturing sectors, the closer grouping in the manufacturing sector may indicate that higher regulatory convergence has contributed to the advanced industrial integration and value chains within the region. The fact that ASEAN countries with higher shares of intra-regional trade find themselves more clustered together in Figure 5.3 and Figure 5.4 supports that hypothesis. The ASEAN members with the highest shares of extra-regional trade (Cambodia, the Philippines, Viet Nam and Indonesia), by contrast, exhibit a relatively large regulatory divergence from the rest of the ASEAN group.

It is also notable that the four ASEAN countries that are net exporters of agricultural goods (Thailand, Indonesia, Malaysia and Viet Nam) are found to converge towards the more highly regulated developed countries (United States, European Union and Japan). However, like amongst the three developed countries in our sample, there are no signs of regulatory similarity between the four ASEAN Member States.

Further observations are that the two large, neighbouring, upper-middle-income countries of the region, Thailand and Malaysia, also exhibit higher levels of regulatory similarity across sectors. Singapore and Brunei Darussalam show similarity in agricultural sectors as two small and import-dependent high-income countries. In the manufacturing sector, Singapore's regulatory distance vis-à-vis Japan, the United States and the European Union is just as large as amongst those three developed markets. At the same time, some regulatory similarities with the ASEAN partners are evident.

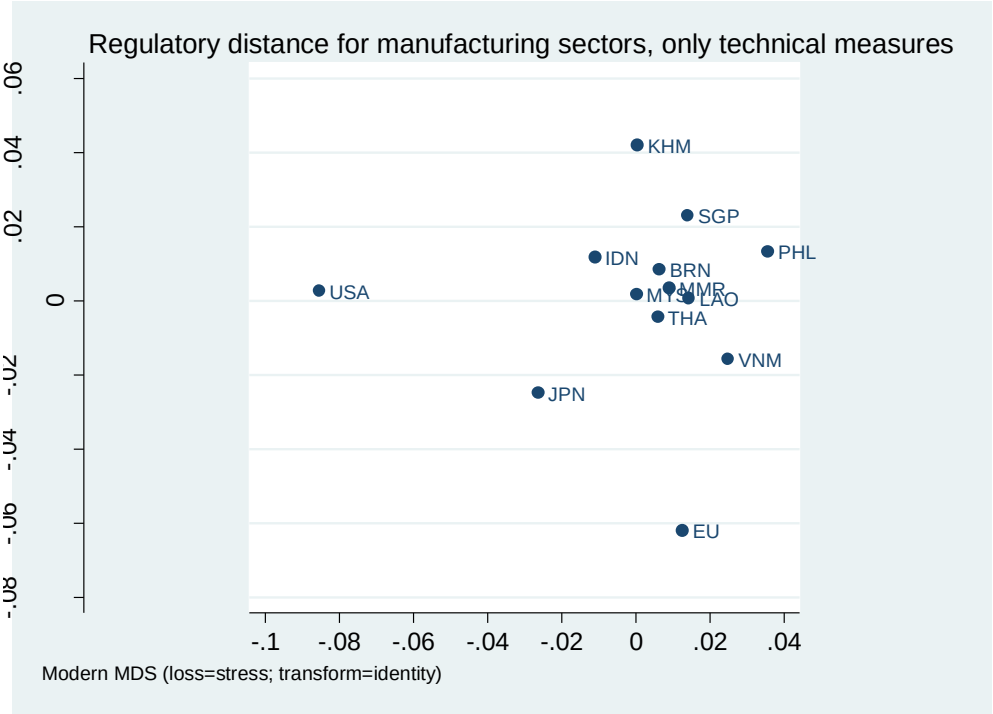
While the above graphs provided an aggregate view at the country- and sector-level, the impact analysis in Section 4 will make use of our data at the fine-grained product level (6-digits with 5,200 products).

Figure 5.3: Bilateral Regulatory Distances, Agricultural Sectors



Source: Authors' calculations.

Figure 5.4: Bilateral Regulatory Distances, Manufacturing Sectors



Source: Authors' calculations.

3.4. Who Has to Travel More of the 'Regulatory Distance'? Looking at 'Regulatory Overlap'

The 'regulatory distance' expresses the level of similarity in regulatory structures between two countries (with respect to technical measures). However, bridging the distance is not equally difficult for each of the two countries.

Take the regulatory distance between Thailand and Lao PDR in the agricultural sector in Figure 5.3. Thailand applies more technical measures than Lao PDR. The intuitive hypothesis is that it is easier for Thailand to access the Lao PDR market than vice versa. Assuming that most SPS and TBT measures are applied in a non-discriminatory way to both domestic and foreign producers, a producer from Thailand already has to comply with a multitude of domestic requirements. Exporting to Lao PDR may then be less of an additional burden. By contrast, with fewer domestic regulations in Lao PDR, a producer is likely to find it harder to upgrade the product for the Thai market.

But it is not only about which country has more or less regulation. Particularly if countries have similar levels of regulatory intensity, their similarity matters. France, Germany, and the United States may all apply similar numbers of NTMs, but requirements between France and Germany are harmonised through the European Union. For a French producer, exports to Germany therefore hardly imply additional costs. By contrast, exports to the United States may be very costly.

Both dimensions matter. The 'regulatory overlap' measure is therefore introduced below. It expresses the share of the importer's NTMs that the exporter is already dealing with at a domestic level.

Again building upon the disaggregated data of NTMs at the product level, Table 5.2 serves best to explain the measure. It appears similar to Figure 5.2, but now takes into account the direction of trade. The table refers to the calculation of the 'regulatory overlap' for a specific product. The left pane of the table shows four different types of technical NTMs. As indicated by a '1' in the respective fields, importer Y applies three of these measure types. Exporter Z applies two.

Both importers and exporters regulate certain maximum residue limits (MRLs), for example of antibiotics in beef. This can be considered a regulatory overlap from the perspective of exporter Z (as indicated by the arrow in the second row).[9] It can be assumed that a producer in country Y is used to domestic MRLs and therefore finds it less difficult to also comply with the MRLs of importer X. However, there is no overlap regarding the other two measures that exporter Z needs to comply with when trading to importer Y (as indicated by the crossed arrows in the other rows). Furthermore, the special authorisation (A14) measure applied by Exporter Z (last row of the table) does not create additional regulatory overlap because this type of NTM is not applied by importer Y.

[9] Following World Trade Organization principles of non-discrimination between domestic and foreign products, most measures applied as import-related NTMs should also be applied domestically for domestic producers.

Table 5.2: Example of NTM Data Mapping with Respect to 'Regulatory Overlap'

NTM types and codes for a specific product at HS-6 level: e.g. beef	Importer Y	Exporter Z	Exporter Z* after reform
A21: Maximum residue limit	1	1	1
A62: Animal raising processes	1	0	0
A83: SPS certificate	1	0	1
A14: Special authorisation	0	1	0
Total number of NTMs	3	2	2
Number of overlapping NTMs	1		1+1=2

Source: Authors' illustration.

If exporter Z wanted to increase the regulatory overlap through domestic reform (exporter Z*), a simple scenario could be imagined. Exporter Z could replace the discretionary 'A14: special authorization' by more transparent SPS certificate. The total number of NTMs in exporter Z* has remained the same. However, now two measures overlap with importer Y.

Certainly, details are particularly crucial with complex technical measures. For example, maximum residue limits may vary substantially between two countries. The proposed regulatory overlap only delivers an approximation with respect to the similarity of regulatory structures and mechanisms. With thousands of products and many countries to compare, a more detailed comparison is not feasible.

4. Measuring the Impact of NTBs, NTMs, and Regulatory Divergence

4.1. Econometric approach to estimating the impact of NTBs, technical measures and 'regulatory overlap'

The basic intuition of our estimation is that cost, insurance, freight (c.i.f.) product prices at the border are 'treated' by different types of NTMs, taking into account regulatory overlap. The estimation is based on a worldwide cross-section of 46 recently collected countries, including ASEAN members, at a disaggregated product-level (HS 6-digits, more than 5,000 products). Appendix Table A.1 reports descriptive statistics for each country in the sample.[10]

Cost, insurance, freight (c.i.f.) unit values are used instead of free on board (f.o.b.) as they are likely to capture more of the NTM-related costs. While unit values at the bilateral and product level are known to be statistically noisy, we use the dataset provided by Berthou and Emlinger (2011), which improves data quality significantly and treats outliers. The estimated effects are

[10] To date, the full UNCTAD NTM database includes about 60 countries, but only more recently collected data was included in this analysis due to significant improvements in data quality in 2012/13.

therefore ad valorem equivalents (AVEs) in terms of the impact on the final c.i.f. unit value goods price. Barriers as well as technical measures are expected to raise prices.

Regarding technical measures (SPS and TBT) we count the number of distinct types of NTMs applied by the importer (*ImpNTM*) and domestically by the exporter (*ExpNTM*). To measure the impact of regulatory convergence, we also count the number of overlapping measures between importer and exporter (*sameNTM*).

Furthermore, control variables are included to capture overall price levels (*log* of exporter's and importer's per capita gross domestic product [GDP]) and transport costs (*log* of distance, landlockedness, and common borders). Product-specific effects are absorbed through product-level fixed effects.

The simple log-linear estimation equation reads as follows with sub-indices for product k, importer l and exporter j:

$$\begin{aligned}\ln(p_{ijk}) = \alpha + \beta_1 \text{ImpNTM}_{ijk} + \beta_2 \text{ExpNTM}_{ijk} + \beta_3 \text{sameNTM}_{ijk} + \beta_4 \text{QR}_{ijk} \\ + \beta_5 \ln(\text{GDPpc}_i) + \beta_6 \ln\left(\text{GDPpc}_j\right) + \beta_7 \text{landlocked}_i + \beta_8 \text{landlocked}_j \\ + \beta_9 \ln(\text{distance}_{ij}) + \beta_{10} \text{contig}_{ij} + FE_k + \varepsilon_{ijk}\end{aligned}$$

Specification (1) runs the regression with all NTM variables as level variables and for all product sectors combined.[11] Specifications (2) and (3) run the same regression, but break down the sample into two different sub-samples: only agricultural and food products in (2) and only manufactured products in (3). The regression results are presented in Table 5.3.

Across all specifications, the included control variables show the expected signs: overall price levels (approximated by importer and exporter GDP per capita), distance, and landlockedness raise unit values, whereas common borders reduce prices. As expected, the importance of transport costs (distance, landlockedness, and common borders) is higher in agricultural trade. The estimated price-raising impact of quantitative restrictions is positive as expected, although not statistically significant in specification (2). Apart from the correct signs, it should be noted that the magnitude of the parameters should not be compared with estimates from Gravity-style regressions. Our estimates are impacts on trade unit values, not trade volume.
Most importantly, however, the main explanatory NTM variables show the expected sign, magnitude and statistical significance across all specifications.
First of all, as shown in existing literature and unsurprisingly, NTMs applied by the importing country raise trade unit values. Using the number of distinct NTM types as a measure of regulatory intensity, specification (1) finds an average price-increasing effect of 2.4 percent for a marginal increase of an additional technical NTM.

[11] We also conducted estimations with the log of the three NTM variables. Results vary in magnitude, but confirm the qualitative effects of the estimations using level variables.

Table 5.3: Regression Results

Dependent variable: log (c.i.f. trade unit value)

	(1) all Sectors	(2) only Agriculture	(3) only Industry
Importer's *total number* of technical NTMs	0.024***	0.012***	0.034***
	(0.00)	(0.00)	(0.00)
Exporter's/domestic *total number* of technical NTMs	0.021***	0.0093***	0.029***
	(0.00)	(0.00)	(0.00)
Pairs of *overlapping* NTMs in exporter & importer	-0.023***	-0.0086**	-0.026***
	(0.00)	(0.03)	(0.00)
Importer quantitative restrictions dummy	0.032***	0.021	0.029***
	(0.01)	(0.02)	(0.01)
log (Importer GDP per capita)	0.20***	0.25***	0.19***
	(0.00)	(0.01)	(0.00)
log (Exporter GDP per capita)	0.21***	0.18***	0.21***
	(0.00)	(0.01)	(0.00)
log (distance)	0.19***	0.074***	0.20***
	(0.00)	(0.00)	(0.01)
1 for common border	-0.054***	-0.22***	-0.031***
	(0.01)	(0.02)	(0.01)
1 if importer is landlocked	0.12***	0.19***	0.11***
	(0.01)	(0.02)	(0.01)
1 if exporter is landlocked	0.20***	0.089**	0.22***
	(0.02)	(0.04)	(0.02)
Observations	412,911	43,662	369,249
Adjusted R^2	0.714	0.616	0.697

log = logarithm; c.i.f. = cost, insurance, freight; NTMs = non-tariff measures; GDP = gross domestic product.

Notes: Clustered standard errors in parentheses; * p < 0.10, ** p < 0.05, *** p < 0.01.

Fixed effects regressions with product-specific (HS-6 digit) fixed effects.

Source: Authors' estimations.

A crucial addition to our set of variables is the inclusion of the number of technical NTMs applied by the exporting country. Founded on General Agreement on Tariffs and Trade (GATT) and World Trade Organization (WTO) agreements and the principle of equal regulatory treatment of foreign and domestic producers, we assume that NTMs applied by the exporting country would also hold for domestic production. We find that domestic NTMs increase trade unit values by virtually the same magnitude as foreign NTMs. The estimated marginal effect of 2.1 percent for an additional domestic NTM is only slightly below the effect of a foreign NTM (2.4 percent). The difference may represent economies of scale that reduce the cost of domestic NTMs.

The third NTM variable counts the number of overlapping NTMs: a pair of one NTM applied by the importer and a second NTM applied by the exporter/domestically, but overlapping in specific NTM type. The finding is quite remarkable: the estimated price-reducing effect (minus 2.3 percent) is also very similar to the price-increasing impact of an additional NTM applied by importer (plus 2.4 percent) or exporter (plus 2.1 percent). Breaking down all NTMs into these three variables allows us to distinguish between a 'gross' effect of NTMs (ignoring the overlapping NTMs variable) and a 'net' effect (taking into account the overlapping NTMs variable).

Let us take a simple example to illustrate the meaning of this result: one NTM applied by the importer and one NTM applied by the exporter increase the trade unit value by 2.4 percent plus 2.1 percent, a total of 4.5 percent. However, if these two NTMs happen to overlap, the effect would be reduced by 2.3 percent. Regulatory overlap reduces the total effect from 4.5 percent to 2.2 percent. One could also say that the 'net effect' of a foreign NTM is cancelled out if the exporter applies an overlapping NTM domestically.

Testing the same set of variables with the agricultural sub-sample in specification (2) shows the same pattern, just with lower estimates for each variable. Many more NTMs, especially SPS, are applied in the agricultural sector, but their marginal effect is lower at about 1 percent (1.2 percent for importer's NTMs and 0.9 percent for domestic NTMs). Again, regulatory overlap almost cancels out the 'net effect' of an additional foreign NTM.

We also find this effect in the manufacturing sub-sample (specification 3). Here, with a generally lower incidence of NTMs, the respective marginal effects are higher (3.4 percent for importer's NTMs, 2.9 percent for domestic NTMs, and minus 2.6 percent in case of overlapping measures).

When comparing the estimates in the agricultural sector with the manufacturing sector, the marginal effects need to be seen in conjunction with the frequency of NTMs in the respective sectors. The estimated marginal effect of an additional NTM in the agricultural sector is only about 1 percent, but there is an average of seven NTMs per product. While the marginal effect of an NTM in the manufacturing sector is almost three times larger, the average number of NTMs per product is only one. The aggregate effect of technical NTMs is therefore significantly larger in the agricultural sector, which is consistent with the literature (see Li and Beghin, 2012). Linear extrapolations will be discussed in Section 4.2.

Of course, the regressions remain based on the binary distinction between non-overlapping and overlapping measures. As mentioned above, however, details matter: amongst overlapping measures, there may be very significant differences between the specific measures. Likewise, non-overlapping measures may be highly restrictive or very easy to comply with. Therefore, the actual impact of NTMs will always vary very substantially on a case-by-case basis. But for our large sample with many countries and product-level observations across all products, there is currently no available data that would allow a more detailed assessment.

Another caveat is the fact that the estimation relies exclusively on the intensive margin, i.e. only observations are taken into account where there is positive trade at a bilateral and product-specific level. At this level of disaggregation, trade only occurs in 4 percent of all observations. Ideally, a Heckman selection model would be used to remedy this issue and assess NTM impacts at the intensive and extensive margin of trade and unit prices. However, finding at robust exclusion restriction at this high level of data disaggregation with wide country- and product-coverage remains a challenge.

Moreover, there is a natural and significant correlation between the total number of NTMs and the number of overlapping NTMs. But post-estimation diagnostics show that it is below critical levels: the variance inflation factors for the NTM variables are between 3.15 and 4.15; and correlation coefficients between the variables do not exceed 0.7.

Still, more work is needed to test the robustness of the results presented above. Further tests showed mixed results. The most rigorous specification, a Poisson Pseudo Maximum Likelihood estimator with importer–product, exporter–product, and import–exporter-pair fixed effects, corroborates the validity of the core NTM variables. While the interpretation of parameters of NTMs applied by the importer and exporter is different (only the effect of discriminatory measures is measured), this specification confirms that the cost-reducing impact of regulatory overlap is highly significant. However, several other specifications using fixed effects for importer, exporter or importer–exporter pairs (in addition to product fixed effects) remained inconsistent. This suggests that cross-country variation, rather than by cross-product variation, is driving the results. Furthermore, presumably significant noise in the data on NTMs and trade unit values interferes with the results.

4.2. An Extrapolation: The Impact of Technical Measures and 'Regulatory Overlap' in ASEAN

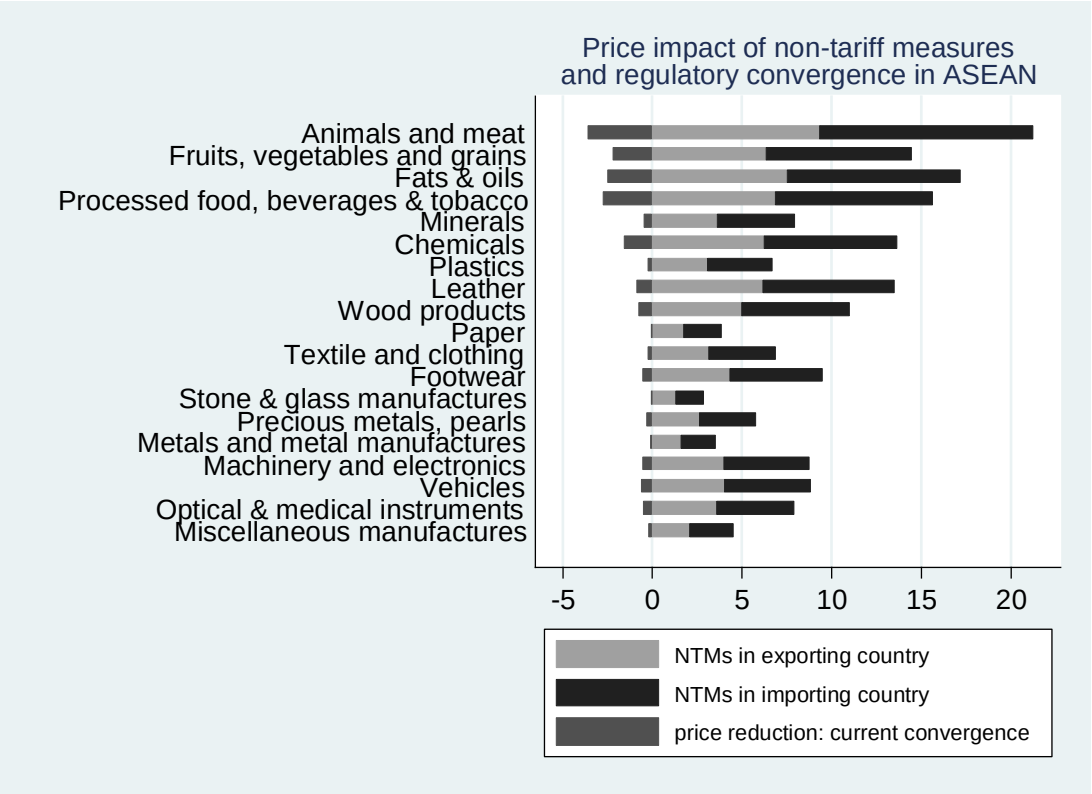
To approximate the order of magnitude of the aggregate impact of technical NTMs and regulatory convergence in ASEAN, we take the marginal regression results to conduct a linear extrapolation of the marginal results.

We simply multiply the marginal effects from specifications (2) and (3) for agriculture and manufacturing (see Table 5.3) with the respective observations of three variables: the numbers of technical measures applied by the importer and exporter, and the overlapping measures. Certainly, this extrapolation is based on the imperfect implicit assumption that the marginal effects are valid linearly and irrespective of the number of measures. The extrapolation results should therefore only be seen as approximate.

Figure 5.5 shows the total 'gross' price-increasing impacts of domestic/exporter's and foreign NTMs on the right of the axis, and the respective price-reducing effects of current regulatory overlap on the left of the axis. Across sectors, the overall impacts are as expected, with larger effects in agricultural sectors than in manufacturing sectors. Taking the sum of domestic and foreign NTMs, they range between 17 percent and 22 percent in agricultural sectors and between 3 percent and 14 percent in manufacturing sectors.

On the other side of the axis, we observe that the current level of regulatory overlap has a relatively low price-reducing effect, ranging between 3 percent and 4 percent in agriculture and less than 1 percent in most manufacturing sectors. While the two indicators cannot be compared directly, the 'regulatory distance' illustrated in Figure 5.3 and Figure 5.4 already indicated a relatively low level of regulatory convergence in the region. In Section 4.3 we will briefly explore the potential for increased convergence through a regulatory reform.

Figure 5.5: Regional Average Price Impact of NTMs and Regulatory Convergence



NTMs = non-tariff measures; ASEAN = Association of Southeast Asian Nations.
Source: Authors' calculations.

On average, price increases due to domestic measures are naturally in the same order of magnitude as the impact of foreign measures. At the bilateral level, this is different as shown in Figure 5.6 and Figure 5.7 for agriculture and manufacturing, respectively.

For each exporter, the effect of domestic measures is the same for all destinations. We then show the bilateral 'net' effect, which refers to the impact of foreign NTMs minus the price reductions through regulatory overlap.[12]

[12] Overlapping measures could be viewed primarily as domestic requirements that add costs of production before exporting. But when the producer starts exporting, the overlapping measures abroad only have a minimal impact. From this perspective, the real challenge for exporters lies principally with foreign non-overlapping measures.

For example, we can observe that the moderate domestic regulatory intensity of Thailand raises agricultural product prices by about 8 percent when exporting (Figure 5.6). In addition, foreign market regulations raise unit values by 1 percent to 6 percent, depending on the regulatory intensity of the destination market and after deducting the price-reducing effect of regulatory overlap. For Thailand, Lao PDR tends to be a very easy market to access with only a 1 percent premium to adapt domestic products to the requirements of Lao PDR. By contrast, unit prices increase by around 6 percent when of preparing a product for the markets in the the Philippines or Viet Nam.

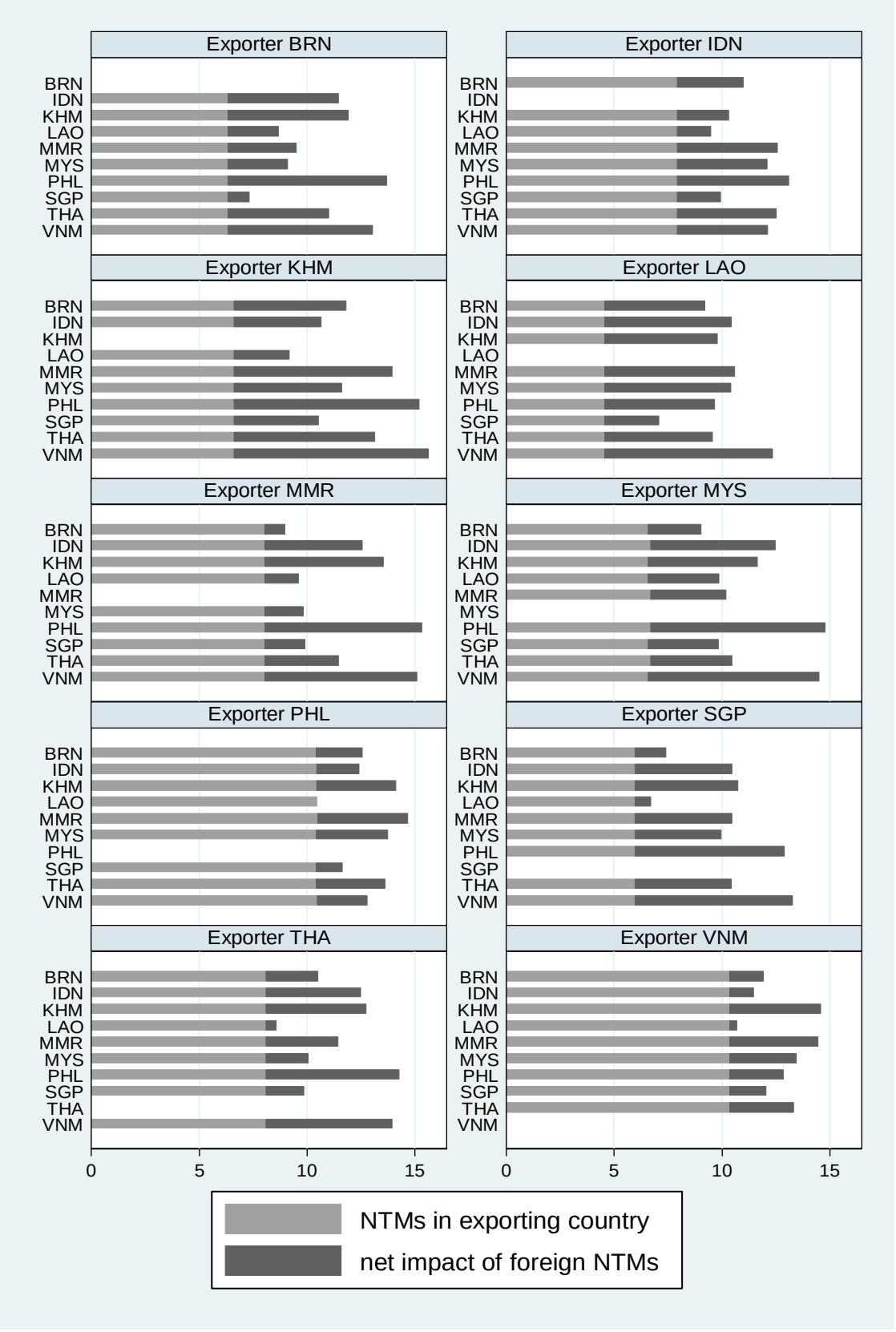
Certainly, the number of NTMs applied by the destination country plays a predominant role. However, regulatory overlap can be significant, as the following example shows:

In comparison to the previous case of Thailand, Cambodia is less regulated domestically. Domestic regulation raises trade unit values by about 6 percent, compared to Thailand's 8 percent. However, when competing with Thailand for the Malaysian market, the regulatory overlap becomes significant. The same NTMs applied by Malaysia have a net effect of only 2 percent for exporters from Thailand, but a 5 percent net effect for exporter from Cambodia. Malaysian regulations overlap more with Thailand than with Cambodia. This implies that products coming onto the Malaysian market from Thailand tend to be lower priced (8 percent plus 2 percent) than those coming from Cambodia (6 percent plus 5 percent), despite the lower levels of domestic regulation in Cambodia. The illustration in Figure 5.3 had already shown that Cambodia has a relatively high regulatory distance from Thailand and several other ASEAN countries. This is reflected in the extrapolation of the regression results with relatively high net effects of NTMs.

The above example illustrates a point that is valid for all bilateral trade relationships: trade unit values are increased by domestic as well as foreign technical measures. This also impacts competitiveness based on prices. However, regulatory overlap can reduce the price increasing effect of NTMs and thus also increase competitiveness. On the import side, regulatory convergence would reduce consumer prices. On the export side, regulatory overlap would reduce export prices and lead to a competitive 'push effect' (see also Mangelsdorf et al., 2012).

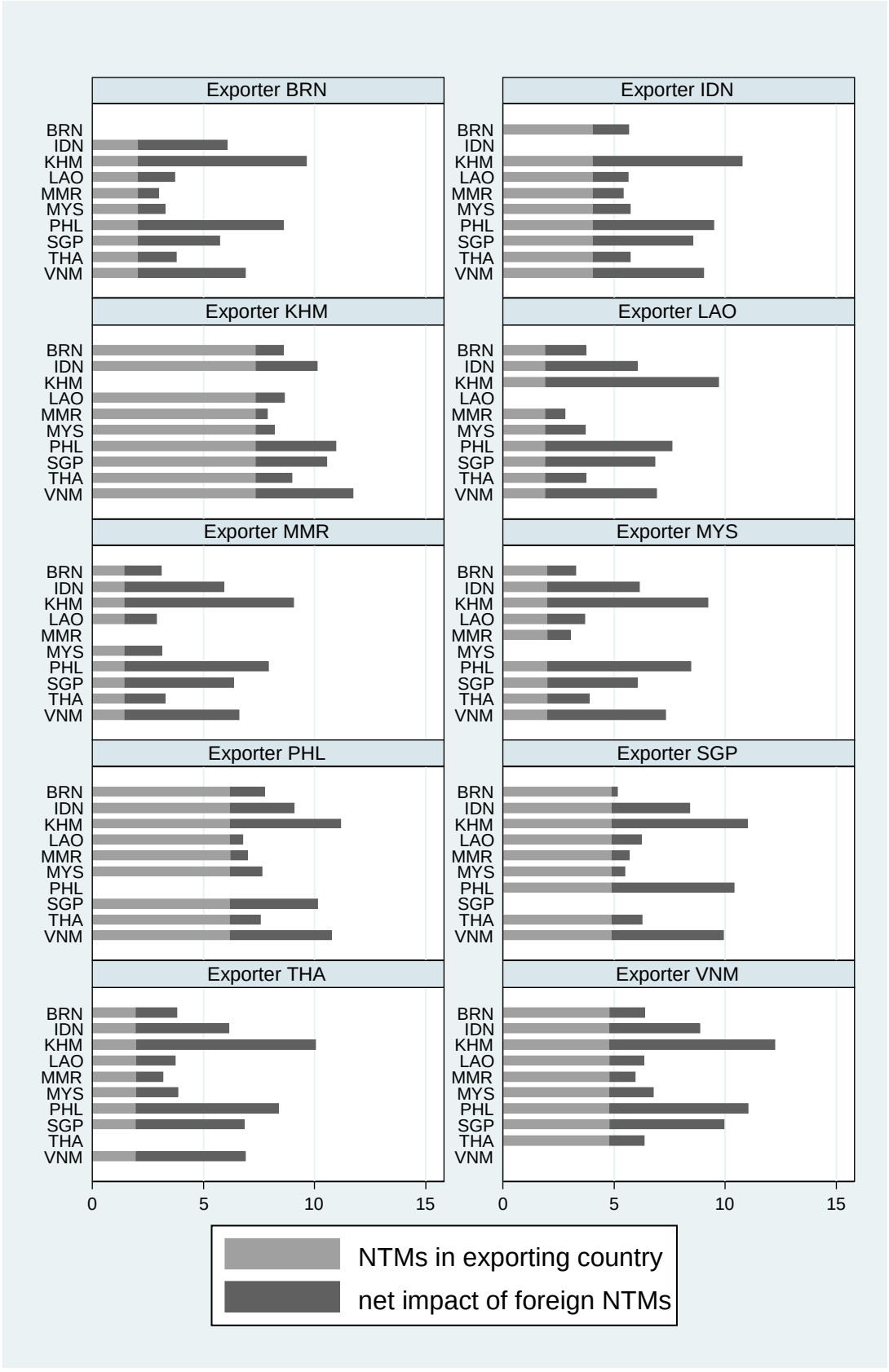
Such patterns as well as disparities in regulatory intensity and overall price increases are also seen in manufacturing sectors (see Figure 5.7).

Figure 5.6: Bilateral Net Effect of Technical Measures in Agricultural Sectors



NTMs = non-tariff measures.
Source: Authors' calculations.

Figure 5.7: Bilateral Net Effect of Technical Measures in Manufacturing Sectors



NTMs = non-tariff measures.
Source: Authors' calculations.

4.3. The Potential for Regulatory Reform to Increase Convergence in ASEAN

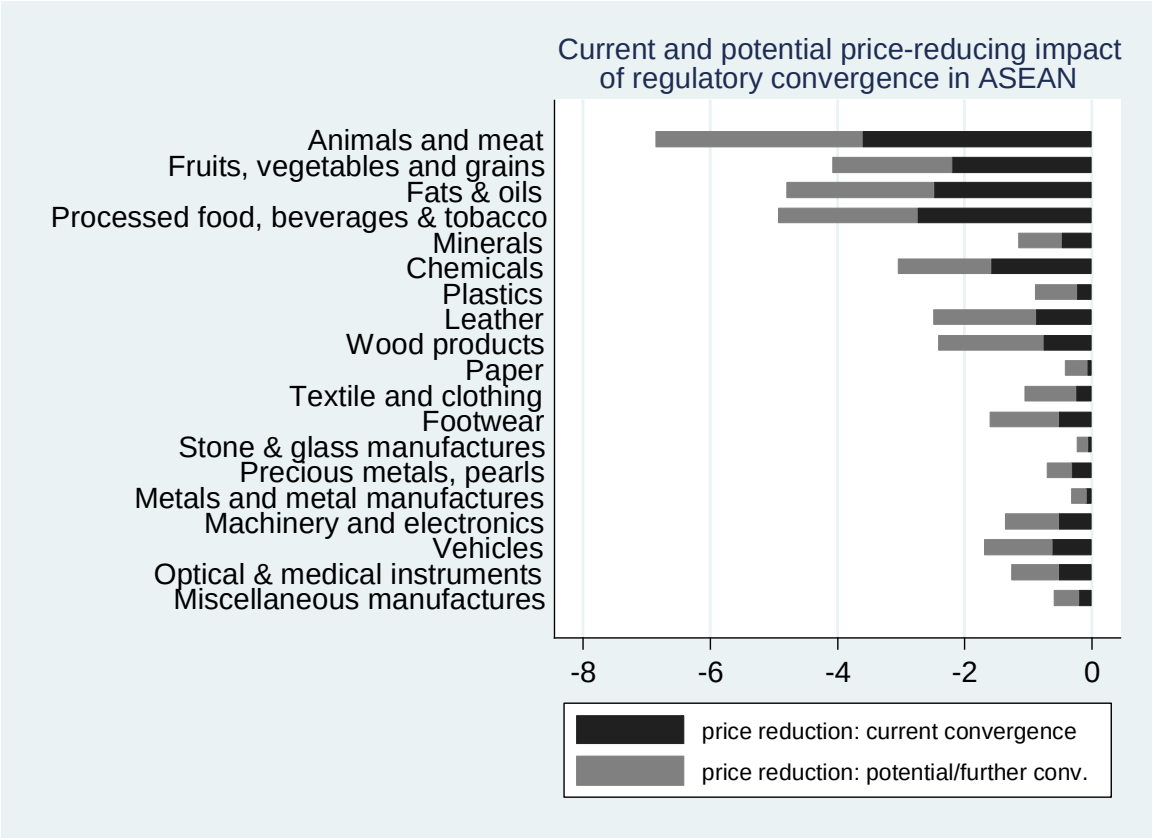
We also simulate the potential of price reductions through a modest regulatory reform. The reform scenario does not increase nor decrease the number of NTMs in any country. Instead, only a realignment of existing measures takes place.

This approach recognises that countries at different levels of development may need different levels of technical regulation. Despite this careful approach, the extrapolated price-reducing effect of regulatory overlap can be doubled in agricultural sectors and increased about three-fold in most manufacturing sectors.

For example, the current gross effect of foreign NTMs in the fruits, vegetables, and grains sector was estimated at 12.5 percent. Currently, regulatory overlap within the ASEAN region reduces this effect by about 2.5 percent to a net effect of 10 percent (Figure 5.8). The net effect could be further brought down by 2 percent through this reform (Figure 5.8).

Across most sectors, a cut of 15 percent to 25 percent of current net impacts of foreign NTMs could be achieved without decreasing or increasing the number of NTMs in any country.

Figure 5.8: Current and Potential Price-reducing Impact of Regulatory Convergence



ASEAN = Association of Southeast Asian Nations.
Source: Authors' calculations.

5. Policy Implications and Conclusions

Chapter 4 conducted by Ing and Cadot, shows the importance of NTMs in ASEAN and beyond in determining market access and market entry conditions. This chapter has emphasised and quantified the importance of regulatory convergence in ASEAN. Costs of compliance with technical NTMs depend not only on the stringency and number of measures abroad, but also significantly on the similarity of the foreign measures with domestic market requirements. Regulatory cooperation is therefore rightly on the agenda of ASEAN Member States as well as with important trading partners in the Regional Comprehensive Economic Partnership (RCEP) group.

SPS and TBT measures have significant price-raising effects that exceed those of traditional non-tariff barriers. Due to their important regulatory functions to protect health and the environment, they cannot be eliminated. However, estimations show that their actual burden is substantially reduced by regulatory convergence.

Each additional technical measure increases prices of trade goods by about 2 percent at the margin. However, if the additional foreign NTM overlaps with domestic regulation, the price-increasing effect practically vanishes. Thus, two ASEAN countries that have similar regulations to protect health and the environment would not increase trade costs by more than the costs of domestic compliance.

Countries neither need to be concerned about export price competitiveness when they chose to use technical measures to protect their population – if these measures are designed in a smart way, i.e. coordinated and overlapping with their trading partners.

A regulatory reform to realign existing NTMs and to maximise regulatory overlap, but without increasing or decreasing the number of NTMs in any country, could reduce the current net effects of NTMs by 15 percent to 25 percent.

Since ASEAN countries are generally well integrated into global value chains, using international standards is the first best option to achieve regulatory convergence towards a common benchmark. Regulatory convergence with particular countries, for example in mega-regional agreements, could further reduce trade costs with these trading partners. However, polarised convergence may hamper competitiveness with other export destinations across the *globe.*

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Appendix

Table A1: Descriptive Statistics and Country Coverage

Reporter	Year	Number of Distinct Technical Measures							
		Agricultural sectors				*Manufacturing sectors*			
		Mean	*Std.Dev.*	*Min*	*Max*	*Mean*	*Std.Dev.*	*Min*	*Max*
Argentina	2014	7.81	2.82	0	13	0.97	1.72	0	13
Benin	2014	5.26	4.30	0	17	0.11	0.44	0	10
Burkina Faso	2012	2.47	1.18	0	6	0.21	0.71	0	6
Bolivia, Plurinational State of	2014	3.39	1.43	0	9	0.38	1.15	0	11
Brazil	2014	8.60	3.40	0	16	1.77	2.21	0	20
Brunei Darussalam	2015	6.81	3.77	0	17	0.72	1.52	0	10
Canada	2015	9.14	6.34	0	29	1.91	2.18	0	19
Chile	2014	4.89	2.67	0	14	1.01	1.49	0	12
Côte d'Ivoire	2012	0.20	0.44	0	4	0.06	0.26	0	3
Colombia	2014	7.93	3.08	0	14	0.45	1.03	0	8
Cabo Verde	2014	8.28	4.35	0	16	0.22	0.72	0	14
Costa Rica	2015	5.55	4.34	0	17	0.41	0.88	0	8
Ecuador	2014	5.03	2.99	0	20	1.10	1.63	0	8
Ethiopia	2015	6.59	2.89	0	14	0.65	1.36	0	15
European Union	2014	15.10	6.06	0	28	4.46	3.06	0	30
Ghana	2014	9.16	4.42	0	13	1.41	2.54	0	11
Guinea	2012	3.26	1.25	0	6	0.98	0.62	0	5
Gambia, the	2013	11.65	10.33	0	36	0.11	1.10	0	33
Guatemala	2015	10.22	3.36	0	21	0.38	1.72	0	12
Honduras	2015	7.34	3.97	0	14	0.51	1.31	0	9
Indonesia	2015	8.50	6.53	0	22	1.41	1.97	0	20
Japan	2015	10.57	4.69	0	25	3.04	3.70	0	21
Cambodia	2015	7.12	5.84	0	18	2.56	3.14	0	18
Lao PDR	2015	4.90	1.98	0	11	0.67	1.79	0	13
Liberia	2014	6.87	3.43	0	13	0.38	1.17	0	11
Mexico	2014	4.27	2.94	0	14	0.75	1.04	0	7
Mali	2014	3.46	1.60	0	8	0.15	0.53	0	5
Myanmar	2015	8.65	3.93	0	19	0.51	1.52	0	13
Malaysia	2015	7.21	3.52	0	15	0.70	1.38	0	12
Niger	2014	2.60	1.20	0	6	0.13	0.51	0	5
Nigeria	2013	7.50	4.38	0	12	0.51	1.17	0	10
Nicaragua	2015	9.39	5.78	0	24	0.20	0.78	0	8
New Zealand	2015	12.24	6.03	0	22	0.65	1.41	0	19
Panama	2015	5.87	3.06	0	15	0.28	1.02	0	11
Peru	2014	5.48	2.53	0	18	0.51	1.44	0	20
The Philippines	2015	11.25	3.77	0	26	2.16	2.86	0	24
Paraguay	2014	3.44	2.74	0	13	0.31	0.93	0	8
Senegal	2012	2.42	1.63	0	7	0.04	0.25	0	5

Singapore	2015	6.42	4.33	0	18	1.71	1.63	0	10
El Salvador	2015	3.89	2.91	0	12	0.47	0.99	0	12
Togo	2014	0.62	1.19	0	3	0.10	0.45	0	6
Thailand	2015	8.70	4.97	0	19	0.68	1.84	0	16
Uruguay	2014	5.13	2.63	0	13	0.85	1.29	0	10
United States	2014	12.55	5.78	0	29	6.30	4.86	0	24
Venezuela, Bolivarian Republic of	2014	3.85	2.63	0	12	0.32	0.83	0	6
Viet Nam	2015	11.13	4.04	0	18	1.67	1.39	0	14

Std.Dev. = standard deviation.

Source: Authors' calculations.

CHAPTER 6

NTMs in ASEAN: Ways Toward Regulatory Convergence

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1. Introduction

The world economy has witnessed the fragmentation of production and its organisation into cross-border supply chains at all stages notably since the 1990s (Baldwin, 2014). Thanks to its relatively low trade barriers and overall attractiveness as a manufacturing platform, Southeast Asia has been a primary beneficiary of this trend (Ing and Kimura, 2017). Based on value added, in the last 3 decades, five of the seven gainers in the manufacturing sector globally were China, Republic of Korea, India, Indonesia, and Thailand (Baldwin, 2014). Manufacturing growth in Southeast Asia has been accompanied by income and market growth. Based on IMF forecasts of purchasing power parity (PPP)-based gross domestic product (GDP), China, India, and Indonesia could be amongst the top seven economies in the world by 2050, and other Association of Southeast Asian Nations (ASEAN) economies (the Philippines, Viet Nam, Malaysia and Thailand) amongst the top 25 (IMF, 2016).

The success of Asia's model of cross-border production networks, sometimes called 'factory Asia', has so far relied critically on the free flow of goods, capital, services, and skilled labor. However, the outlook for free and expanding international trade has turned dimmer in 2011—2016. At the global level, after over 60 years of almost uninterrupted growth in trade/GDP ratios worldwide, those ratios have stabilised or even declined, with world trade growing at a meagre 1.9 percent in 2016 against 2.3 percent for worldwide GDP (see Constantinescu et al., 2015, 2016, for more details and analysis). Even though, trade growth surged to 7.2 percent in 2017 (merchandise trade volume growth was 4.7 percent). The valuation of flexibility versus cost-saving is approached using real-options theory and highlights instances where cost savings generated by offshoring are more than offset by longer response times to randomly changing market conditions. When uncertainty is properly accounted for using real-options based valuation, the ranking between offshoring and re-shoring can be reversed (de Treville and Trigeorgis, 2010). In parallel, anti-globalisation sentiment has spread in Western countries, with conservative politicians, traditionally favourable to free trade, embracing a populist narrative, reminiscent of the 1930s, in which international trade and immigration are blamed for manufacturing job losses and all sorts of real or imaginary social evils.

Against this global backdrop, at the regional level, ASEAN risks remaining stuck in a 'shallow integration trap', of which there are already some signs, with intra-ASEAN's trade increasing merely from 22 percent in 2000 to 25 percent in 2015 (Ing and Cadot, 2016), and only to 26 percent in 2017. Indeed, regional integration in Asia remains very much an 'unfinished agenda'. A number of non-tariff barriers (NTBs) still linger on, in spite of the elimination of quantitative restrictions, tariff-rate quotas, and import bans by the ASEAN Trade in Goods Agreement (ATIGA). These barriers take various forms, in particular procedural obstacles (customs delays, unnecessary procedural and documentation requirements).

Even in the absence of NTBs, non-tariff measures (NTMs), a broader category that encompasses legitimate measures such as sanitary and phytosanitary (SPS) or technical (TBT) regulations, have not noticeably converged in the region, again in spite of ATIGA's provisions. We will focus on NTM regulatory convergence. We first discuss conceptually different forms of regulatory convergence, including harmonisation and mutual recognition. Then, we will review ASEAN's experience in the light of that of regions that have already progressed in this area, drawing in particular lessons from the EU's experience over the last half-century. Last, we look specifically at ASEAN's sector-specific approach to regulatory harmonisation and assess its achievements. Section 2 presents a factual overview of NTMs in ASEAN. Section 3 explains harmonisation efforts in NTM streamlining in ASEAN by sector (electronics, automotive, cosmetics, pharmaceutical and prepared food). Section 4 concludes.

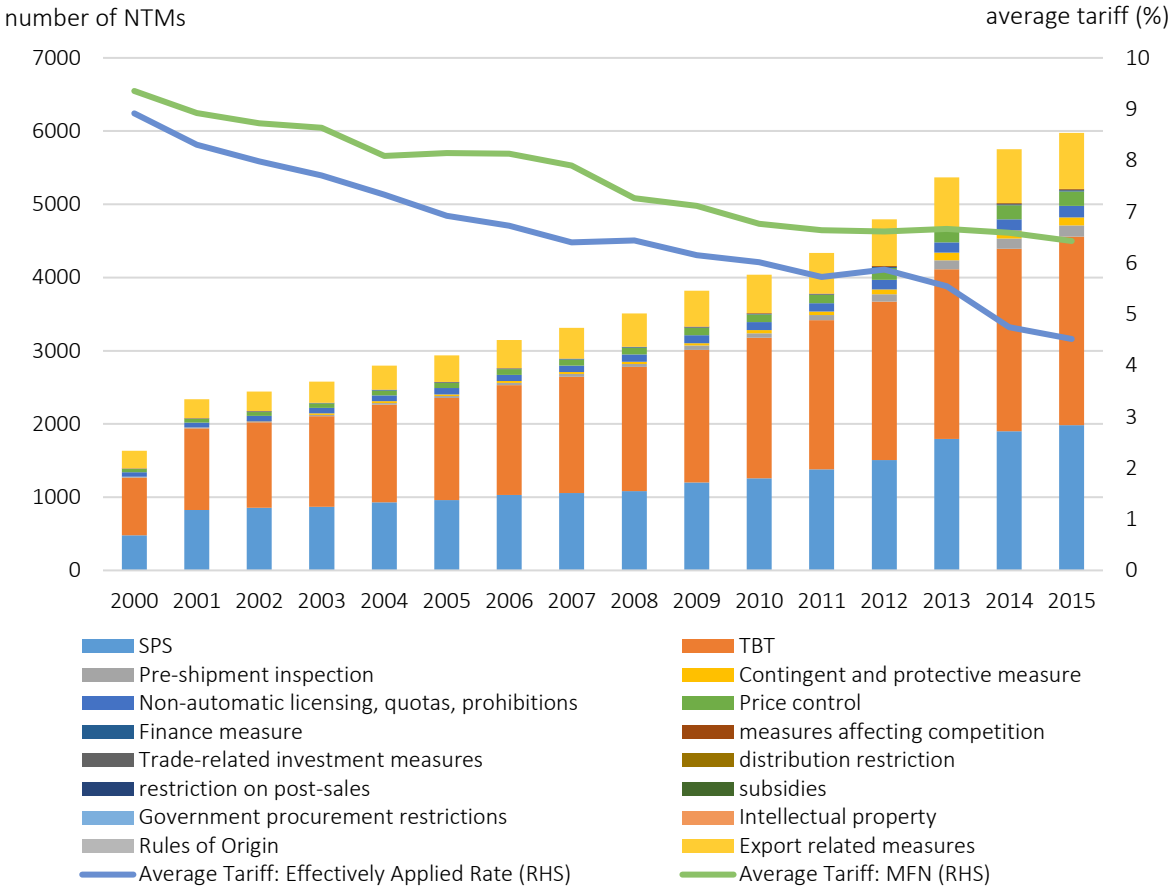
2. NTMs in ASEAN: An Overview

2.1 Evidence from NTM Inventories

The ASEAN Free Trade Area (AFTA) has successfully brought down tariffs from an average of 8.9 percent in 2000 to 4.5 percent in 2015. By 2010, 98 percent of all products at the HS–6 digit level were tariff-free for intra-ASEAN trade in the ASEAN-6 countries (Brunei Darussalam, Indonesia, Malaysia, the Philippines, Singapore and Thailand); by 2018, the same should be true of Cambodia, Lao PDR, Myanmar and Viet Nam, which had longer transition periods.

However, at the same time, numbers suggest that NTMs have proliferated, from 1,634 measures in 2000 to 5,975 measures in 2015 (Figure 6.1). While historical data on NTM counts must be taken cautiously, as reliable inventories have been collected only recently, such a trend should not come as a surprise. Rising incomes and consumer awareness typically come with rising demands for product safety, and Ing et al. (2016) have argued that the evidence so far is suggestive of such income effects rather than rising protectionism.

Figure 6.1: Trends in Tariffs and Non-tariff Measures in ASEAN, 2000–2015



ASEAN = Association of Southeast Asian Nations; NTMs = non-tariff measures; TBT = technical barriers to trade; SPS = sanitary and phyto-sanitary; RHS = right-hand side.
Source: ERIA-UNCTAD NTM Database, 2016, http://asean.i-tip.org

Indeed, the bulk of the rising stock of NTMs is accounted for by regulatory measures: Table 6.1 shows that, in 2015, 33 percent were SPS regulations, 43 percent were TBT, 13 percent were export-related measures, and all the rest, including quantitative restrictions (QRs), price-control measures, and all traditional NTBs accounted together for a meagre 11 percent.

Table 6.1: NTMs by Type in ASEAN, 2015

Code	NTM by Type	Number of NTMs	Percentage of total NTMs (%)
A	Sanitary and phytosanitary (SPS) measures	1,984	33.2%
B	Technical barriers to trade (TBT)	2,573	43.1%
C	Pre-shipment inspection and other formalities	153	2.6%
D	Contingent trade protective measures	112	1.9%
E	Non-automatic licensing, quotas, prohibitions and quantity control measures other than SPS or TBT reasons	159	2.7%
F	Price control measures including additional taxes and charges	195	3.3%
G	Finance measures	15	0.3%
H	Measures affecting competition	16	0.3%
I	Trade-related investment measures	0	0.0%
J	Distribution restrictions	2	0.0%
K	Restriction on post-sales services	0	0.0%
L	Subsidies (excluding export subsidies under P7)	0	0.0%
M	Government procurement restrictions	0	0.0%
N	Intellectual property	0	0.0%
O	Rules of origin	0	0.0%
P	Export-related measures	766	12.8%
Total coded NTMs		5,975	100%

NTMs = non-tariff measures; ASEAN = Association of Southeast Asian Nations.
Source: ERIA–UNCTAD NTM Database, 2016, http://asean.i-tip.org

Further evidence that the bulk of ASEAN's NTMs are regulatory measures is provided by Table 6.2, which classifies them by issuing agency. Most are issued by Health ministries (31.3 percent), Agriculture ministries (31.2 percent), while only 7.8 percent were issued by Trade ministries and 7.1 percent by Industry ministries.[1] Unless captured by lobbies, regulations issued by health ministries are typically of the SHEC type (Safety, Health, Environment and Consumer protection) and can be presumed to address market failures, i.e. to be welfare-enhancing, at least provided that they follow World Trade Organization (WTO) guidelines (non-discrimination, necessity and proportionality tests) and are matched by administrative capabilities.

[1] The Ministry of Agriculture includes forestry, plantation and fisheries agencies.

Table 6.2: NTMs by Issuing Agency, 2015

No	Ministry/agency	Number of NTMs	Percentage of total NTMs (%)
1	Ministry of Health	1,868	31.3%
2	Ministry of Agriculture (including forestry, plantation, fisheries)	1,865	31.2%
3	Ministry of Trade	468	7.8%
4	Ministry of Industry	425	7.1%
5	Ministry of Environment, environmental agencies	178	3.0%
6	Cabinet office, State Secretary	175	2.9%
7	World Trade Organization (provided by WTO)	87	1.5%
8	Ministry of Finance	86	1.4%
9	Ministry of Energy, and related agencies on energy	64	1.1%
10	Other institutions	759	12.7%
Total NTMs		5,975	100%

NTMs = non-tariff measures; WTO = World Trade Organization.
Note: Data on measures of Antidumping, countervailing duties and safeguards are provided by the WTO. The WTO does not issue any regulations.
Source: Authors' calculation, based on the ASEAN–ERIA–UNCTAD Database, http://asean.i-tip.org

Going to the product level, Table 6.3 shows half of ASEAN countries have 100 percent NTM coverage ratios[2], namely Cambodia, Lao PDR, the Philippines and Viet Nam, which means that these countries regulate all of its imported products. Interestingly, Thailand has a relatively low import coverage ratio (36 percent) but a 100 percent export coverage ratio. As for other ASEAN countries, coverage ratios vary between 36 percent and 89 percent of total imports. What is noteworthy in the coverage-ratio data is that low-income countries like Lao PDR or Cambodia aim at regulating all imports, in spite of very limited administrative capabilities. Such discrepancies between aims and capabilities are bound to create arbitrariness and confusion in the application of rules, especially when those are complex, like SPS or technical regulations.

[2] The import coverage ratio of a measure is the proportion of import value that it applies to. The import frequency ratio is the proportion of imported products (typically at the HS6 level of detail, at which the total number of products is around 5,000) that it applies to.

Table 6.3: NTMs Frequency Ratio and Coverage in ASEAN Countries, 2015

Country	NTM frequency ratio	NTM coverage ratio
Brunei Darussalam	46%	54%
Indonesia	57%	65%
Cambodia	100%	100%
Lao PDR	100%	100%
Myanmar	48%	57%
Malaysia	42%	56%
The Philippines	100%	100%
Singapore	99%	89%
Thailand	36%	36%
Viet Nam	100%	100%

ASEAN = Association of Southeast Asian Nations; NTM = non-tariff measure.

Notes: NTM Frequency ratio is the ratio of the number of products affected by at least one NTM (import measures, Code A–O) to the total number of product lines at the HS–6 digit level. NTM Coverage ratio is the ratio of the number of products affected by at least one NTM to the total number of products at the HS–6 digit level weighted by total value of imports of goods at the HS–6 digit level in 2015. The counting of NTMs excludes Export Measures (NTM Code P) for consistent comparability between frequency and coverage.

Source: Authors' calculation, based on the ASEAN–ERIA–UNCTAD Database, http://asean.i-tip.org. Trade data are retrieved from ITC for Lao PDR, Myanmar and the Philippines and World Bank WITS for the other countries.

Table 6.4 shows NTM frequency ratios by sector in all 10 ASEAN countries in 2015. SPS measures dominate in HS Code 01–24 (animal, vegetable, and food products), at over 90 percent. Some resource-based commodities (hide and skins, and wood products, and rubbers) are also covered by SPS which (between 23 percent and 36 percent). Technical (TBT) measures, which often relate to safety, quality and environmental considerations, are fairly distributed across sectors, with high incidence in foodstuffs (91 percent), animal products (88 percent) and vegetable products (77 percent). Export measures are frequent for animal (97 percent) and vegetable products (94 percent), foodstuffs (67 percent) and mineral products (59 percent). Export measures imposed on mineral products are often designed to maintain their domestic price artificially low, a form of industrial policy in favour of downstream sectors.

Table 6.4: NTM Frequency Ratio by Product, 2015

HS Code	Description	SPS	TBT	Export measures	Other measures
01--05	Animal and animal products	96%	88%	97%	92%
06--15	Vegetable products	94%	77%	94%	87%
16--24	Foodstuffs	92%	91%	67%	80%
25--27	Mineral products	1%	49%	59%	58%
28--38	Chemical and allied industries	8%	59%	48%	60%
39--40	Plastics/rubbers	23%	34%	36%	43%
41--43	Raw hide, skins, leather & furs	36%	50%	63%	67%
44--49	Wood & wood products	27%	47%	60%	48%
50--63	Textiles	8%	46%	46%	50%
64--67	Footwear/headgear	18%	46%	48%	54%
68--71	Stone/glass	4%	38%	40%	48%
72--83	Metals	2%	33%	35%	46%
84--85	Machinery/electrical	2%	60%	51%	52%
86--89	Transportation	4%	61%	51%	60%
90--97	Miscellaneous	5%	46%	47%	51%

HS = Harmonized System; SPS = sanitary and phyto-sanitary; TBT = technical barriers to trade.
Source: Authors' calculation, based on the ASEAN–ERIA–UNCTAD Database, 2016.

2.2 Business Perceptions

NTM data taken from inventories of official regulations are informative about the nominal incidence of measures, but not about their real impact on day-to-day business operations. Since 2013, the International Trade Centre (ITC) has conducted NTM business surveys in a number of countries. To date, four ASEAN countries have been covered: Cambodia (ITC, 2014), Indonesia (ITC, 2016), the Philippines (ITC, 2017) and Thailand (ITC, 2016a). Results are synthesised in Table 6.[3]

[3] Evidence from firm surveys must be interpreted essentially as anecdotal. In spite of the ITC's efforts to gather large, stratified samples (stratification being typically by sector and size), for a variety of reasons, the size distribution of the samples never replicates that of the entire population of firms. For instance, micro and small firms represent only 11 percent of the ITC sample in Indonesia, while they account for over 90 percent of the population of firms. Beyond such discrepancies, the construction of a relevant sampler raises deep conceptual issues ; for instance, while the overwhelming majority of firms are small ones, their distribution typically following a power law (Easterly et al., 2009), the top 1 percent of trading firms account for over half of aggregate trade (Freund and Pierola, 2015). Thus, averages from a representative sample may represent essentially the perceptions of firms that do not matter for aggregate performance. Finally, even if national firm populations are pretty much all Pareto-distributed, they differ across countries, with proportionately more micro firms in low-income countries.

Table 6.5: NTBs & Procedural Obstacles as Perceived by Business

Country		Cambodia	Indonesia	the Philippines	Thailand
Year of observation		2013	2013	2014-2015	2014
# of firms surveyed		502	953	1,149	1,067
Composition of sample					
Micro		31%	1%	19%	14%
Small business		41%	10%	50%	30%
Medium-sized business		6%	24%	10%	28%
Large business		13%	60%	15%	26%
Unspecified		9%	5%	6%	2%
% firms affected by NTMs		69%	37%	73%	38%
	Rank				
NTM type by importance	1	PSI (57%)	PSI (59%)	Customs (54%)	ROO (35%)
	2	Conf. Assess. (16%)	QRs (14%)	Cust val. (13%)	PSI (23%)
	3	QRs (11%)	Conf. Assess. (11%)	Tech. auth. (9%)	Price controls (13%)
	4	Other (16%)	Other (16%)	Other (24%)	Other (29%)
Procedural obstacles by importance	1	Delays (57%)	Delays (28%)	Delays (26%)	Arbitrarin ess (34%)
	2	Inf. Payments (19%)	Arbitrarines s (25%)	Excess. Proc. (20%)	Delays (22%)
	3	Admin burden (10%)	Excess. Charges (19%)	Excess. Doc. (18%)	Inf. Payments (15%)
	4	Other (14%)	Other (28%)	Other (36%)	Other (29%)

NTMs = non-tariff measures; NTB = non-tariff barriers; PSI = pre-shipment inspection; ROO = rules of origin; QRs = quantitative restriction; Val: customs valuation; Conf. Assess: conformity assessment; Tech. auth.: technical authorization; Excess. Proc.: Excessive procedures (too many windows); Excess. Doc: excessive documentation burden; Inf. payments: Informal payments.
Source: ITC (2014, 2016, 2016a, 2017).

One noteworthy finding from the surveys is that those NTMs most frequently flagged by respondents are not necessarily those with the highest frequency. For instance, while SPS and TBT measures have high frequency ratios in Indonesia, Thailand and Cambodia, it is pre-shipment inspection (PSI), which covers only 2.6 percent of imports, which is most frequently signaled by the private sector as a burdensome measure.

Survey evidence on procedural obstacles is also noteworthy as they are never caught in official NTM inventories, while being of clear importance for businesses. In three out of four ASEAN countries covered in ITC surveys (Cambodia, Indonesia and the Philippines) delays are mentioned as the main procedural obstacles related to NTMs (57 percent in Cambodia, 28 percent in Indonesia, and 26 percent in the Philippines). Arbitrary behaviour by officials is signaled as a concern by a third of Thailand's firms. Other procedural obstacles related to NTMs include informal payments, excessive documentary and procedural burdens (too many forms, too many windows), and unusually high fees and charges. Of course, these obstacles may be inter-related, as delays may result from refusal to pay bribes, and excessive documentary requirements may be imposed to induce firms to pay bribes to go around them.

All in all, the picture that emerges from the confrontation of inventory-based and survey-based data suggests that the convenient distinction between NTMs (largely legitimate regulatory instruments addressing market failures, such as SHEC regulations), and NTBs (deliberate obstacles to trade) may not be always so clear in practice. When administrations are weak or corrupt, seemingly legitimate regulations can be applied at the border in such a way that they generate substantial procedural obstacles, with the same result as NTBs. In such cases, the underlying rationale may or may not be the protection of national industries. It may simply be that customs are a convenient point to extort bribes through bureaucratic harassment. Thus, the prism through which trade economists and lawyers typically look at NTMs – are they discriminatory or not? – may also not be so useful in practice if they constitute trade-facilitation obstacles for all firms (see Asprilla et al., 2016).

3. Streamlining NTMs in ASEAN

3.1 Deepening Regional Integration: The Issues

As noted by Bourgeois et al. (2007) and Piermartini and Budetta (2009), inter alia, a number of regional agreements contain deep-integration provisions that go beyond the requirements of WTO Article XXIV or the Enabling clause. Such provisions are typically intended to go beyond free trade (understood as the elimination of intra-bloc tariffs and QRs) to the free movement of goods, understood as the elimination of all forms of NTBs, even when those stem from simple regulatory differences rather than trade policies. Whether regulatory differences between countries in a trading bloc should always be chased down is a difficult conceptual issue. While differences in national technical standards create business costs when they force costly adaptation of products, they may well reflect different societal choices expressed democratically through laws, regulations, or court decisions. Erasing such differences to

reduce business costs may be welfare-enhancing or welfare-reducing, depending on circumstances. For instance, the process through which regulations are harmonised in a trading bloc may not aggregate correctly individual preferences; on one hand, it may reflect the overwhelming influence of the bloc's hegemon through bargaining; on the other, it may give an unduly large influence to small countries if decisions are made at the simple majority of member states. When regulatory differences are welfare-reducing, several approaches exist to reduce or eliminate them.

The first approach is applying national treatment, i.e. to prevent member states from discriminating, de jure or de facto, between domestic and foreign (partner) products. This is essentially the regional translation of GATT Article III. The GATT allows exceptions through Article XX; likewise, regional agreements may admit exceptions from the national-treatment principle, typically in the case of SHEC regulations. Under national treatment, firms must obey the *destination principle*; that is, products must be adapted to the destination market's requirements. Thus, the issue of adaptation costs is not addressed under this approach.

The second approach is to impose a blanket prohibition of all non-tariff measures having the effect of restricting trade, whether justified by market failures or not. As this is obviously too intrusive to be realistic, such a prohibition must be accompanied, again, by derogations. The main problem with this approach – which is essentially that contained in Articles 34 and 36 of the EU's Lisbon Treaty – is how wide should be the range of situations where derogations can be granted (see Box 1).

The third approach is harmonisation of national regulations by some sort of supra-national body – like the European Commission – or through intergovernmental negotiations. There are several problems with this approach. First, it ignores the differences in national preferences that may have led to differences in national regulations. Second, it is overwhelmingly complex, as many countries have thousands of regulations on the books. Third, it requires that the body issuing new, harmonised regulations work with industry experts to deal with technical issues, opening the door to capture by large firms and industry associations (the ones most likely to have access to such a high-level process). Finally, even in the unlikely event where the process managed to reach completion, its sheer complexity would discourage attempts to adapt it to changing technology and market conditions, freezing the body of harmonised regulations and possibly stifling innovation.

The fourth approach, mutual recognition (MR), is meant to avoid the pitfalls of harmonisation. Under MR, a product that is cleared for sale in one member state is automatically cleared for sale in any other member state. Under MR, firms obey the *origin principle*: If their products are designed to satisfy the production country's regulations, they do not need further adaptation to be marketed in the bloc's other countries. Thus, MR cuts into the Gordian knot of harmonising large numbers of regulatory texts, since they can coexist without imposing adaptation costs. However, in practice, there are limitations to its applicability and benefits. First, MR can apply only when regulations are *equivalent*, i.e. pursue the same objectives, and when member countries agree that the proper way of reaching those objectives is to regulate performance rather than the detail of technical specifications. Second, member countries need to trust each other's enforcement capabilities, which is easier when they are at similar

levels of development and share broadly similar societal preferences, in particular in terms of proper balance between business costs and SHEC objectives. MR is also less powerful in practice than it looks on paper. In principle, it reverses a crucial burden of proof – under the origin principle, it is no longer up to firms to prove compliance with the destination country's regulations. Instead, it is up to the latter's authorities to prove that a product designed to satisfy the regulations of another member country violates a substantial provision of its own regulations.[4] However, in practice, firms (especially small ones) may not know about mutual recognition and to which products it applies; moreover, it may be hard to convince recalcitrant bureaucrats of the reversal of the burden of proof.

Box 1: Europe's Experience with Integration

While the Common Market was essentially a customs union in its first 10 years (1958–1968), the Treaty of Rome defined, from the start, its objective as the free movement of goods, services, capital, and people, something that was much more ambitious than just a customs union. In the early days, the European Community tried to foster deep integration through harmonisation, i.e. the creation of new European Community (EC)-wide regulations in replacement of national ones. Later dubbed the 'old approach', harmonisation was progressively recognised as going nowhere, as lack of trust between member states led to detailed and cumbersome technical regulations – all the more since regulatory impact assessment, now mandatory, was not used. The general prohibition of NTBs (re)stated in Article 34 of the Lisbon Treaty was not working either, as too many derogations were granted to member states under Article 36. To discipline them, the European Court of Justice (ECJ), which played a key role in the EC's deepening integration, elaborated through its case law a concept of *equivalence* between national regulations (essentially the notion that national regulations pursue the same objective) under which derogations could not be granted.

The year 1978 marked a turning point with the ECJ's landmark *Cassis de Dijon* decision, which established the principle of mutual recognition, grounded in the twin principles of equivalence and origin: If the regulations of member states A and B were equivalent (i.e. pursuing the same objectives, presumably of the SHEC type), compliance with the origin country's regulations automatically granted the right to sell in the destination country. This was what Pelkmans (2012) called 'judicial MR'.

In parallel, a 'new approach' to harmonisation emerged that would overcome the pitfalls of the old one. Instead of crafting detailed technical regulations through inter-government bargaining, the European Commission would issue 'light' directives stating broad regulatory objectives, in terms of performance rather than technical specification, and issue mandates to market players (independent non-profit organisations such as CEN or CENELEC) to develop performance standards consistent with the directives' objectives. As long as products were certified (by notified bodies) as compliant with the relevant standard, they would enjoy MR; this was what Pelkmans (2012) called 'regulatory MR'. The Commission would also encourage the adoption of world standards whenever possible to extend MR treatment to imports from third countries as well.

[4] The legal term for this is 'presumption of compliance'; see Pelkmans (2012) for details.

The combined evolution of ECJ case law and regulatory philosophy at the level of the Commission successfully pushed forward deep integration in the EC while avoiding (to some extent) regulatory proliferation. Indeed, the Commission also pushed a vigorous *deregulation* agenda in services, in particular energy and transport, unseating long-established monopolies and raising economic efficiency.

In spite of the key roles and tacit cooperation of the ECJ and European Commission, progress could not be entirely top-down. There was also a good dose of political support at the national level, even in the presence of substantially different political sensitivities in, say, Margaret Thatcher's Britain or François Mitterrand's France. This relative consensus on the need to forge ahead led to the adoption of the 1986 Single European Act, which tore apart many of the remaining obstacles to market integration. The 2000s, however, witnessed a severe erosion of this consensus, with fateful consequences. As Britain's conservatives radicalised, their agenda shifted to dismantling what was left of the regulatory State after the already brutal deregulation of the Thatcher years, which meant breaking away from the EU's carefully-balanced regulatory and social-protection agenda.[5] Thus, Brexit's sovereignist and anti-immigrant rhetoric was essentially a marketing pitch; the real agenda was un-harmonisation to make the UK a 'deregulation haven'.[6]

Source: Pelkmans, 2012.

Europe's 60-year experience with building a single regional market (see Box 1) highlights a number of lessons of interest for ASEAN countries as they look forward to deepening regional integration. First, hard harmonisation (Europe's 'old approach') appears as neither feasible nor desirable across the board, as it would lead, if successful (an unlikely event in the presence of bargaining tactics by member states) to excessive regulatory centralisation and a rigid body of detailed regulations that could end up stifling innovation. Second, a blanket prohibition of all trade-reducing NTMs, leaving no room at all for regulatory sovereignty, would not be politically viable without a derogation mechanism; but the management of derogations could prove difficult, especially in the absence of a supra-national judicial body such as the ECJ. Third, 'judicial MR' (the combination of the origin principle and regulatory equivalence between member states) may appear as an appealing option on account of its lightness and flexibility; however, it requires that (i) member states share the same overall regulatory philosophy, and that (ii) information about business rights (the reversal of the burden of proof) is effectively communicated to businesses through business associations, chambers of commerce and the like, and to national officials at all levels. Fourth, 'regulatory MR' (the combination of broad directives with performance standards) also appears appealing, especially if solidly anchored

[5] For instance, Nigel Lawson, Chancellor of the Exchequer under Margaret Thatcher, was quoted in the 7 September 2017 edition of *The Telegraph* as saying that the Thatcher government's deregulation 'transformed the performance of the British economy', adding that 'once out of the EU, we have the opportunity to do this on an even larger scale with the massive corpus of EU regulation. We must lose no time in seizing that opportunity.' Duncan Smith, conservative MP and former Labour Secretary, is quoted in the same edition as declaring '[l]et us leave and then the Conservative Party at the next election needs to say, 'we can reduce the cost on business and on individuals by reducing regulations which will improve our competitiveness, our productivity and therefore ultimately our economy.

[6] *The Guardian* of 20 July 2017, reported that 'Michel Barnier, the EU's chief Brexit negotiator, […] said EU states could refuse to approve a trade deal with the UK unless the government gives assurances that it will not use Brexit to deregulate and lower standards.'

on world standards. However, and this is the fifth and last lesson, Brexit shows that adherence to deep integration requires a shared vision. If governments place the cursor at widely different positions in the trade-off between consumer safety and lower business costs (for instance, if some governments pursue a drive for blanket deregulation driven by ideology rather than cost-benefit analysis) it may prove difficult to move forward and reversals are possible.[7]

3.2 ATIGA's Approach to Deep Integration in ASEAN

ASEAN's general approach to NTMs is defined in Chapter 4 of ATIGA. The basic principle, spelled out in Article 40, relies on national treatment, the first of the four approaches identified in Section 3.1 of this chapter, and a specific prohibition of QRs mirroring Article XI of the GATT (ATIGA Article 41). This minimalist approach is complemented by a number of additional provisions contained in ATIGA's Chapters 5 (trade facilitation), 7 (technical standards) and 8 (SPS measures).

For NTMs other than QRs, ATIGA relies on inter-governmental bodies to identify those constituting NTBs: The Coordinating Committee for the Implementation of the ATIGA (CCA), the ASEAN Consultative Committee on Standards and Quality (ACCSQ), the ASEAN Committee on Sanitary and Phytosanitary (AC-SPS), the working bodies under ASEAN Directors-General of Customs, and 'other relevant ASEAN bodies, as appropriate, in accordance with the provisions of this Agreement, which shall submit their recommendations on the identified non-tariff barriers to the AFTA Council through SEOM.'[8] NTBs identified through this procedure were initially set to be eliminated in three tranches according to fixed schedules, with deadlines allowing for some flexibility to accommodate particular circumstances: 2010 for Brunei Darussalam, Indonesia, Malaysia, Singapore and Thailand, 2012 for the Philippines, and 2015 (with flexibility up to 2018) for Cambodia, Lao PDR, Myanmar, and Viet Nam. However, progress was, at the time of writing, hard to assess, with no data available on the ASEAN Secretariat's website for years beyond 2009, the year ATIGA was signed.

In addition to elimination schedules for NTBs identified by inter-governmental bodies, ATIGA set up an identification mechanism akin to reverse notification in Article 42, Sections 4–6:

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[7] As a minor but telling illustration of the recent drive for all-out deregulation in the UK, *The Independent* reported on 30 July 2017 that the '[t]he Government ignored expert advice and made changes in 2015 that made it easier to buy dangerous acids that have been used in a spate of attacks in recent weeks. […] The changes made in 2015 were against the recommendations of the Poisons Board, a panel of experts established to advise ministers on regulating the trade in dangerous substances, who favoured tightening, rather than weakening, regulations so that high concentrations of acid could be sold only by licensed pharmacists. However, ministers ignored the advice and used the Deregulation Act to completely abolish the Poisons Board. […] At the time, Conservative ministers boasted about 'cutting red tape for business' and claimed the change would save retailers £20,000 a year.' (Ben Kentish, 'Government ignored expert advice and relaxed laws on sale of acids used in recent attacks'; *The Independent*, 30 July 2017). In this case, the EU merely imposes classification and labelling requirements for hazardous chemicals under Regulation 1272/2008, which was not a constraint for the UK government.

[8] ATIGA Article 42, p.42.

> 'Notwithstanding Paragraphs 1 to 3 of this Article, the CCA, in consultation with the relevant ASEAN bodies, shall review any non-tariff measure notified or reported by any other Member State or by the private sector with a view to determining whether the measure constitutes as a NTB. If such review results in an identification of a NTB, the NTB shall be eliminated by the Member State applying such NTB in accordance with this Agreement. The CCA shall serve as a focal point for the notification and review referred to in Paragraph 4 of this Article. Exceptions to this Article shall be allowed for the reasons provided in Article 8.'[9]

Chapter 5, on trade facilitation, provides more detailed guidance on the reduction of procedural obstacles to regional trade through the ASEAN Trade Facilitation Framework (ATFF). Under the coordination of the ASEAN Trade Facilitation Joint Consultative Committee (ATF–JCC), the ATFF sets road maps for work in several areas: the ASEAN Single Window (ASW), the ASEAN Customs and Transit System (ACTS), the ASEAN Trade Repository (ATR) with inter-operative network with National Trade Repositories (NTRs), the ASEAN-wide system of Self-Certification, and the system of ASEAN Solution for Investments, Services and Trade (ASSIST).

In the area of technical regulations, given the heterogeneity of its members' development levels and the lack of strong supranational bodies, ATIGA refrains from an all-encompassing, top-down approach, but instead offers in Chapter 7 a menu of options that member states are encouraged to take, depending on circumstances. Article 75 spells out good practices for technical regulations that essentially mirror WTO provisions. As for standards, whenever international ones are available, member states shall adopt them (Article 73, Section 2(a) and Article 74, Section 2); when no international standards exist, member states shall 'align' national standards amongst themselves (Article 74, Section 2). However, as noted, there is in ASEAN no body like the EU Commission to set broad directives to guide the alignment of national standards in terms of overall regulatory objectives; thus, the approach contained in Article 74 is not as powerful as the EU's 'new approach' (see supra) in driving regulatory coherence. Article 73, Section 2(b) requires member states to promote the mutual recognition of conformity-assessment results, and Article 73, Section 2(c) to 'develop and implement ASEAN Sectoral Mutual Recognition Arrangements and develop ASEAN Harmonized Regulatory Regimes in the regulated areas where applicable'. However, the agreement's wording does not make it entirely clear how compelling these prescriptions are, as its opening sentence states that '[m]ember States shall take *any* of the following *possible* measures' and does not specify any compliance mechanism.

In the area of SPS regulations, Chapter 8 spells out basic disciplines, which, again, largely mirror those of the WTO's SPS agreement. Article 82 mandates the creation of an ASEAN Committee on SPS measures (AC–SPS) with a facilitator/information-sharing role, with wording that could allow the AC–SPS to grow into a regional dispute-resolution body (albeit based on negotiation rather than enforcement) if the political drive was there. Article 84 develops in broad terms an equivalence principle, anchored in international food standards

[9] ATIGA Article 42, page 43.

(e.g. the Codex, OIE or IPPC)[10], that could facilitate mutual recognition amongst member states.

All in all, it is fair to say that, cognisant of the bloc's heterogeneity in terms of development levels and administrative capabilities, ATIGA's negotiators stopped well short of a mandatory, top-down harmonisation agenda. Instead, they manifestly relied on a pragmatic, flexible 'open regionalism' approach whereby regional arrangements were solidly anchored in international trade rules and regulatory disciplines, encouraging member states to converge to those rules. Even mutual recognition is mentioned in passing, without a strong push. While the absence of a supra-national body would have made Pelkman's 'regulatory MR' (regional directives complemented by national performance standards pursuing consistent regulatory objectives) difficult, even 'judicial MR' (the combination of the equivalence and origin principles) was not strongly suggested by ATIGA, except in the important area of conformity assessment.

In spite of ATIGA's light-foot approach to regulatory convergence, mechanisms have been put in place in ASEAN to achieve harmonisation in a number of priority sectors, under the aegis of the ASEAN Consultative Committee on Standard and Quality (ACCSQ), established in 1992. We now turn to a detailed discussion of sector-level harmonisation.

4. ASEAN Standard Harmonisation Efforts by Sector

Standard harmonisation efforts have been led by the ASEAN Consultative Committee on Standard and Quality (ACCSQ). Established in 1992 to support AFTA integration, the ACCSQ initially consisted of three working groups. It has since evolved, into a coordinating body consisting of nine working groups (three general-purpose and six sectoral) and two sectoral committees.

ASEAN listed Priority Integration Sectors (PIS) agreed in 2004.[11] Sectors were designated as PIS based on four criteria: (i) the volume of intra–ASEAN trade, (ii) the existence and extent of TBT, (iii) the readiness of technical infrastructure in the majority of ASEAN member states, and (iv) the interest of the majority of ASEAN member states.[12] A number of PIS are divided into sub-sectors subjected to harmonisation managed by the ACCSQ. For instance, health care is divided into medical devices, cosmetics, pharmaceuticals, and traditional medicines and health supplements. Likewise, the natural-resource based sector is divided into prepared foodstuff, rubber-based products and wood-based products, and other sectors. The working groups and committees are detailed in Table 6.6.

[10] Codex Alimentarius Commission, the World Organization for Animal Health (OIE), International Plant Protection Convention (IPPC)
[11] PIS include agro-based products, air travel, automotive, e-ASEAN, electronics, fisheries, health care, rubber-based product, textiles & apparel, tourism, and wood derivative products.
[12] Based on ASEAN Framework Agreement on Mutual Recognition Arrangements signed in 1998.

Table 6.6: Working Groups and Committees in ACCSQ

Working Group or Committee	Objective	Observed recent development
WG 1– Working Group on Standards and Mutual Recognition Arrangements WG 2 – Working Group on Accreditation and Conformity Assessment WG 3 – Working Group on Legal Metrology	Supporting sectoral MRA by developing the guide and monitoring the implementation Supporting the capacity of member states in accreditation and conformity assessment Supporting legal metrology in ASEAN by harmonisation and cooperation.	Task Force on Building and Construction (TFBC) Task Force on Wood-Based Products (TFWBP)
JSC EEE MRA – Joint Sectoral Committee for ASEAN Sectoral MRA for Electrical and Electronic Equipment	Managing the harmonisation of standard and conformity procedure of Testing Laboratories and/or Certification Body in EE sectors	- ASEAN EEE MRA - ASEAN Harmonised Electrical and Electronic Equipment Regulatory Regime (AHEEERR) - agreed 119 standards - recognition of listed testing laboratories and certification bodies
ACC – ASEAN Cosmetic Committee	Managing the harmonisation of technical regulation for cosmetic sector	Agreement on the ASEAN Harmonised Cosmetic Regulatory Scheme MRA for Cosmetics ASEAN Cosmetics Directive
PPWG – Pharmaceutical Product Working Group	Managing the harmonisation of pharmaceutical requirement and regulations for AMS	- MRA in pharmaceutical products - ASEAN Common Technical Dossier - ASEAN Common Technical Requirements - finalisation of MRA for Bio-equivalence (BE)
PFPWG - Prepared Foodstuff Product Working Group	Managing the harmonisation in prepared foodstuff and preparing the MRA	- developing the MRA
APWG – Automotive Product Working Group	Managing the harmonisation in automotive sector by developing MRA	- Agreed 19 standards referring UNECE - developing MRA
TMHSPWG – Traditional Medicines and Health Supplements Product Working Group	Managing the harmonisation in traditional medicines and health supplements product by developing the MRA	- developing the Agreement on Traditional Medicines and the Agreement on Health Supplements
MDPWG – Medical Device Product Working Group	Managing the harmonisation in medical device product by developing a common dossier template for ASEAN and post-market alert system	- ASEAN Medical Device Directive (AMDD) - harmonisation of standard and technical regulation
RBPWG – Rubber-Based Product Working Group	Managing the harmonisation in rubber-based product by developing standard, technical regulations and conformity assessment for AMS	- developing the MRA

ACCSQ = ASEAN Consultative Committee on Standards and Quality; ASEAN = Association of Southeast Asian Nations; MRA = mutual recognition arrangement.

Source: Authors' compilation from ASEAN Secretariat (2015), Prassetya and Intal (2015), and Scoles (2016).

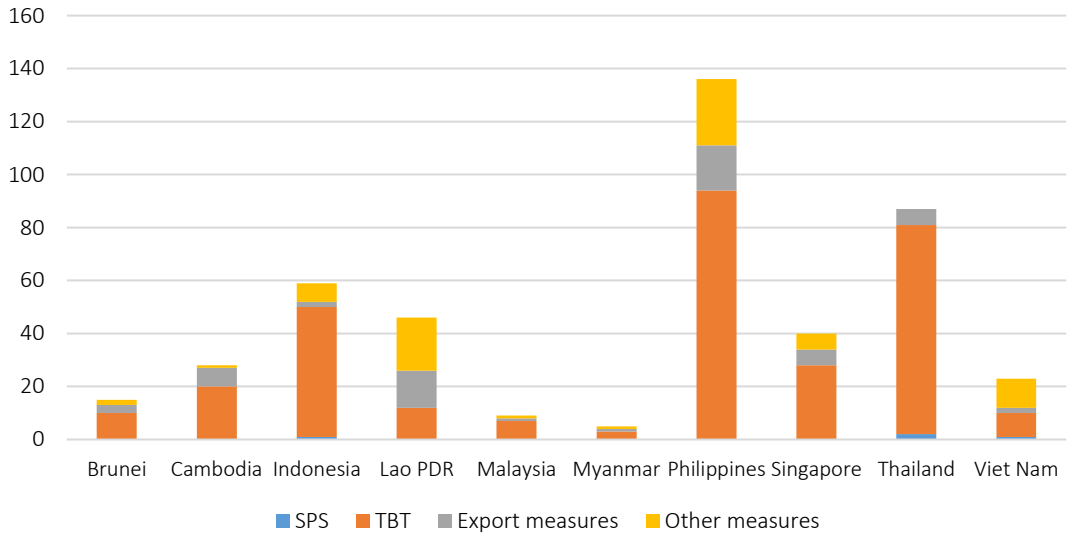
How far harmonisation and MR have progressed varies across sectors. As of December 2018, electronics, cosmetics and pharmaceuticals have integrated ASEAN standards and technical regulations. The electronics and electrical equipment (EEE) sector relies on the worldwide International Electrotechnical Commission (IEC) standard. Electronics and cosmetics are two sectors largely dominated by multinational companies, making the alignment of regional standards on international ones crucial. By contrast, prepared foodstuffs and traditional medicine products largely produced by local small and medium-sized enterprises, cannot or do not bother to comply with international standards, especially when selling in their domestic market.

While recognising that efforts to streamline and discipline NTMs and to improve their transparency have not progressed at the same pace in all ASEAN countries, in the following sections we take stock of achievements so far at the regional level, focusing on the four PISs: EEE, automotive, health (cosmetics and pharmaceutical) and prepared foodstuffs.

4.1. Electronics and Electrical Equipment (EEE)

Figure 6.2 shows the number of NTMs applied to EEE products (defined as HS-85), by country and type of measure.[13] Unsurprisingly, most NTMs in the EEE sector are technical regulations, although their incidence varies across countries.[14] The Philippines are the heaviest user by number of measures, followed by Thailand and Indonesia. Being a manufacturing hub in electronics, Malaysia has only nine measures, a light-footed approach probably intended to minimise interference with the functioning of cross-border supply chains.

Figure 6.2: Number of NTMs in the EEE sector, 2015

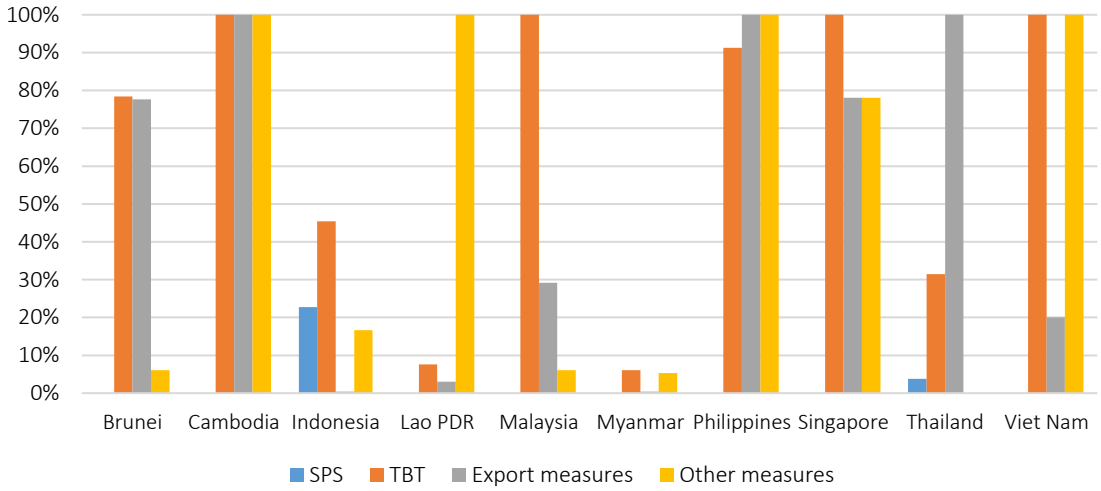


NTMs = non-tariff measures; EEE = electronics and electrical equipment; SPS = sanitary and phyto-sanitary; TBT = technical barriers to trade.
Note: EEE products in this chart is defined as all products in HS-85.
Source: Authors' calculation, based on the ERIA–UNCTAD NTM database, 2016, http://asean.i-tip.org

[13] For simplification of each sectoral measure accounting, i.e. EEE, automotive, cosmetics, pharmaceuticals and prepared foodstuff products, this paper uses the HS Code at two-digit level.

Figure 6.3 shows NTM frequency ratios for EEE products across ASEAN countries, by type of measure. Brunei Darussalam, Cambodia, Malaysia, the Philippines, Singapore, and Viet Nam have TBT coverage ratios between 78 percent and 100 percent, whereas Indonesia and Thailand have 45 percent and 31 percent, respectively. TBT coverage ratios for Lao PDR and Myanmar are around 8 percent and 6 percent respectively, reflecting limited consumer awareness and administrative capabilities.

Figure 6.3: NTM Frequency Ratio in the EEE sector, 2015



EEE = electronics and electrical equipment; SPS = sanitary and phyto-sanitary; TBT = technical barriers to trade.
Note: EEE products in this chart is defined as all products in HS-85.
Source: Authors' calculation, based on ERIA–UNCTAD NTM database, 2016.

Harmonisation in the EEE sector started in 2002 with the ASEAN Electrical and Electronic Equipment Mutual Recognition Agreement (ASEAN EEE MRA), followed in 2005 by the ASEAN Harmonised Electrical and Electronic Equipment Regulatory Regime (AHEEERR). As of December 2018, the AHEEERR today comprises a set of 119 international (IEC) standards, together with a conformity-assessment procedure. Regulatory objectives include health, safety, environment preservation, and electromagnetic compatibility. However, by 2015, only six countries had totally revised their national legislation to meet the requirements outlined in the AHEEERR: Brunei Darussalam, Indonesia, Myanmar, Singapore, Thailand and Viet Nam. Cambodia, Malaysia, and the Philippines had partially revised their legislation, whilst Lao PDR has yet to revise its own (Prassetya and Intal, 2015).

Box 2: Survey on Conformity Assessment Performance in the EEE sector in ASEAN

Between November and December 2016, ERIA conducted interviews with government and private-sector representatives on the operation of the AHEEERR's conformity-assessment procedures (CAP), including one testing laboratory and one certification body in each of three ASEAN countries: Indonesia, Singapore, and Thailand.

Four main issues surfaced in the interviews: First, the listing process for testing labs is perceived to be long by the private sector, taking up to 6 months from application to final approval. Second, MR as envisaged in the ASEAN Framework Agreement on Mutual Recognition Arrangements and ASEAN Sectoral Arrangement for Mutual Recognition in Electrical and Electronic Equipment does not appear to work smoothly in practice. On paper, a laboratory listed by a National Accreditation Body (NAB) should be recognised in all 10 ASEAN countries and its results accepted automatically. In reality, in many cases the lab still needs to apply for accreditation in the destination country, a process that can be, again, long and cumbersome. Third, member states sometimes change national standards without the prior notification and transition period mandated by good regulatory practices and WTO and ATIGA prescriptions. Fourth, there is no clear agenda on the timeline of AHEEERR implementation.

The main issue on CAP is how effectively ASEAN countries are implementing the system. As national standards vary, whether they are modified versions of IEC standards or outright different, problems still arise. For instance, it happens that the destination country rejects products tested in an origin country using an older version of the IEC (international standard).

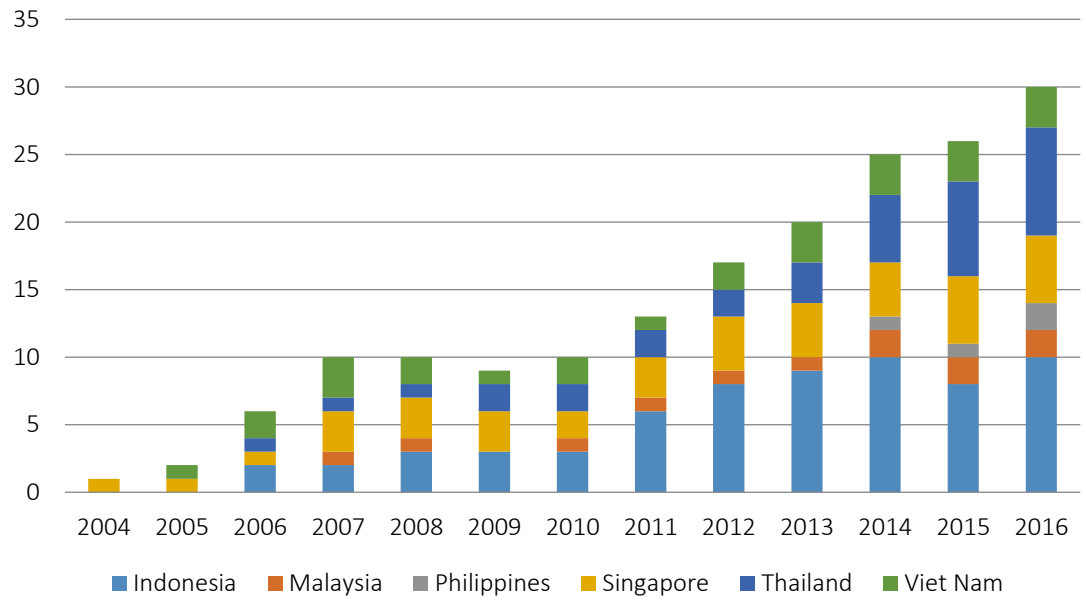
While a number of firms in Thailand claimed that the AHEEERR Scheme had helped them diversify their portfolio of exports by reducing the cost and uncertainty of exporting, Singapore's testing labs did not see much benefit from AHEEERR, as most of Singapore's trade makes use of the CB Scheme to export to both ASEAN and non–ASEAN countries, reflecting its worldwide reach. At the other extreme of the spectrum, Indonesia's firms were often more focused on their domestic market and showed only marginal interest for the AHEEERR scheme.

Respondents suggested that ASEAN governments should work to improve the compatibility of the AHEEERR and CB schemes and improve the reach of certification schemes to small and medium-sized enterprises to help them get up to speed in terms of certification, which would help them join regional or worldwide supply chains led by multinationals as third- or n^{th}-layer suppliers, or even directly reaching foreign customers themselves. For that, a first step would be for national certification infrastructures to be transparent and managed by professionals.

Source: Authors' Interviews

Figure 6.4 shows progress achieved in setting up a certification and testing infrastructure in member states to support harmonised standards in the EEE sector. Efforts started in 2004, and the number of participating laboratories grew steadily over the years. By December 2016, nine certification bodies and 21 testing laboratories were operational for conformity assessment across ASEAN countries.

Figure 6.4: Number of AHEEERR-listed Operating Certification Bodies and Testing Labs



AHEEERR = ASEAN Harmonised Electrical and Electronic Equipment Regulatory Regime.
Note: The number does not represent the utilisation rate of testing labs and certification bodies.
Source: Data are compiled from ASEAN Secretariat Website, January 2017.

As a vehicle for the recognition of testing labs, AHEEERR listing competes with the privately-funded IEC System of Conformity Assessment Schemes for Electrotechnical Equipment and Components (IECEE), called the Certification Bodies (CB) Scheme for short. Under the CB Scheme, participating labs can be accredited by any participating national accreditation body under the supervision of Participating Member Bodies. The CB Scheme has five participating members in ASEAN: Indonesia, Malaysia, Singapore, Thailand and Viet Nam, although the latter has listed neither its National Accreditation Bodies nor CB Testing Laboratory. Table 6.7 compares the number of participating laboratories and certification bodies in AHEEERR and CB Scheme, by country.

Table 6.7: Number of listed CBs and TLs, ASEAN EEE MRA and IECEE CB Scheme

Country	ASEAN EEE MRA*		IECEE CB Scheme**		
	# listed CBs	# listed TLs	Member Body	# CBs	# TLs
Indonesia	5	5	Badan Standarisasi Nasional (BSN)	3	4
Malaysia	1	1	Department of Standard Malaysia	1	1
Singapore	1	4	SPRING Singapore	3	25 (all outside Singapore)
Thailand	1	7	Thai Industrial Standard Institute (TISI)	1	1
Viet Nam	1	2	IEC National Committee of Viet Nam, STAMEQ	0	0

CBs = Conformity Bodies; TLs = Testing Laboratories; ASEAN = Association of Southeast Asian Nations; EEE = electrical and electronic equipment; MRA = mutual recognition arrangement; IECEE = IEC System of Conformity Assessment Schemes for Electrotechnical Equipment and Components; SPRING = Standards, Productivity and Innovation Board; STAMEQ = The Directorate for Standards, Metrology and Quality of Viet Nam.
Note: *as June 2016 and **as November 2016
Source: ASEAN Secretariat and IECEE, accessed in November 2016.

Although participation in the CB Scheme entails costly annual membership fees for laboratories compared with free-of-charge AHEEERR listing, the CB Scheme confers recognition in a wider network of labs spanning the world's largest importers of electronics such as China, the United States, Hong Kong and Germany.

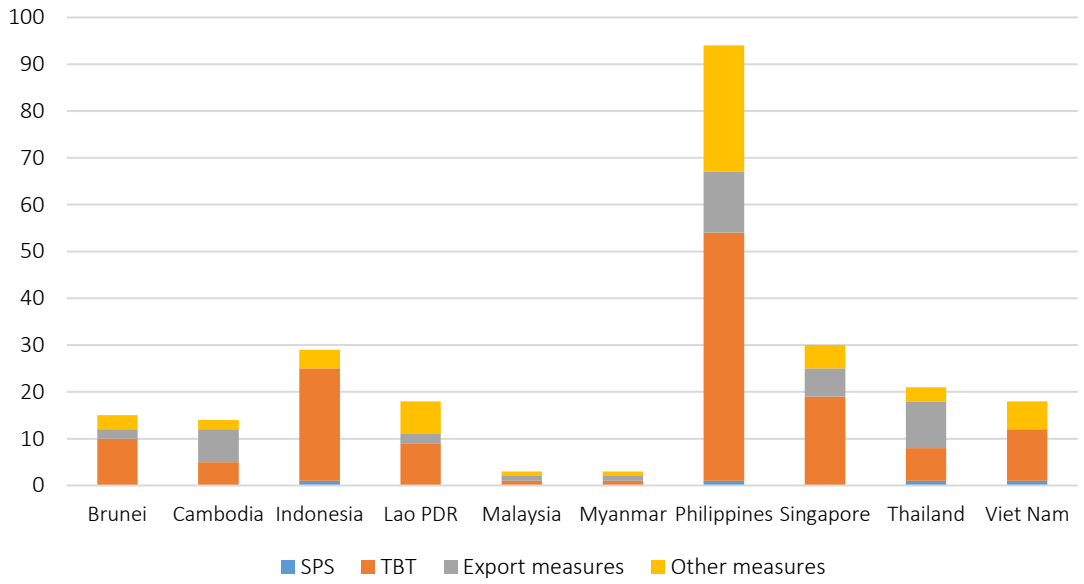
However, the rising number of listed certification bodies and laboratories under the AHEEERR and CB Scheme has not translated into more intense intra-regional trade in the EEE sector, as the share of trade in electronics products (HS 85) relative to total intra-ASEAN trade *decreased* from 28.2 percent in 2004 to 21.4 percent in 2016. However, this may be due to economic forces such as in automotive and unrelated to the effect of harmonisation (like more rapid growth in other sectors), and does not imply that harmonisation failed to deepen regional market integration in the EEE sector compared to a no-harmonisation benchmark.

In spite of substantial progress, several challenges need to be addressed. First, as noted, progress varies across ASEAN member states, and a number of national standards are still not in line with IEC standards. As a minimal (and transitional) form of MR in the region, countries with non-harmonised national standards should recognise products that are designed to IEC standards. This could be implemented on the ground through a system of self-declaration by importers subject to national liability laws, with strict enforcement (such as revocation of import licenses). Second, even when national standards have been adapted to IEC ones, different versions of IEC standards have been used. Again, products designed and manufactured under IEC standards, irrespective of which version, should be automatically cleared. The JSC–EEE could facilitate countries willing to pilot such an approach, in addition to providing capacity building for countries with underdeveloped certification bodies and testing laboratories. In the longer run, pushing harmonisation beyond safety requirements into areas such as labelling, product quality and performance requirements (e.g. energy performance certification) would confer additional benefits on ASEAN consumers.

4.2. Automotive

Figure 6.5 shows the number of NTMs applied on automotive products, by country and type of measure. Again, technical regulations dominate. The Philippines has the highest number of NTMs. Somewhat surprisingly, Malaysia has virtually no NTMs of any sort in the data, although it has long had an active industrial policy to promote a domestic automobile industry. Whether the data genuinely reflects the elimination of NTMs in Malaysia's automobile sector or, rather, under-reporting, remains, at this stage, an open question.

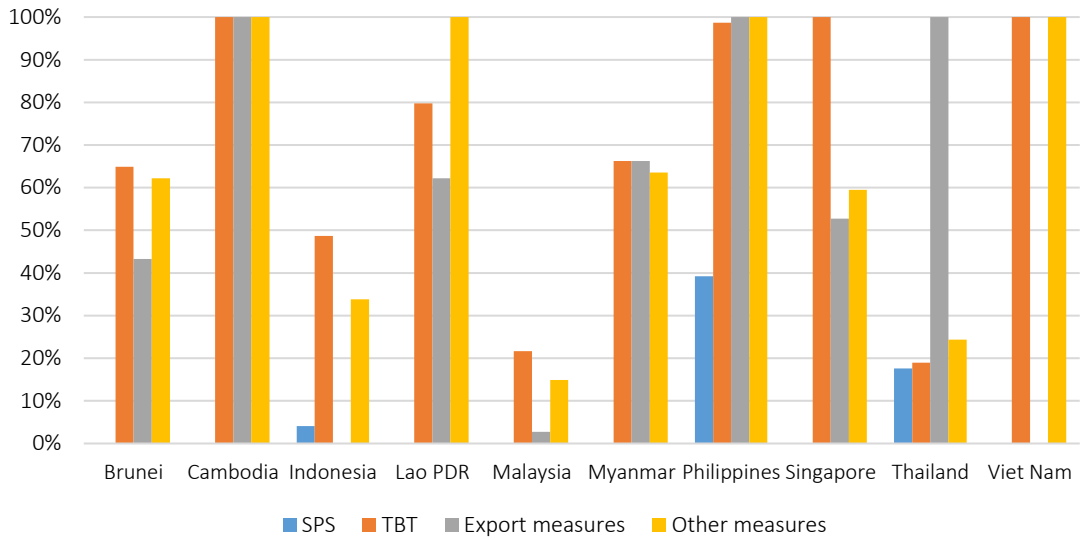
Figure 6.5: Number of NTMs in the Automotive Sector, 2015



NTMs = non-tariff measures; SPS = sanitary and phyto-sanitary; TBT = technical barriers to trade.
Note: Automotive products include all products in the HS-87.
Source: Authors' calculation, based on ERIA–UNCTAD NTM database, 2016.

Figure 6.6 shows NTM frequency ratios in the automotive sector, by country and type of measure. Again, technical regulations dominate, applying to over half of all automotive products, except in Indonesia (slightly below 50 percent), Malaysia (less than 30 percent), and Thailand (less than 20 percent). Lower frequency ratios in Indonesia, Malaysia and Thailand may reflect less stringent regulations on car parts to enhance their attractiveness as platforms for automobile assembly, all three countries being major automobile assemblers. For instance, Thailand accounted for 42 percent of ASEAN's USD 81.6 million worldwide exports of HS-87 products in 2015, Indonesia for 13 percent, and Malaysia for 10 percent.

Figure 6.6: NTM Frequency Ratio in the Automotive Sector (HS Chapter 87) in ASEAN, 2015



ASEAN = Association of Southeast Asian Nations; SPS = sanitary and phyto-sanitary; TBT = technical barriers to trade.
Note: Automotive products include all products in the HS-87.
Source: Authors' calculation, based on ERIA–UNCTAD NTM database, 2016.

MR in the automotive sector emerged under the impulse of the Automotive Product Working Group (APWG). The APWG uses as United Nations Economic Commission for Europe (UNECE) standards (Ramesh, 2012). As of the latest APWG Meeting held in 2016 in Brunei Darussalam, 19 UNECE standards had been adopted out of 32 proposed. Prassetya and Intal (2015) noted that only Indonesia, Lao PDR and Malaysia have fully implemented the regionally agreed international standards, while other member states have implemented them only partially. MR in conformity-assessment procedures (in particular for ISO/EIC 17025, ISO/EIC 17021 and ISO/EIC 17020 requirements) is still under development (Scoles, 2016). When it is achieved, member states will accept test and inspection results from listed technical services in partner countries.

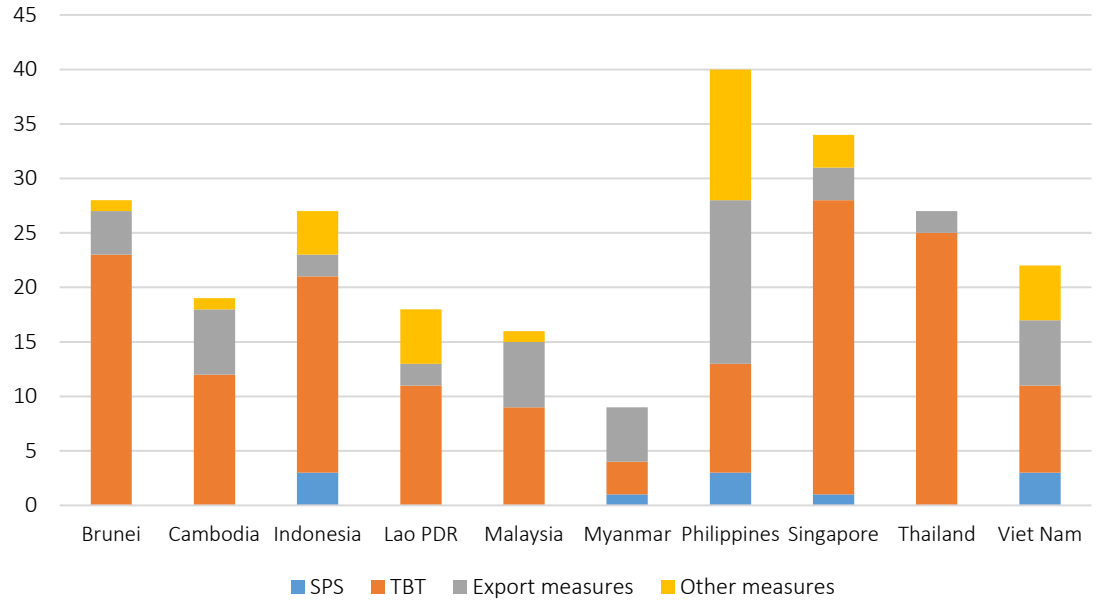
Four key issues in the automotive sectors have been identified in the EU–ASEAN Business Council (2014). First, ASEAN's automotive standards should be fully aligned with UNECE, an area where there has already been substantial progress. Next steps include the elaboration of identical testing procedures using equal metrology methods, standards, and application regulations. Second, approval and homologation processes should be aligned with international standards. APWG-led bodies should use the World Forum for Harmonization of Vehicle Registration (WP29), accept test reports from listed bodies, and refer to UNECE standards consistently. Third, rules of origin and local-content rules vary across ASEAN, with some promoting local content as high as 40 percent. Harmonising them (preferably downward) would cut production costs for local Original Equipment Manufacturer (OEM), thus enhancing the competitiveness of local manufacturers and domestic employment. Fourth, ASEAN countries should seek to better control parallel imports in the grey market. This practice results in low prices and quick marketing by skipping mandatory testing, which

may entail consumer hazards, reduce the credibility of law-abiding manufacturers and traders, and undermine MR. Better and more coordinated law enforcement would enhance market transparency.

4.3. Cosmetics

The cosmetics sector includes all products in HS Chapter 33. Figure 6.7 shows that technical regulations again dominate that sector, in ASEAN like elsewhere, with particularly high numbers of measures in Singapore, Thailand, Brunei Darussalam, and Indonesia. Large numbers of export measures are found in the Philippines, followed by Cambodia, Malaysia, and Viet Nam. In Cambodia, Lao PDR, Myanmar and Viet Nam, the number of measures has risen substantially between 2000 and 2015, reflecting increasing concern about health effects. The increasing number of NTMs for cosmetics products is consistent with rising consumer awareness and willingness to pay for safety as incomes rise.

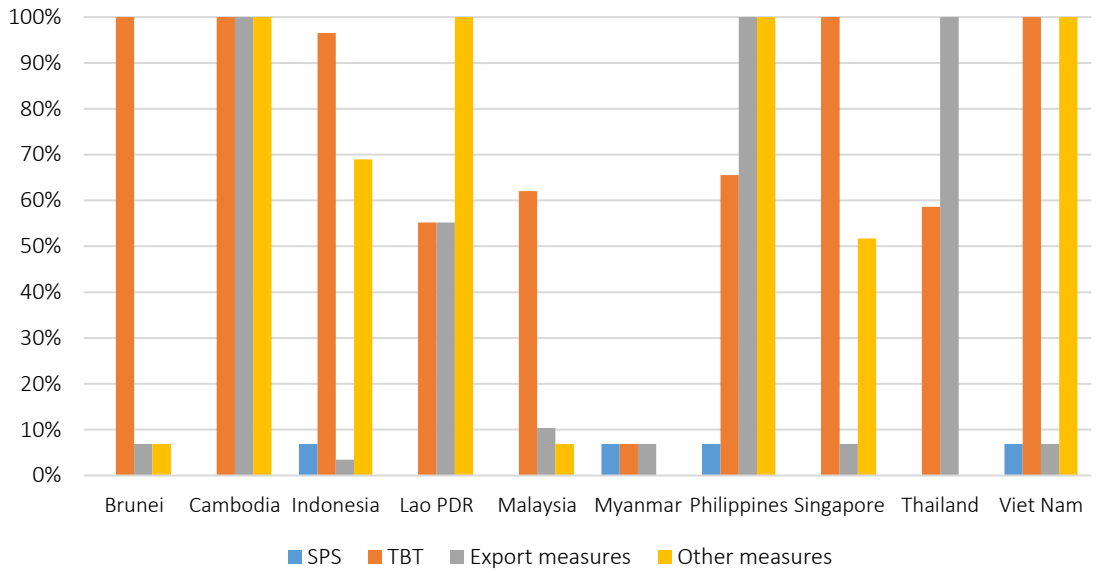
Figure 6.7: Number of NTMs in the Cosmetics Sector in ASEAN, 2015



NTMs = non-tariff measures; ASEAN = Association of Southeast Asian Nations; SPS = sanitary and phyto-sanitary; TBT = technical barriers to trade.
Note: The cosmetics sector includes all products in HS Chapter 33
Source: Authors' calculation, based on ERIA–UNCTAD NTM Database, 2016.

Figure 6.8 shows NTM frequency ratios in cosmetics, with a very high incidence in Brunei Darussalam, Cambodia, Indonesia, Singapore, and Viet Nam. Surprisingly, Malaysia and Thailand have relatively low TBT frequency ratios, again raising the issue of accurate reporting. Less surprisingly, Lao PDR and Myanmar have also low frequency ratios.

Figure 6.8: NTM Frequency Ratio in the Cosmetics Sector, 2015



NTM = non-tariff measure; SPS = sanitary and phyto-sanitary; TBT = technical barriers to trade.
Note: The cosmetics sector includes all products in HS-33.
Source: Authors' calculation, based ERIA–UNCTAD NTM database, 2016.

The cosmetics sector is the furthest ahead in terms of NTM harmonisation, with efforts that date back to the 2003 ASEAN Harmonized Cosmetic Regulatory Scheme (AHCRS). The AHCRS envisaged convergence in two phases. The first (2003–2007) involved simple MR, albeit on a voluntary basis; the second corresponded more to Pelkmans' 'regulatory MR' as MR was accompanied by the 2008 ASEAN Cosmetics Directive (ACD) whose technical content was adapted from EC Directive 76/768. By 2015, the ACD had been fully translated into national legislation and implemented in six ASEAN member states: Indonesia, Malaysia, the Philippines, Thailand, Singapore and Viet Nam, while Brunei Darussalam, Cambodia, Lao PDR and Myanmar had only partially translated it into national legislation (Prassetya and Intal, 2015).

One of the ACD's key features was its Post Market Surveillance (PMS), which unfortunately still suffers implementation gaps to this day. Under the PMS scheme, every supplier in ASEAN must notify its cosmetics products to national regulatory authorities for filing into the national Product Information File (PIF). However, as the ACD does not provide specific guidance on the format and updating of PIFs, member states vary in the format, accuracy and frequency of their PIFs, making them difficult to reconcile and compare. Moreover, the notification process is online only in some member states, it entails fees and delays, and validity periods vary between member states. Thus, even though the AHCRS started out with an approach similar to the EU's (with MR under the umbrella of a general directive), it lacked the technical cooperation downstream to harmonise the system's practical functioning on the ground.

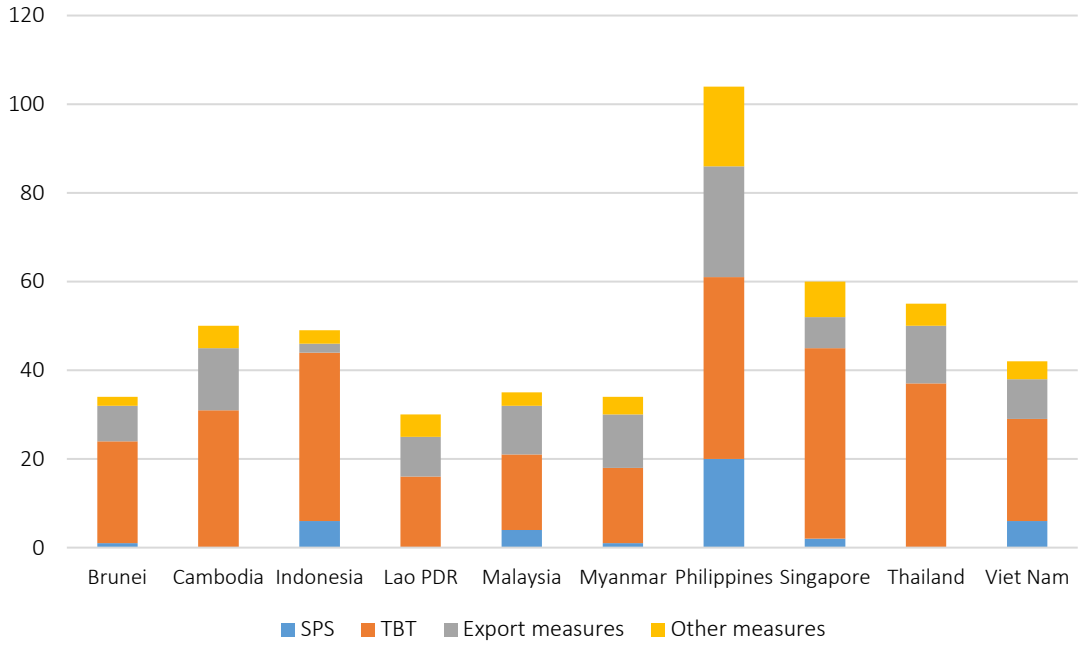
While the cosmetics sector is quite advanced in terms of harmonisation, gaps still need to be addressed by complementing the ACD with detailed guidance on how to run Post Market Surveillance systems, one of its key features. To address this, harmonisation, including through the ACD, could be expanded to include detailed and mandatory guidelines for national PMS and PIF systems. Capacity building for small and medium-sized enterprises, laboratory testing capabilities and technical guidelines for Good Manufacturing Practice (GMP) and PMS-related issues could be addressed by developing ACD commitments (ASEAN Integration Report, 2015).

Labeling harmonisation would also benefit ASEAN traders. ACD could facilitate and accommodate the inclusion of these measures. This could include the posting of notification numbers on product labels, which would be an important step to improve consumer information and safety, e.g. through monitoring by independent consumer organisations.

4.4. Pharmaceuticals

Policy interest in the safety of pharmaceuticals (HS 30) goes back to before 2000, i.e. earlier than for cosmetics. Figure 6.9 shows that, like for other PISs covered in this chapter, the bulk of the NTMs applied to pharmaceuticals are technical regulations. Export measures are also relatively widespread, except in Indonesia.

Figure 6.9: Number of NTMs in the Pharmaceutical Sector, 2015



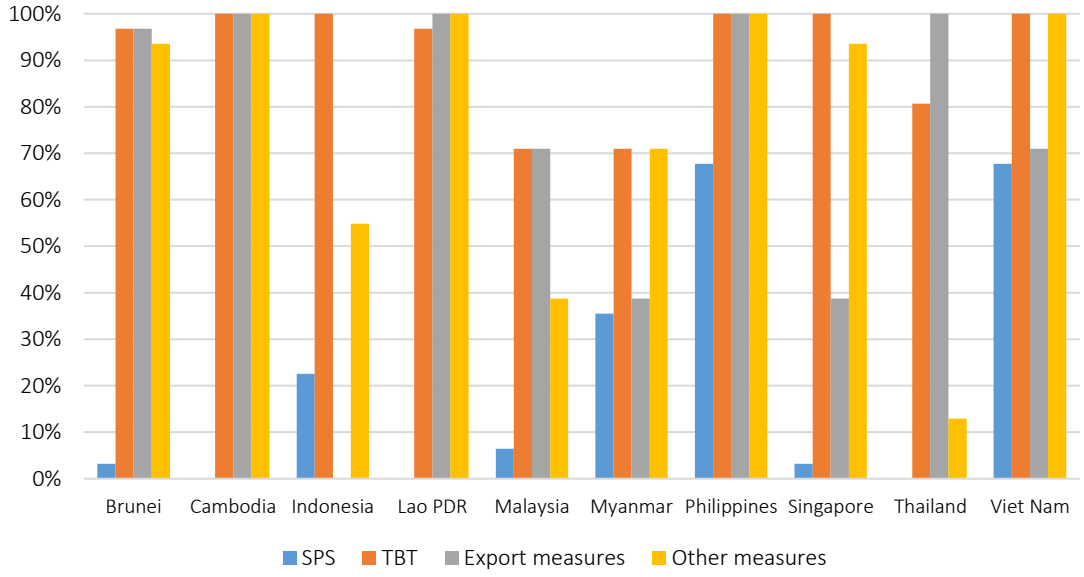
NTMs = non-tariff measures; SPS = sanitary and phyto-sanitary; TBT = technical barriers to trade.
Note: The Pharmaceutical sector covers all products in HS-30.
Source: Authors' calculation, based on ERIA–UNCTAD NTM database.

Heavy regulation is to be expected in a sector that is both sensitive for public health, involving large externalities, that is also very important as a public procurement item, as hospitals are large buyers, with important budget implications, and that is at the same time affected by widespread trade in counterfeits. Indeed, Figure 6.10 shows TBT frequency ratios above 80 percent for all ASEAN countries except Malaysia and Myanmar (with the usual caveat about reporting), with five out of 10 ASEAN countries imposing, in addition, export measures covering more than 90 percent of pharmaceutical products.

Harmonisation efforts in pharmaceutical products date back to the creation of the Pharmaceutical Product Working Group (PPWG) in 1999. They continued with the creation in 2009 of the ASEAN Common Technical Dossier (ACTD) and ASEAN Common Technical Requirements (ACTR), both meant to ensure the quality, safety and efficacy of products and to harmonise administrative data and glossaries across ASEAN countries.

Mutual recognition of Good Manufacturing Practice Inspection of manufacturers of medicinal products (GMP MRA) was adopted in 2011 with the aim of preventing the duplication of GMP inspections in ASEAN (Rahman, 2016). The latest step in the finalisation of MR is the Bio-Equivalence Study Report of Generic Medicinal Products (BE MRA), which is meant to assist the distribution of intra-ASEAN generic medicinal products with guaranteed quality, safety and efficacy of products (ASEAN Secretariat, 2016).

Figure 6.10: Frequency Ratio of NTMs in the Pharmaceutical Sector, 2015



NTMs = non-tariff measures; SPS = sanitary and phyto-sanitary; TBT = technical barriers to trade.
Note: The Pharmaceutical sector covers all products in HS-30
Source: Authors' calculation, based on ERIA–UNCTAD NTM database.

As for conformity assessment, by 2015, Brunei Darussalam, Indonesia, Malaysia, Singapore, and Viet Nam had identified designated bodies to conduct conformity tests. At the same time, four ASEAN countries (Indonesia, Malaysia, Singapore and Thailand) also gained accreditation from the high-standard Pharmaceutical Inspection Convention/ Scheme (PIC/S).[15]

In general, pharmaceutical products NTM harmonisation is on track. The implementation of ACTD, ACTR, Good Manufacturing Practice Inspection of Manufacturers of Medicinal Products and ASEAN MRA for Bio-Equivalence Study Report of Generic Medicinal Products was expected to cut unnecessary measures and harmonise the necessary ones. Accelerating the ASEAN WHO project on Supporting the Implementation of ASEAN Harmonized Requirements for Drug Registration (SIAHR) and the WHO collaborative registration procedure (Pre-Qualification), as well as further MRA could be implemented for authorisation, labeling, transport, and storage procedure and product registration.

However, substantial gaps remain in the effectiveness of market surveillance in the face of trade in counterfeit products, whether domestic or cross-border, in ASEAN's less developed member states. For MR to be viable in the face of highly unequal administrative capabilities, technical assistance from more advanced member states and development partners is urgently needed in view of the sector's sensitivity.

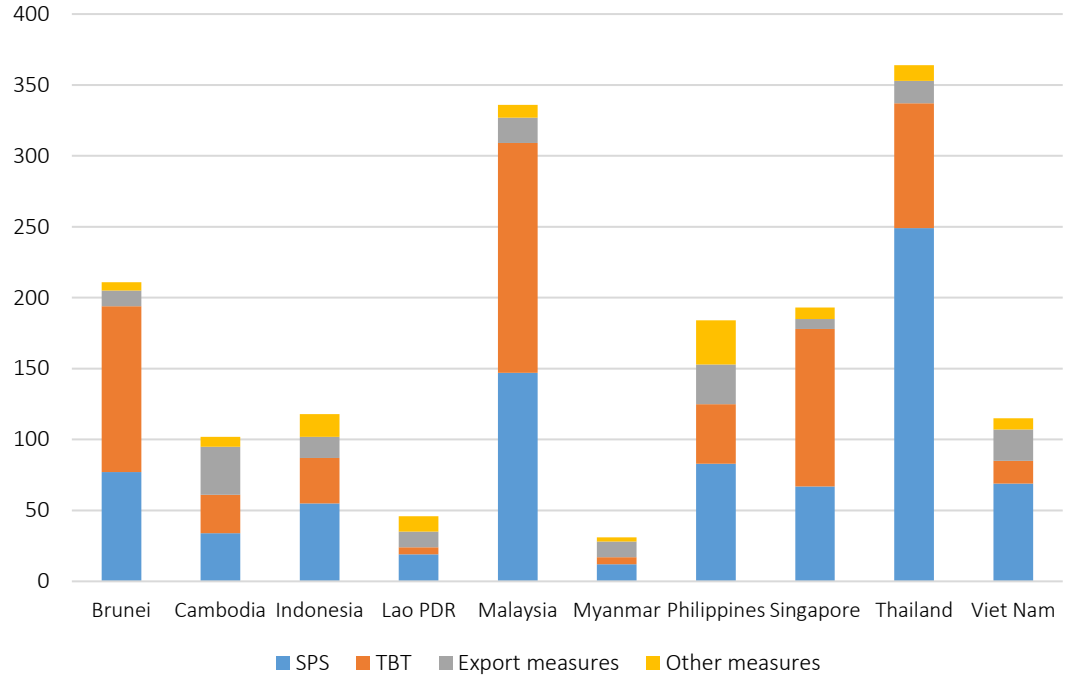
4.5 Prepared Foodstuffs

Although the prepared foodstuff sector (HS Chapters 16 to 22) is one of ASEAN's most important export sectors, it has received little policy attention in terms of NTM harmonisation.[16] Figure 6.11 shows that SPS measures dominate in terms of measure count in most ASEAN countries while technical measures dominate more in Brunei Darussalam, Malaysia, and Singapore. Malaysia and Thailand are amongst countries that apply the largest number of NTMs in prepared food, which is not surprising since they are leading food products exporters in region and therefore pay greater attention to ensuring the quality of foods.

[15] As listed in https://www.picscheme.org/en/members, PIC/S is a non-binding, informal cooperative arrangement between Regulatory Authorities aiming to streamline the GMP procedure for pharmaceutical products.

[16] There is still no clear definition for the coverage of prepared foodstuff products. The closest PIS sector with prepared foodstuff products is agro-based product under the nature-based product sector. The PIS list the agro-based products for 106 AHTN tariff lines, covering numerous, but not all, tariff lines from HS 07, 08, 10, 11, 12, 15, 20 and 23. This implies that raw unprocessed food products are counted in the classification. Based on the ASEAN Integrative Report (2015) the prepared food sector includes all products in HS 16-22, including prepared meat and fish, sugar, cocoa, prepared cereal and dairy, prepared vegetables and fruits, and beverages.

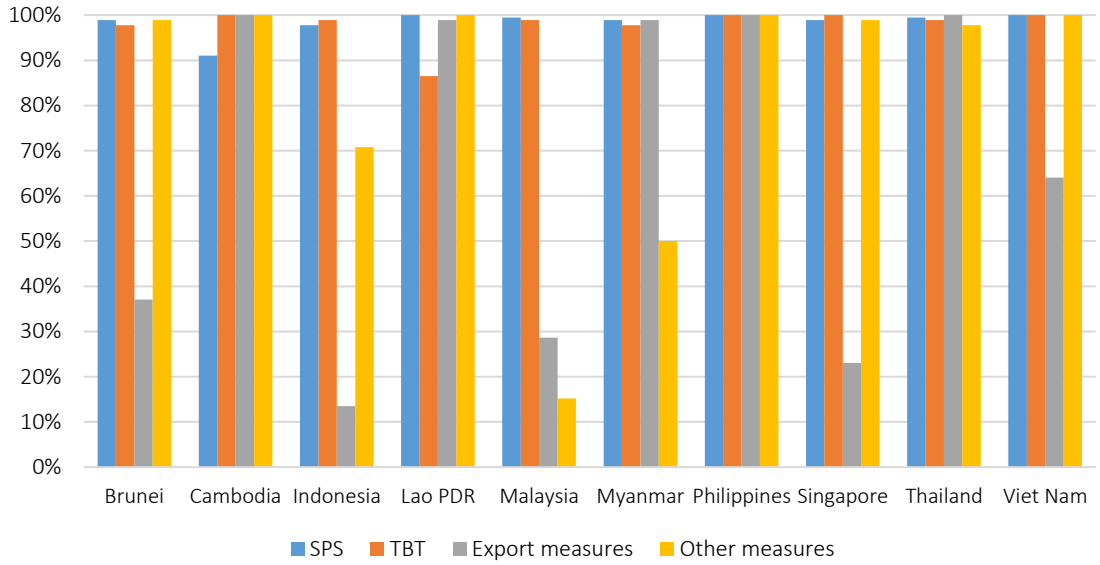
Figure 6.11: Number of NTMs affecting Prepared Foodstuff Products, 2015



NTMs = non-tariff measures; SPS = sanitary and phyto-sanitary; TBT = technical barriers to trade.
Note: The Prepared foodstuff sector covers all products in HS-16 to HS-22.
Source: Authors' calculation, based on ERIA–UNCTAD NTM database.

Indeed, SPS measures cover more than 90 percent of foodstuff products in all ASEAN countries (Figure 6.12), although technical measures also have equally high frequency ratios. Export measures also have a high incidence in Cambodia, Lao PDR, Myanmar, the Philippines and Thailand.

Figure 6.12: NTM Frequency Ratios in the Prepared Foodstuff Sector, 2015



NTM = non-tariff measure; SPS = sanitary and phyto-sanitary; TBT = technical barriers to trade.
Note: The Prepared food sector covers all products in HS-16 to HS-22.
Source: Authors' calculation, based on the 2015 ERIA–UNCTAD NTM database.

Harmonisation efforts for prepared foodstuffs can be traced back to the creation of the Prepared Foodstuff Products Working Group (PFPWG) in 2003, although a number of piecemeal integration initiatives had already been launched for food sectors with their own supervisory bodies. Like other ACCSQ bodies, the PFPWG is under the supervision of the Senior Economic Officials Meeting (SEOM). Other initiatives are under the supervision not only of the SEOM, but also of the Senior Officials Meeting–Health Development (SOMHD) and the Committee on Science and Technology (COST).

Three task forces or committees are currently being developed to promote under the PFPWG. The first is the Task Force on Harmonization of Prepared Foodstuff Standards (TF HPFS), in charge of developing food control systems, labeling requirements for prepackaged food and principles and requirements for food hygiene.[17]

The second is the Task Force on Development of MRA for Prepared Foodstuff (TF MRA)[18], in charge of developing food safety standards, conformity assessment, good-manufacturing practices, HACCP audit and certification, labeling and registration of food products and food establishments (AFBA, 2012). The ASEAN Regional Integration Support from the EU (ARISE) Workshop noted that, by 2014 the task force on MRA had adopted common principles and guidelines for food-control systems and food-hygiene and labeling requirements, with two additional documents under development, one on import–export inspection and certification

[17] https://foodindustry.asia/documentdownload.axd?documentresourceid=659
[18] http://www.aseanfoodsafetynetwork.net/consultative/food_standards.php

systems, and one on audit and certification of Food Hygiene and Hazard Analysis and Critical Control Points (HCCP). Other non-binding, Codex-modified guidelines created by PFPWG are likely to be adopted as the principles and guidelines for the MRA of PFPWG.

Adopted in 2015 by ASEAN Ministerial Bodies responsible for health, trade, and agriculture, the ASEAN Food Safety Policy pursues the twin objectives of promoting food safety in all member countries while facilitating the free movement of food products in the region (ASEAN Secretariat, 2016a). The policy is to be based on a common regulatory framework elaborated by an ASEAN task force, the ASEAN Food Safety Regulatory Framework (AFSRF), to serve as an umbrella under which MR can be adopted, an approach akin to 'regulatory MR'. Based on the initial schedule, the PFPWG was expected to start work by the end of 2016 (ASEAN Secretariat, 2015a), but there was no observable development at the time of writing.

The third task force is the ASEAN Food Testing Laboratory Committee (AFTLC), intended to facilitate the ASEAN Food Reference Laboratories (AFRLs) initiative (see Table 6.8) through the development of terms of reference, procedures, guidelines, and other documents. AFRLs would provide support to national food reference laboratories (ASEAN Food Safety Network, 2015).

Table 6.8: ASEAN Food Reference Laboratories and their Competence Areas

Country	AFRL competence areas
Indonesia	Food additives
Malaysia	Genetically modified organism
Singapore	Mycotoxins; pesticide residues; environmental contaminants
Thailand	Veterinary drug residues; heavy metals and trace elements; food contact materials
Viet Nam	Microbiology

ASEAN = Association of Southeast Asian Nations; AFRL = ASEAN Food Reference Laboratories.
Source: ASEAN Food Safety Network, 2016.
http://www.aseanfoodsafetynetwork.net/CurrentIssueDetail.php?CIId=121

As of now, harmonisation initiatives in the food sector have been fragmented into a large number of task forces and committees, resulting in a structure that may be too complex to foster the emergence of a global vision. Consolidation under the aegis of a single body, say the PFPWG, would improve visibility. This could be done through the strengthening of the existing committee, which consists of senior officials from agriculture, health, trade, and treasury/finance ministries – an already large array. This committee should have a regional mandate translated into national mandates to streamline all measures and initiatives, with technical work supported by the PFPWG.

Another area for improvement is the broadening of the scope of MR into areas such as authorisation, labeling, packaging, product registration, transport and storage requirement, certification and inspection.

Last, the elaboration of a sufficiently precise regulatory framework by the PFPWG should be a first-order priority to ensure equivalence of national regulatory frameworks, a precondition for smoothly working 'regulatory MR'.

5. Conclusions and Policy Recommendations

All in all, this brief overview suggests that ASEAN's approach to regulatory convergence, while flexible and based on voluntary adherence rather than coercion, has delivered some progress, particularly in priority sectors. However, even in those sectors, it remains a largely unfinished job. In this concluding section, we outline a broad roadmap aimed at helping to improve the visibility of ongoing efforts as well as a number of areas in which relatively quick gains could be made in priority sectors, building on existing achievements.

5.1 Combining Top-down and Bottom-up Approaches

Top-down: 'Regulatory MR'

A number of lessons have emerged from Europe's 60-year experience with regulatory convergence that are of potential interest for ASEAN. Prescriptive harmonisation based on the replacement of national regulations by detailed regulations at the regional level (Europe's 'old approach') seems unfeasible both technically and politically, and is arguably not even desirable when societal preferences vary between member states on how to balance consumer-safety and environmental considerations against business costs. At the same time, MR alone is not a silver bullet. For it to be workable, at least two conditions must be met:

First, convergence of national regulatory philosophies can be accelerated through the use of Europe's 'new approach', i.e. the combination of MR with broad directives outlining regulatory objectives that must be shared by all member states. Such directives should be expressed in terms of product performance rather than technical specifications to avoid intrusiveness and to leave space for future technical change. As ASEAN has, so far, successfully relied on an 'open-regionalism' model whereby regional standards mirror international ones or borrow from existing ones like the EU's, the design of such directives should be a manageable challenge.[19] ASEAN has already experimented with this approach, albeit on a limited scale, in the cosmetics sector. There is clear potential for expanding it.

Second, MR must be sufficiently visible to be implemented by officials on the ground and claimed by businesses (and possibly defended in court when resistance is encountered). Piecemeal approaches based on a myriad of technical working groups (as in the food sector) may not be the best way to gain visibility, and some consolidation/simplification may be advisable. A big push at a high political level accompanied by effective communication, like Europe's 1986 Single-Market Act, may be, at some point, a necessary step.

[19] The design of EU-wide technical regulations proved to be particularly challenging when regulatory objectives were mixed up with ill-advised industrial-policy ones, leading some member states to push for idiosyncratic standards to penalise competitive Asian producers, like for high-definition TV in the 1980s. These attempts typically led nowhere and proved a waste of time.

Bottom-up: Strengthening national regulatory capabilities

ASEAN's experience with regulatory convergence in priority sectors also highlights a number of important lessons for future harmonisation efforts. In a number of cases, it seems that the most important brake on the effective translation of ASEAN initiatives into national regulations seems to be a lack of capabilities. In the cosmetics sector, for instance, the ACD, while officially translated in national legislation in six member countries, lacks precise guidance on how to set up effective market surveillance systems, a key element of the regulation of cosmetics products. Likewise, in the pharmaceuticals sectors, there is, in particular in the least advanced member countries, a gap between official regulations and the administrative capabilities needed to curb trade in counterfeit products. Technical assistance to less advanced member countries by more advanced ones and by development partners will be a key building block for a more integrated ASEAN market where MR is feasible.

In ASEAN as elsewhere, national regulations are self-igniting engines that need to be put in check to prevent them from constantly undermining regional integration efforts. In another paper (Ing et al., 2016), we argued in favour of the creation in all member states of regulatory supervision bodies (we proposed the term 'National Economic Council') placed under the direct authority of the Presidency or Prime Minister's Office, depending on local particulars, in charge of reviewing existing and new regulations. Such bodies would provide Regulatory Impact Analysis (RIA) based on cost–benefit analysis (partially or fully quantified) as a service to line ministries, seeking outside expertise when needed. They would ensure the adoption of good regulatory practices and possibly enable ASEAN to avoid the cycles of regulatory proliferation followed by abrupt, blanket deregulation observed recently in some Western countries, in particular the United Kingdom and the United States. However, in countries with weak administrative capabilities, prescribing the creation of such bodies in a way assumes the problem solved, as RIA requires, to be useful, sufficient administrative capabilities. Again, technical assistance from more advanced member countries and from regional and multilateral development partners will be a key element in building up national regulatory capabilities.

5.2 Linking up Harmonisation and Trade-facilitation Initiatives

Regulatory convergence is a complex endeavour, technically and politically, that is bound to progress slowly and to deliver benefits even more slowly. To gain momentum through quick wins, it might usefully be linked to a trade-facilitation agenda that sometimes has more traction with governments and development partners and is more readable to the business community.

Following the 2015 ASEAN Blueprint, in August 2016 the 48th ASEAN Economic Ministers' Meeting in Vientiane adopted the ASEAN Trade Facilitation Framework (ATFF) together with a work programme intended to define measurable deliverables in the areas of Customs and transport facilitation, transparency of trade regulations and procedures, standards and conformity assessment, private-sector engagement, and business facilitation. A joint consultative committee composed of senior representatives from governments and the

private sector was established to lead the ATFF's work programme, with initiatives on the ASEAN Single Window, Customs and transit systems, trade repositories (ASEAN and national), an ASEAN-wide system of self-certification, a system of ASEAN Solution for Investments, Services and Trade (ASSIST), as well as various initiatives, all this under a 2017–2015 strategic action plan. While promising, trade-facilitation initiatives in ASEAN involve a vast array of administrative and political bodies, like some of the harmonisation initiatives reviewed in this chapter. There is a need for both streamlining and stronger articulation with existing harmonisation efforts, in particular at the level of priority sectors.

In sum, a useful short-term objective would be to make the state of play more readable in terms of both NTMs themselves—through the updating and refining of the NTM database developed by ERIA and UNCTAD in 2015 and updated in 2018 —and harmonisation/trade facilitation initiatives. Once a clear picture emerges (to which the present chapter will hopefully contribute), streamlining strategies should be considered, again, for both NTMs themselves and ASEAN's policy initiatives in the area.

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CHAPTER 7

Reform to Improve Transparency of and Streamline NTMs in the ASEAN-5

Chedtha Intaravitak
Ernawati Munadi

1. Introduction

In the Association of South East Asia Nations (ASEAN), improving transparency of non-tariff measures (NTMs) is mandated by the ASEAN Trade in Goods Agreement (ATIGA). The ATIGA, signed in February of 2009, contains specific articles on NTM transparency (Article 41). The Agreement states that 'Member States shall ensure the transparency of their NTMs and notify new or changes to existing NTMs'. According to the World Bank toolkit on Streamlining NTMs (2012), transparency is a necessary condition to achieve a broader policy objective of NTM streamlining. This chapter intends to collect, synthesise, and analyse the experience of five ASEAN Member States (AMS) – Indonesia, Malaysia, the Philippines, Singapore, and Thailand – in their efforts to make NTMs more transparent and streamline NTMs. The objective of this exercise is to draw common lessons, which should lead to policy recommendations particularly at national level.

Section 2 explains country's experiences in improving transparency and streamlining NTMs. Section 3 describes good practices and lessons learnt for other developing countries. Section 4 draws policy recommendations.

2. Improving Transparency of and Streamlining NTMs in the ASEAN-5

2.1. Indonesia

Within the framework of the ASEAN Single Window declared to be implemented in 2010[1], the Indonesian government has taken an important step to enhance NTMs transparency and reform its trade regulations. The work has been slow, as coordinating and getting strong commitment from 18 government agencies relevant issuance NTMs related regulation and capacity to harmonise all NTMs related regulations take time. It took a year for the relevant government agencies to agree and list their trade-related regulations, then another year to put all documents in a standard format. Access to Indonesia's NTMs has been significantly improved since INSW authority made the regulations and database of Indonesian Import–Export Prohibition and Restriction Regulations (LARTAS database) available online (Cadot et al., 2012).

[1] The ASEAN Member States finally agreed to implement the NSW in June 2012.

To strengthen the role of INSW, in 2014 Indonesian government created INSW portal administrator (PP–INSW) through the issuance of Presidential Regulation No. 76 year 2014 concerning the PP–INSW, a dedicated INSW authority with full time staff and clear job descriptions, structure, and fits overall Indonesian legal context. PP–INSW is a task force administratively under the Indonesia's Ministry of Finance. Its main task is to run a single national electronic service including licensing and non-licensing surveillance on import–export activities, customs and ports.

As an electronic system aims at improving export import activities and supervision through the integration of licensing between 18 Agencies relates to NTMs, INSW has been mandatorily implemented at 21 Offices of Customs and Excise (KPPBC) and currently serves over 92 percent of the total national export and import transactions. The system has served 20,000 exporter/importer and 200 shipping agencies.

By the end of 2016, the Indonesian government had further strengthened the INSW roles and institution by revising Government Regulation No. 76/2014. It is expected that the new generation of INSW will integrate business processes between Ministries/Agencies, from obtaining licensing to the realisation (flow of documents) as well as managing the movement of goods (flow of goods). Businesses will need to simply open INSW system to process their export and import activities.[2]

Technically, Indonesia is ready to integrate the INSW with the ASEAN Single Window (ASW). Together with Singapore and Thailand, Indonesia has successfully exchanged live data on e-Form D (Sembiring, 2016).

The Indonesia National Trade Repository (INTR) is contained in the e-governance component of the INSW website. The system emanates from Articles 12 and 13 of ATIGA and from Article X of the General Agreement on Tariffs and Trade (GATT)/World Trade Organisation (WTO), which provides a mandate for transparency of import, export, and transit regulations and requirements. The contents of the trade repository are stated in Article 13 of the Agreement, and are listed in Table 7.1 below. INTR provides ready access to all trade-related laws and regulations passed, promulgated, and enforced at the national level. INTR aims to provide transparency. It is based upon Indonesia's LARTAS system, and with several added trade facilitation features. The LARTAS system contains all restrictions and limitations to export from and import into Indonesia. It links HS codes to licenses, and is used by customs in the clearance of important shipments. It also provides information on tariffs, MFNs, preferential tariffs, non-tariff measures, and regulations related to each commodity.

The INTR is managed by the INSW, and it is the final legal source of trade regulations in Indonesia.[3] A preliminary review of Indonesia's INTR is provided in Table 7.1.

[2] Currently businesses have to go to each government agency to obtain their import license, which involves 18 government agencies.

[3] Presidential Decree No. 35/2012 on the INSW

Table 7.1: Indonesian Trade Repository

Topic	Status	Notes
1) Tariff nomenclature 2) MFN tariffs, ASEAN preferential tariffs and preferential tariffs for other agreements	Under the authority and regularly updated by DG Customs.	Recently updated to BTKI 2017 by Customs. See 'HS code' button.
3) Rules of Origin	General rules of ATIGA and specific rules for each HS code, 40 percent ASEAN content or substantial transformation of HS code contained on INTR.	See 'rules of origin' button.
4) NTMs	INSW portal contains an excellent system for linking HS codes to required permits under LARTAS, including the Trade Simulation Application, which allows one to list all tariffs, permits, etc. needed for a given HS code. The NTMs classification used on LARTAS is not based on MAST Classification.	Must ensure timely updates from agencies so that customs can introduce changes in LARTAS on timely basis. See 'Lartas' button.
5) National Trade and Customs Laws and Rules 6) Procedures and Documentary Requirements	Content manager and format for notifying regulations on NTMs have been developed. NTMs from MOT are already in format via INATRADE; English translations are also available.	See 'Regulatory Repository' Button. There is list of 19 GAs involved on issuing trade permit. See the 'General Information, Laws and Regulations'.
7) Administrative Rulings	n.a.	Check customs website to see what is available
8) ASEAN Trade Facilitation Best Practices 9) Authorised Economic Operators	n.a.	Need agreements from ASEAN before deciding on content.

MFN = most-favoured nation; ASEAN = Association of South East Asia Nations; DG = Directorate General; BTKI = Indonesian Custom Tariff Book; HS = Harmonized System; ATIGA = ASEAN Trade in Goods Agreement; INTR = Indonesia National Trade Repository; NTMs = non-tariff measures; INSW = Indonesia National Single Window LARTAS = Regulated goods; MAST = Multi-Agency Support Team; MOT = Ministry of Trade; INATRADE = Indonesia Electronic Trade License; GAs = Government Agencies; n.a. = not available.

Source: Updated from 'INSW website: Indonesia National Trade Repository,' accessed on 24 April 2017

Moreover, efforts to streamline NTMs in Indonesia visibly occurred in two different periods. The first effort was undertaken in 2012, championed by the Ministry of Trade, when a new decree on a Non-Tariff Measures Team (Tim KNT) was issued. It removes responsibility for reviewing NTMs from the unit that implements them, and equips the team with adequate capacity to conduct regulatory impact analysis. The Directorate of Foreign Trade's role remained implementing NTMs, while reviewing NTMs was carried out by 'technical unit' composed of staff from various units managed by the Trade Policy Research Unit. The standard operating procedure for reviewing NTMs has also been introduced (Cadot et al., 2012). Unfortunately, it was hampered by changes in leadership, which ultimately altered the Ministry's priorities programme.

The second NTMs streamlining effort was championed by the administration of President Joko Widodo that aims to maintain reform momentum and boost Indonesian economic growth. It involves a range of economic policy packages. From September 2015 to March 2018, 16 economic policy packages were released. The Presidential Instruction (Inpres) No. 12/2015 to enhance competitiveness of the industry was issued.

Of the published 17 economic policy packages, NTMs streamlining is the first step taken to enhance Indonesia's competitiveness and to set under the economic policy package I. It focused on removing regulatory, bureaucratic red tape and limitation through simplified non-tariff policies, amongst others, by (a) removing requirements of recommendation to obtain trade license, producer importer requirement, surveyor report requirement, and obligatory to obtain Indonesia National Certificate (SNI) for certain goods, (b) API as importer identity. In order to achieve this goal, a range of deregulation and bureaucracy policies are implemented (Ministry of Trade, 2016).

Deregulation is undertaken by (a) rationalising rules and removing duplication/redundancy/ irrelevant regulations, and (b) harmonising regulations, and (c) performing regulatory consistency. While 'debureaucratisation' is carried out by (a) simplifying licenses, for example, employer single identity/profile sharing, less license requirements, and (b) clear and firm SOP as well SLA for license mechanism and procedures, and establish a help desk and sustainable internal monitoring, (c) delegation of authority provided to PTSP (place, form, time, cost), (d) application of Risk Management that is in line within license processes, (e) services for license and non-license by way of electronic system.

The target set in the economic policy package I is to perform deregulation and 'debureaucratisation' towards 134 regulations, 32 of them (24 percent) are issued by Ministry of Trade (MoT) and are non-Tariff Measures-related regulations. In addressing such reform policy, MoT then established a Trade Deregulation Team through MOT Regulation No. 793/M-DAG/8/2015 on the Establishment of Trade Deregulation Team to evaluate all policies and regulations in trade sector. In addition, the Trade Minister regulates 121 export–import licenses, 74 licenses involve recommendations from 20 Ministries/Agencies (M/As). In this deregulation package, MoT removed and/or eliminated 38 licenses covering four types of Registered Exporter (ET) licenses, 21 types of Registered Importer (IT) licenses, and 13 types of Producer Importer licenses (Ministry of Trade, 2015).

Indonesia offers a model of transparency in the area of NTMs, and pioneered NTMs streamlining. Indonesian officials attribute this success to three main factors: (1) a 'strong leadership,' from President supported by Ministry of Finance and the Coordinating Ministry for Economic Affairs and strong commitment from other ministries; (2) an external deadline (ASEAN Single Window), reinforced by the presidential directive; and (3) identification of 'quick winners'.

Box 1: Case Study: Imports of Beef in Indonesia

The beef market became a big issue in Indonesia in early 2013 due to inflated beef prices. The beef retail price in early 2013 was USD 7.5 per kg compared to its 2009 price of only USD 5.2 per kg.

The daily *Kompas* on February 2013 also reported high beef prices in Jakarta. The Commissioner of the Business Competition Supervisory Commission (KPPU) claimed the high beef price was due to beef import quota, which has been in force since 2011.

Marks (2015) argues that the relative price of beef was 17.2 percent higher in Indonesia due to the restrictions, mostly NTMs policy, in effect. Up until October 2013 beef importers experienced difficulties importing to Indonesia, particularly importing of prime cuts. Under the Ministry of Trade regulation No. 22 year 2013, imports of animal and animal products:

(1) Can only be done by companies granted as Registered Importer (IT), after getting import approval from the Minister. A recommendation from the Ministry of Agriculture or Indonesia National Agency of Drug and Food Control (BPOM) is required to obtain import approval.

(2) Need to obtain certification (health certificate from country of origin)

(3) Need to comply with labeling requirement

(4) Need to comply with packaging requirement

However, for the import of prime cuts of meat, there are several other requirements, such as:

(1) Port limitation requirement

(2) Pre-shipment inspection

(3) Import of prime cuts meat is only for industry, hotel, catering, and or other special need.

As a result of these requirements, Indonesia received a lot of complaints, mostly about the pre-shipment inspection requirement. Businesses claimed that it failed to protect the public while unnecessarily complicating business. Another requirement that received complaints was the labeling requirement, meaning that imported products must have a label attached before entering Indonesia, which is costly. Import restrictions on beef were eased in October 2013, but were tightened in 2015 (Marks, 2015) through the issuance of MoT regulation No. 41/M-DAG/PER/6/2015. Even though restrictions on the import of prime cuts meat have been relaxed[4], in general import restrictions on beef were tightened.

[4] As its import was no longer required pre-shipment inspection and no longer subject to port limitation

The government eased restrictions on the import of cattle and its products again in 2016 by issuing economic policy package IX in January 2016. This economic policy package was followed by the issuance of Ministry of Trade Regulation No. 59/M-DAG/PER/8/2016 on the provisions of export and import of animal and animal products which expands the country's access to beef suppliers.

Currently, Indonesian requirements for imports of animal and animal products are as follows:

1. Only companies holding an Importer Identification Number, state-owned companies, and/or regional-owned enterprises can import animals and animal products.
2. Import of animal and animal products to Indonesia previously required two import permits, i.e. IT/IP (importer registration requirement) and import approval (authorisation requirement), but now it is only one, i.e. the authorisation requirement (import approval/SPI).
3. Labeling is required when the goods are traded in Indonesia, whereas previously it was required when entering Indonesian territory.
4. Packaging requirement approved by certificate of examination or importer statement letter explaining that used packaging materials are in accordance with regulation and there is a logo on food tare and a recycle code on the packaging.[5]
5. Certification (health certificate from country of origin).[6]
6. Report on import realisation approved.[7]

The most significant reform under the current regulation is that pre-shipment inspection is no longer required for the import of prime cuts of meat. Under the previous regulation, import of this product was subject to a pre-shipment inspection that took 2 weeks and cost USD 250–300 per shipment (AIPEG, 2014).

Source: Authors

2.2. Malaysia

The Malaysian government has been embarking on NTMs transparency since the 1990s, long before the ASEAN Economic Community (AEC) mandated the use of information communications technology (ICT) to facilitate cross-border trade through the Single Window on December 2005. It was along with the establishment of the Malaysian National Single Window (MNSW). It took 10 years to involve 30 participating permit-issuing agencies, which have led to the full implementation of the ePermit in the MNSW.

[5] There is no difference with the previous regulation.

[6] There is no difference with the previous regulation.

[7] There is no difference with the previous regulation.

Ministry of International Trade and Industry (MITI) was signed to set up Trade Facilitation Action Council (TFAC) to prepare strategic directions, goals, a vision, and a mission. To improve transparency and efficiency, the private sector was fully involved in enhancing productivity and reduce the cost of doing business.

The MNSW portal, myTRADELINK was launched in September 2012. It is a single point of referral for which six core services: eDeclare (Customs declaration), ePayment (Customs duty payment), eManifest (cargo manifest declaration), ePCO (Preferential Certificate of Origin application), ePermit (permit application) and ePermitSTA (Strategic Trade Act permit application) of MNSW are done (Dagang net technology, 2012). Those six cores have been implemented in MITI's offices nationwide and offer 14 online schemes to manufacturers and exporters (Chan, 2014).

myTRADELINK allows exchange of documents required for import, export, or transit of goods activities via the Internet. The portal guarantees that the electronic exchange of trade documents is safe, secure, and efficient through a single connectivity access. myTRADELINK also serves as a trade information hub and allows users to 4 transactional activities. It connects users and stakeholders through a single connectively access.

Malaysia's NSW serves 166 out of 173 points of entry, and over 9,000 organisations with more than 13,000 users. It connects 26 permit issuing agencies, eight local banks, and 23 ports. Annually, more than 50 million electronic transactions are processed with RM1.8 billion worth in customs duty payments. The MNSW has been operated 24 x 7, 365 days a year and covered nationwide operations within seven regional offices (ASW Website, 2017).

Three factors underlie the success of the MNSW: (1) Support from the government who had championed it; (2) Strong Inter-Agency Collaboration between 30 participating permit-issuing agencies, and (3) Public–Private Partnership. The private sector was given the important role of devising and implementing a paperless system to improve the transparency and efficiency of public delivery (Unnext, 2010).

Intal (2015) argues that Malaysia's NSW is nearly best practice in ASEAN. This is reflected in some performance indicators on the ASW such as percentage coverage of ePCO, eManifest, eDeclare, ePermit, ePermitSTA, and ePayment, where its score is almost 100 percent. It is even acknowledged as being amongst the best performing in trade facilitation globally.

Malaysia has also developed a National Trade Repository (MNTR) to enhance NTM transparency by providing a single platform for accessing trade-related information of ASEAN Member States. It is a legally binding repository of all public regulations currently pertaining to customs, tariff codes, import/export procedures, trade agreements, tariffs and nontariff measures for goods crossing national borders for import, export, or transit. A preliminary review and summary of Malaysia's progress on the NTR are provided in Table 7.2.

Table 7.2. Recent Status of Malaysia's National Trade Repository (MNTR)

Topic	Status	Notes
1) Tariff nomenclature	The website provides links on Tariff nomenclature for AMSs, it looks active only for Lao PDR, Malaysia, Thailand and Indonesia	Malaysia's link to tariff nomenclature is not working
2) MFN tariffs, ASEAN preferential tariffs and preferential tariffs for other agreements	The summary of ATIGA tariff, definition of MFN tariff, and list of regional FTA and Bilateral FTA undertaken by Malaysia is available.	See button 'preferential tariff'
3) Rules of Origin	General rules on non-preferential ROO, preferential ROO, and eight ROO submenu (Wholly Obtained, Change in Tariff Classification, Product Specific Rules, Cumulation, Tolerance de Minimis, Minimal Operation, Direct Consignment, Packing Materials and Containers)	See button 'Rules of Origin'
4) NTMs	The NTMs has been classified based on MAST Classification. Under the SPS and TBT measures, detailed information on background, scope, institutional coverage, standard setting bodies, list of Malaysia SPS and TBT measure are available. For other measure, only general information and definition are available	See button 'Non-Tariff Measures'
5) National Trade and Customs Laws and Rules	The information is not fully available	See button 'National Trade and Customs Laws and Rules'
6) Procedures and Documentary Requirements	The information is not fully available	See button 'Procedures and Documentary Requirements'
7) Administrative Rulings	Comprehensive information on administrative rulings	See button 'Administrative Rulings' to see what is available.
8) ASEAN Trade Facilitation Best Practices	The information is not fully available	See button 'Best Practices in Trade Facilitation' to see what is available.
9) Authorised Economic Operators	The information on AEO is available	See button 'Authorised Economic Operator (AEO)' to see what is available.

AMSs = ASEAN Member States; MFN = most-favoured nation; ASEAN = Association of South East Asia Nations; ATIGA = ASEAN Trade in Goods Agreement; FTA = free trade agreement; MAST = Multi-Agency Support Team; SPS = sanitary and phytosanitary; TBT = technical barriers to trade.
Source: http://mytraderepository.customs.gov.my/, accessed in April 2017.

Furthermore, Malaysia presents an interesting example of streamlining NTMs through a comprehensive approach, driven by enhancing competitiveness. Streamlining NTMs is part of a regulatory changes agenda, which is essential for administrative modernisation. Recently, reform has been driven by a recognition of its impact on and benefits for the economy.

Enhancing the competitiveness was started in 2007, when the World Bank Ease of Doing Business (EODB) Report highlighted regulatory quality issues affecting Malaysia as an investment destination. Malaysia's government capitalised on this as a useful guide to enhancing its competitiveness. A concerted effort was started by setting up PEMUDAH, the Special Task Force to Facilitate Business to address regulatory issues affecting the EODB (MPC, 2016). It comprises of 15 Heads of Government ministries, 10 leaders of the Malaysian business community, and four co-opted members from public sector. PEMUDAH's main tasks are to review the public and private sector delivery system including processes, procedures, legislation, and human resources and to propose new improvement policies.

Subsequently, under the 10th Malaysia Plan (2010–2015), Malaysia Productivity Cooperation (MPC) was signed to improve the government's regulatory management system. It includes provisions to review existing regulations and remove unnecessary rules and compliance costs, and undertaking a cost–benefit analysis of new policies and regulations. The government's took a significant step with regulatory reform in 2013 when it introduced policy and guidelines for implementing good regulatory practice. A circular on National Policy on the Development and Implementation of Regulations (NPDIR) was issued, which requires all federal ministries and agencies to observe good regulatory practice (GRP) and undertake regulatory impact analysis (RIA) in developing new regulations and amend existing ones. Together with NPDIR, the Best Practice Regulation Handbook and the Quick Reference of Best Practice Regulation Handbook were issued to provide guidelines for the ministries and agencies.

Overall, the mandate to improve the government's regulatory management system has been underlined by the Modernising Business Regulations (MBR) programme and carried out by MPC. The MBR aims to enhance productivity as well as competitiveness as reflected in its goals to increase productivity and market growth as well as generate compliance cost savings of up to RM1 billion annually by eliminating unnecessary rules and procedures. To achieve the goals, the MBR focuses on two main areas: improving the quality of existing regulations and ensuring good quality of new regulations to be issued. The MBR has been equipped with institutional support so that now reliable online databases, effective coordination, as well as collaboration on innovation are in place (MPC, 2016).

The National Development Planning Committee (NDPC) worked together with PEMUDAH to ensure good-quality regulations. It is a high-level planning coordination committee chaired by the Chief Secretary of Government to assess the adequacy of compliance with Good Regulatory Practices (GRP). Various initiatives have been introduced on MBR including: (1) Reducing Unnecessary Regulatory Burden (RURB) aimed at modernising business regulations, (2) Facilitating initiatives on EODB indicators aimed at enhancing transparency and accountability of the public and private sectors; (3) Conducting comprehensive scanning of Business Licensing aimed at facilitating ministries, agencies and local authorities in

undertaking MBL projects; (4) Promoting a Business Enabling Framework for 18 services subsectors; and (5) Developing policy and guidelines to improve new regulations quality.

The work on streamlining NTMs is carried out through two different initiatives, (1) RURB, and (2) 'Conducting comprehensive scanning of Business Licensing through MBL'. RURB was led by MPC, which complements PEMUDAH. To achieve sustainability and to ensure a better environment for EODB, a regulatory review was started of regulations that have a significant impact on the National Key Economy Areas (NKEAs) and focused on reducing unnecessary regulatory burdens and improving the regulatory environment.

Through the RURB programmes, regulations that contribute to improving national outcomes are retained, while redundant and outdated regulations are eliminated. During 2014–2015, 23 RURB projects were completed. It is estimated that recommendations from the 2014 and 2015 projects could result in potential savings of RM 1.5 billion and RM 1.0 billion, respectively.

PEMUDAH expanded MBL's initiative by establishing a Focus Group on Business Process Re-engineering (FGBPR). FGBPR has been working with 23 ministries including two departments in the Prime Minister's Department (JAKIM[8] and SPAD) and 13 state governments to review all procedures regarding business license applications. Since then, FGBPR has been working with all federal ministries and state governments including the Malaysia Administrative Modernisation and Management Planning Unit (MAMPU), and the Implementation Coordination Unit (ICU) and MPC which serves as the secretariat. MAMPU manages the Business Process Re-engineering (BPR) lab with the objective of streamlining and simplifying licensing procedures, while the ICU is responsible for monitoring the implementation of the online system.

To simplify processes and procedures, MBL implements a key activity, i.e. a comprehensive scanning or stocktake of all business licenses and reduce them if required. Government ministries and agencies undertake the reviewing regulations process, while MBL adds value and integrity to the public delivery system by introducing simplified business licensing procedures. The final output is shorter processing time; simplified forms; a reduced number of supporting documents; and a reduction in compliance cost.

FGBPR with MPC has adopted the 'guillotine' approach. Licenses that do not meet legislative justification or and are no longer needed are abolished, while those that are not business friendly will be simplified. The impact of this initiative led to the creation of over 1 million job opportunities and resulted in almost USD 36 billion (RM 114.7 billion) in additional foreign direct investment over a 5-year period.

From the first review process (2011–2014), FGBPR has been successfully simplified 767 business licenses and converted them into 454 composite licenses while 29 licenses were abolished. It is expected that this process has achieved a potential compliance cost reduction estimated at RM 729 million.

[8] JAKIM is Jabatan Kemajuan Islam Malaysia or Islamic Development Department of Malaysia.

Box 2: Case Study: Streamlining Halal Certification in Malaysia

The reform of halal certification was started in 2003, driven by increasing demand of halal products globally, which is expected to reach 2.6 billion by 2050 (MITI, 2015), and the growth of the halal industry. The industry is made up not only of the halal-slaughtered animals, but also includes halal food, lifestyle, and services (Kadir et al., 2016). Nawai et al. (2007) and Zakiyah Samori et al. (2014) argue that not just all raw materials have to be halal, but also how the food is prepared and processed has to be halal.

The streamlining of halal Certification was started in 2003. A uniform halal label was introduced in 2003 and implemented at both the federal and state level. The fifteen different labels used previously by the states and JAKIM had caused confusion amongst applicants and importers. The Malaysian Standard MS 1500 on halal food preparation and operation was also introduced to provide guidelines and reference for halal certification (Yusoff, 2007).

The work on streamlining halal certification aims to make Malaysia a global halal hub. The Halal Development Corporation (HDC) was established in 2006 to promote the overall development of the halal industry in Malaysia by promulgating halal certifications from JAKIM, which leads in the conferment of halal certificates and labels at both the federal and state level. It is responsible for issuing halal certificates for export and import products, while the state governments issue halal certificates for local consumption. In the same year, an e-halal portal was launched to expedite the halal applications, enquiries, recommendations, and complaints by allowing them to be done online. The compliance test, which covers all aspects of preparation, processing, packaging, and distribution, is conducted in a laboratory and needs to be agreed by the Malaysia Halal Certification panel meeting. Once issued, the applicant will receive a notification (Yusoff, 2004; JAKIM, 2014).

The Task Force on Halal Certification was set up on 6 July 2009 to discuss issues in processes and procedures of halal certification in the hotel and manufacturing sectors. To improve and expedite halal certification, JAKIM has undergone a re-engineering of its BPR using four main Processes/stages including identify current business processes, evaluate potential improvements, recommended on its business process, and on automation (OECD Korea, 2017).

As a result, JAKIM is able to reduce time for approval of halal certification to 30 days from the previous 60 days from targeting 14 days for certification for application without NCR. This improvement is due to:

- Applicants are able to submit all ingredients in the menu, not per dish as previously;
- The renewal process is not treated as a new application; thus, applicants do not need to resubmit ingredients used unless there are changes or additions;
- Temporary certification up to 6 months will be given to applications that did not comply to minor requirements that is not involving Syaria requirement or under Non-Compliance Report (NCR);
- Designating a dedicated desk officer to manage hotel certification application; and
- Notice for payment is done through email within 14 days.

Source: Authors.

2.3. The Philippines

As of June 2015, The Philippines National Single Window (PNSW) had a total of 17,927 registered traders using the system and 1,282,746 processed transactions. The progress towards a fully-fledged NSW, however, has been somewhat slow. The primary utilisation of PNSW was centred on the facilitation of port and customs procedures. The G-to-G data interchange between the Bureau of Customs, a focal point for PNSW, and other regulatory trade agencies was not yet complete. According to ASEAN Single Window (2013), 'The PNSW system was mainly concerned with the application and processing of permits, licenses and clearances for import and export....'.

The Philippines' Department of Finance and the Department of Information and Communications Technology have recently started developing the Philippine TradeNet as a solution to the stalling PNSW. TradeNet will serve as an automated permit, licensing, and clearance system integrated into one platform for 66 Trade Regulatory Government Agencies (TRGAs) and 10 economic zones. It will cover all the functions of the PNSW. To integrate the TRGAs' processes, the Inter-Agency Business Process Interoperability (IABPI) Project Team from the Department of Finance (DOF) is working with TRGAs to streamline their import and export documentation for regulated products (EDC 2017a).

The government piloted TradeNet in July 2017, aimed at releasing shipments at the country's ports in 3 days (*Inquirer,* 2017). Following the pilot testing, TradeNet went into production in September, after which it was also connected to the Asian Single Window in December 2017. Ten regulatory agencies attached to the Department of Agriculture were scheduled to be the first few on TradeNet as these were 'the most complex'.

In preparation for the country's launch of the ASEAN Single Window, Customs Memorandum Order (CMO) 39-2015 has pilot tested the implementation of the electronic application and issuance of preferential and non-preferential Certificate of Origin (e-CO) to help in the formulation of policies and procedures for electronic data exchange in 2015. The Secretary of Finance has recently signed the Protocol of the Legal Framework to implement the ASW (PLF). The Department of Foreign Affairs is currently conducting domestic ratification of the PLF.

The Ad-Hoc Technical Working Group on Philippine National Trade Repository (TWG–PNTR) under the Committee on ASEAN Economic Community (CAEC) is working on setting up the Portal. The TWG is headed by the Bureau of Import Service (BIS) with membership of 50 TRGAs and Trade Policy Related Agencies.

A preliminary search on the PNTR website shows that the website primarily serves as a link to other relevant government agencies' websites. Some links are under development. Table 7.3 shows information available from the PNTR web portal.

Table 7.3: Available Information from Philippines National Trade Repository

Topic	Information available from the PNTR and authors' comments
1. Tariff nomenclature	The link only provides AHTN (2012) tariff nomenclature in pdf.
2. MFN tariffs, preferential tariffs offered under this Agreement and other Agreements of ASEAN with its Dialogue Partners	The link goes to the Tariff commission website, with details on the tariff schedule for MFN, ASEAN, and ASEAN+ agreements, listed by executive orders.
3. Rules of Origin	The link goes to Philippines Tariff Finder, a newly upgraded tool to find tariff rates and rules of origin under different FTAs. The search adopts the Philippines 2017 version of the AHTN 2017.
4. Non-tariff measures	No information here. The link only leads to the UNCTAD NTM classification 2012 book in pdf.
5. National trade and customs laws and rules	The link leads to 'icons' of trade-related regulatory agencies. Each icon, when clicked, only shows a couple of major trade regulations of that agency.
6. Procedures and documentary requirements	The link leads to 'icons' of trade-related regulatory agencies. Each icon then leads to detailed procedures and documentary requirements for different product categories under their regulation.
7. Administrative rulings	The link provides cases of administrative rulings for Tariff Commodity Classification Rulings in the past with good details. No information on administrative rulings on Custom Protest, Customs Seizure and Forfeiture, or Tax Rulings.
8. Best practices in trade facilitation applied by each Member State	The link only explains the newly upgraded Philippines Tariff Finder and the Bureau of Customs (BOC) self-Certification Project.
9. List of authorised traders of Member States.	The link only explains the objective and benefits of the Authorised Economic Operator (AEO) Program with no listing of AEOs.

PNTR = Philippines National Trade Repository; AHTN = ASEAN Harmonized Tariff Nomenclature; MFN = most-favoured nation; ASEAN = Association of South East Asia Nations; UNCTAD = United Nations Conference on Trade and Development.
Source: http://pntr.gov.ph/#, accessed in April 2017.

In terms of efforts in streamlining, there are separate attempts and initiatives at different levels and by various agencies to streamline NTM and reduce Procedural Obstacles (Pos)[9] in the Philippines. The Philippines' commitment to WTO trade facilitation agreement is for the Department of Trade and Industry (DTI) to implement a functional inter-agency National Committee on Trade facilitation (NCTF) chaired by Bureau of International Trade Relations under DTI. This committee currently exists, but it has not yet put much effort into trade facilitation initiatives (ITC 2016). In principle, this committee would focus on three areas:

1. Improving technical compliance and mitigating expenses for exporting firms' product and conformity assessment requirements.
2. Increasing border transparency and 'clean up' for customs clearance and control procedures.
3. Overcoming domestic Pos by streamlining agencies' trade procedures for export licenses, permits, and Certificate of Origins (Cos).

One promising initiative of public–private collaboration in trade facilitation is the establishment of the Export Development Council (EDC) – a public–private committee[10] to oversee the implementation of the Philippines Export Development Plan (PEDP; the most recent version is 2018–2022). EDC is a major advocate of the acceleration and completion of reforms at the Bureau of Customs through the immediate passage of the proposed Customs Modernization and Tariff Act (CMTA, passed in 2016) as well as modernising the agency by automating customs procedures. The CMTA, which enables full customs automation, should make processes easier for exporters, importers, and traders to comply with complex customs procedures. The EDC has also established a 'Networking committee on trade policy and procedures simplification'. The committee has played a major role in addressing problems related to the Importers Clearance Certificate (see case study below).

The other promising public–private partnership is the National Competitiveness Council (NCC). NCC has a broader objective of regulatory reform at the national level. Llanto (2015) suggests that NCC is a good step towards a development of a formal Regulatory Management System (RMS) in the Philippines. When compared with countries such as New Zealand and Malaysia[11], Llanto (2015) claims that the Philippines has some of the elements of a functional RMS but they are not effectively coordinated and woven into a coherent, requisite RMS implemented by a central oversight body. NCC has nine working groups; two of these are related to NTM streamlining, i.e. Business Permits and Licensing System (BPLS) and the National Single

[9] According to a survey by ITC (2016) on the Filipino companies' perspectives on NTM, approximately 70 percent of all exporters and importers are confronted with 'procedural obstacles (POs) related to NTM'. Examples of POs are delays, large number of documents, difficulties with translation of documents, and informal payments. Although POs are not officially classified as NTMs (UNCTAD 2012), they present a real burden to traders and efforts to streamline NTMs have to take these issues into account.

[10] EDC comprises of representatives from the DTI, the Export Marketing Bureau (EMB), and the private sector, particularly from the Philippines confederation of exports, Inc. (PHILEXPORT).

[11] Malaysia has PEMUDAH and NDPC as major agencies in regulatory reform; see the case of Malaysia.

Window (NSW). However, the scope of work for NCC is rather broad and, so far, only the BPLS working group has delivered some limited progress.

Two recent NTM measures and their related procedural obstacles represent interesting case studies on NTM streamlining. The first is the newly implemented Importer Clearance Certificate (ICC), issued in 2014, required by the Bureau of Internal Revenue (BIR). The ICC entails numerous documents to process, needs to be renewed yearly, and causes a great deal of inconvenience, including monetary penalties up to PHP 100,000 and time delays of 2–6 months for importers. ICC is an interesting case because it was intended to curb smuggling and 'streamline' the importing process by connecting all of the BIR's internal departments. In reality, it has created more red tape because each department (for instance, Legal, Collections, and the Revenue District Office) now requires importers to submit additional (previously unnecessary) reports such as summaries of sales and former penalties before the BIR can approve the company for certification. Currently, the ICC issue is under review by the 'Networking committee on trade policy and procedures simplification'.

The second measure concerns the implementation of the Philippine National Police (PNP) regulation on chemicals importation. The DTI, the Board of Investments, and the EDC have led the streamlining procedures for the issuance of license and permits in the possession, importation, export, movement, transport, sale and purchase of regulated chemicals. The lists of regulated chemicals have been trimmed down from 101 to 32. The other related issue is the license and permit requirement of the Philippine National Police (PNP) on controlled chemicals. A manufacturer who imports chemicals as raw materials to produce products for either local distribution or export has to secure a license to manufacture, a permit to import, and a permit to unload, and needs a police escort to transport the imported chemical from the port to his warehouse. It takes 1–3 months for the PNP to issue the license and considerable time to issue the permits. We are unable to find publicly available evidence on the progress of the effort to address this problem.

2.4. Singapore

The idea of a National Single Window (NSW) in Singapore originated in discussions in the 1980s. Government agencies, companies, organisations, and voluntary associations all agreed that significant savings would result from reducing the burden of trade documentation handling. Mr. Lee Hsien Loong, the former Minister for Trade and Industry (the current Prime Minister), declared in 1986 that the TradeNet project would be completed within 2 years. The Singapore Trade Development Board (STDB[12], the government agency responsible for trade facilitation) was given the task of mobilising the trade community and became the coordinating point amongst various agencies. A nationwide Electronic Data Interchange (EDI) system was then established.

To enhance the chances of successfully implementing TradeNet, STDB adopted a two-pronged strategy. First, it formed a steering committee comprising chief executive officers of public sector organisations related to international trade and leaders of trade associations.

[12] The current International Enterprise Singapore; IE Singapore.

This helped STDB gain inter-organisational perspectives on trade administration issues, secure commitments from all parties, and resolve critical problems. Second, STDB set up a private sector organisation, Singapore Network Services Private Limited (SNS, now known as CrimsonLogic Pte Ltd). The rationale behind the creation of an independent profit centre was that the government could avoid the cost of operating a nationwide network infrastructure and services. The main objective of SNS is to implement and market TradeNet (Koh Tat Tsen, 2011; and TEO et al., 1997).

Today, all trade documentations are electronically submitted. The number of permit applications had increased from 10,000 declarations daily in 1987 to between 30,000–40,000 daily currently. This amounts to some 9 million transactions a year. The number of companies using TradeNet has now reached approximately 2,600 companies with over 9,000 users, with usage rate almost 100 percent.

The major upgrade of TradeNet is in 2007, when TradeNet 4.0 or TradeXchange was launched. TradeNet 4.0 further streamlined the trade declaration process and offered a more simplified permit structure, with fewer declaration fields. TradeNet 4.0 also offers a full suite of other permit services. TradeNet is now a core application of TradeXchange. CrimsonLogic Pte Ltd has been appointed by the government through a competitive tender to develop, operate, and maintain TradeXchange.

Beyond TradeXchange, the latest development of Singapore NSW is the National Trade Platform (NTP). Singapore Customs and the Government Technology Agency (GovTech) are developing the National Trade Platform (NTP), a one-stop next-generation trade information management platform to support companies in the trade and logistics industry, as well as adjacent sectors such as trade finance. Scheduled to roll out in the first quarter of 2018, the NTP will replace TradeNet as the National Single Window for permit declaration and TradeXchange as the platform connecting the trade and logistics community. NTP can potentially bring about up to USD 600 million worth of man-hour savings annually for businesses. In other words, NTP, when finished, will be a full picture of the NSW system, where G-to-G, B-to G, and B-to-B data interchange is essentially complete.

There appears to be no single website dedicated to Singapore's National Trade Repository (NTR). From ASEAN Trade Repository website [13] , Singapore's website for NTR is www.fta.gov.sg. This link leads to an International Enterprise (IE) Singapore webpage. The nine topics required by a typical NTR structure can be accessed using a different search from ASEAN Trade Repository website.[14] Steps involve choosing 'TOPICS' to select what type of information is needed and select 'COUNTRY' – Singapore. This will direct users to a relevant regulatory agency's website with relatively detailed information and user-friendly interface. Table 7.4 shows different links that provide information for each topic as required by a typical NTR.

[13] http://atr.asean.org/read/national-trade-repositories/60

[14] http://atr.asean.org/links/search/

Table 7.4: Links Accessed from ASEAN Trade Repository and Authors' Assessment

Topic	Links from ATR and authors' comments
1. Tariff nomenclature	Linked with Singapore Customs – HS/CA Product Code [https://www.tradexchange.gov.sg/tradexchange/portlets/search/searchHSCA/searchInitHSCA.do] *The link is useful and easy to search.*
2. MFN tariffs, preferential tariffs offered under this Agreement and other Agreements of ASEAN with its Dialogue Partners	Linked with WTO [https://www.wto.org/english/thewto_e/countries_e/singapore_e.htm] *The linked topic 'Goods schedules and tariff data' is useful.*
3. Rules of Origin	Linked with Singapore Customs – Certificates of Origin [https://www.customs.gov.sg/businesses/exporting-goods/certificates-of-origin] *Very useful and have other information regarding Rules of Origin .*
4. Non-tariff measures	Linked with related regulatory agencies *Useful.*
5. National trade and customs laws and rules	Linked with Singapore Customs [http://www.customs.gov.sg/topNav/leg/index.html] *The link no longer works. But users can search Singapore customs for Business > Compliance for the required information.*
6. Procedures and documentary requirements	Linked with www.customs.gov.sg - Quick Guide on Registration Matters [https://www.customs.gov.sg/businesses/registering-to-trade/quick-guide-on-registration-matters] *The link works and provides useful information from registration to trade of imported, exported and transshipped goods.*
7. Administrative rulings	Linked with Singapore Customs - Harmonized System (HS) Classification of Goods [https://www.customs.gov.sg/businesses/harmonized-system-hs-classification-of-goods#Application%20for%20Customs%20Ruling%20on%20Origin%20Determination%20of%Imported%20Goods] *The link does not provide any information on Administrative rulings.*
8. Best practices in trade facilitation applied by each Member State	Linked with Singapore Customs [http://www.customs.gov.sg/leftNav/trad/Certificates+of+Origin] *The link no longer works.*
9. List of authorized traders of Member States.	Linked with Singapore Customs [http://www.customs.gov.sg/leftNav/trad/sup/STP-Plus+and+STP+Companies.tml] [http://www.customs.gov.sg/leftNav/trad/sup/Mutual+Recognition.html] *Both links no longer work.*

ASEAN = Association of South East Asia Nations; MFN = most-favoured nation; WTO = World Trade Organisation.
Source: http://atr.asean.org/links/search/, accessed in April 2019.

All in all, Singapore does not appear to have a formal NTR web portal like other ASEAN countries. However, a search on ATR website, in the case of Singapore, will lead to the relevant regulatory agency's website with detailed information and it is quite user-friendly especially in terms of procedures and document requirements. However, only five out of nine categories of information are available from this type of search.

On streamlining front, Singapore's NTMs reflect the non-protectionist stance of the country. The rationales behind most NTMs are benign, i.e. to protect public health and the environment. Recently, an NTM unit was established in Singapore (WTO [1]). The unit's function is two-fold. First, to identify and address NTMs faced by companies based in Singapore, and second, to ensure that Singapore's trade measures are consistent with its international obligations. The NTM unit's work complements the work of the United Nations Conference on Trade and Development (UNCTAD) and the Economic Research Institute for ASEAN and East Asia (ERIA) on the collection and cataloguing of ASEAN's NTMs.

The major effort by the government of Singapore is geared towards developing a good regulatory management system (RMS). The following discussion draws heavily on Dato' Abdul Latif Bin Haji Abu Semam et al. (2016), speech [1], and APEC [1]. Singapore started its initiatives in regulatory reform in 2000 with the 'Cut Red Tape' campaign, a regulatory guillotine initiative to remove regulations that were no longer needed. The setting up of the Pro-Enterprise Panel (PEP) and the Rules Review Panel (RRP) during the 2000s marked the emergence of the country's strategy for improving regulatory quality. Singapore relies primarily on committees or commissions that represent various important stakeholders as its core institutions. This is vastly different from most countries whose RMS is anchored on government agencies and ministries. This distinctive institutional innovation appears to be well suited to the city-state.

The Pro-Enterprise Panel (PEP) was set up to solicit feedback and suggestions from the public on rules and regulations that hinder businesses and entrepreneurship. Following an online request from importers of food with non-meat ingredients, for example, the Islamic Religious Council of Singapore (MUIS) has exempted importers from applying for a halal certificate for non-meat based ingredients.

In 2002, the Rules Review Panel (RRP) was established to oversee the rules review process in the public sector. The RRP adopted a proactive approach to reviewing rules, examining the rationale that lay behind them. In 2005, the RRP was reconstituted as the Smart Regulation Committee (SRC) with a broader mandate. It was to shift the mindset of the public service from being merely a regulator to that of a facilitator, and develop a regulatory system that is friendly to business and investment. The SRC is shaped by the following principles:

- Agencies should foster self-regulation and market discipline as far as possible.
- New regulations should take into account the views of relevant stakeholders and potential implications for existing regulations.
- The cost of regulation should not exceed the intended benefit.
- Regulations should adopt a risk management approach instead of a zero tolerance approach.
- Regulations should facilitate a competitive and innovative climate.

We believe a key lesson learned from Singapore is the importance of becoming more customer-centric. When adopting this approach, the regulatory agencies must be mindful of the implications of the rules for business operations. The impetus to change and improve rules and regulations is driven by the internal dynamics of public administrators and facilitated by institutional feedback mechanisms from businesses and the public to achieve well-defined policy objectives.

2.5. Thailand

The development of the Thailand National Single Window (NSW) is a major attempt to facilitate trade. It is still far from completion and has limited usage. Thailand's customs service was upgraded from paper-based to paperless, starting use of the Electronic Data Interchange (EDI) in 1998, which has become fully operational nationwide in 2000. The system has slowly evolved into the full-fledged e-customs system in 2008, which has reduced trade cost by 20–25 percent (World Bank 'Doing Business' 2007 and 2008). The cabinet passed a resolution on 6 December 2005 on the establishment of National Single Window. The Thai Customs Department was assigned the administration agency and focal point for this initiative.

Despite an early start in an attempt to facilitate customs procedures, the progress towards a truly National Single Window, has been relatively slow. Currently, the Thai NSW is still lacking in many respects. We can classify data interchange through NSW into three categories: G-to-G, B-to-G and B-to-B. The Thai NSW has achieved some success in G-to-G data exchange. As of 2017, 26 agencies have completed their electronic data linkage 'for any kinds of goods or any types of documents'. Five agencies have completed their electronic data linkage 'for some kinds of goods and documents'. Two agencies are using a combination of electronic data linkage and paper-based documents. According to the newly constructed Thailand NTM database (2015),[15] 66 percent of NTM measures are under the supervision of the first 26 agencies with complete electronic data linkage. An almost complete G-to-G electronic data exchange allows a regulatory agency to have real-time access to information on how much of each imported product is entering the country; which in the past took about a month to establish. The G-to-G data exchange is primarily about the three basic documents used in customs formalities: import/export declaration form, entry form, and permit form. Most importers/exporters are using this service. They enjoy the benefits of cost and time savings from a one-time electronic filling out of these forms, and they are no longer required to provide these documents when contacting different government agencies.

[15] Thailand NTM database (2015) is a result of a research project to classify NTMs in each ASEAN country supported by ERIA–UNCTAD.

Although the G-to-G data exchange is almost complete, the B-to-G data exchange is far behind. Businesses still have to fill out the online forms of each government agency to qualify for their import license and meet other requirements. For some products, this involves up to eight to 10 forms from eight to 10 agencies. Five strategic goods – sugar, rice, rubber, frozen food, dangerous articles – are identified as targets to unify and harmonise their import license forms. So far only dangerous articles, which involve eight forms from eight agencies, have successfully integrated their forms. As for the B-to-B platform, there is none. B-to-B data exchange is much more difficult as documents required by shipping agents, logistics providers, and importers/exporters differ widely.

It is worth mentioning that, for the time being, the G-to-G electronic data exchange is more akin to an elimination of unnecessary customs formalities. The real cost saving of NSW should come from B-to-G and B-to-B platforms. The progress of the B-to-G platform is slow due to the lack of commitment from higher administration and insufficient budget for each agency to upgrade their information technology infrastructure and train qualified staff.

As for the progress towards ASEAN Single Window (ASW), the ten ASEAN countries have not yet ratified the protocol of the legal framework to implement ASW. The system infrastructure is linked and a pilot test has been completed by Thailand, Singapore, Malaysia, Indonesia and Viet Nam. For the Thai private sector, ASW as of today has limited usage. The system only helps to verify that Form D and other certifications are authentic. Also, the customs at the destination country can check whether the goods imported match those actually exported.

Turning now to the National Trade Repository (NTR), the Thai cabinet assigned the Department of Trade Negotiations, Ministry of Commerce as the agency responsible for the development of Thailand NTR and to further integrate it with other ASEAN countries' NTR to establish the ASEAN Trade Repository (ATR).

The Thailand NTR website currently has very limited usage due to its incompleteness and insufficient information. A sample search for NTM reveals that data on NTMs is highly incomplete, for example, the search results show that there is no NTM regulated by the Ministry of Public Health, whereas, in the new Thailand NTM database (2015), the ministry controls about 43 percent of NTMs in Thailand. We also suspect that Thailand NTR's NTM classification is not based on the latest UNCTAD (2012) system. The web is also not user-friendly. The search for NTMs on shrimp imports, for example, will result in a list of many related Ministerial Notices. These laws are related to shrimp import in a very complicated manner. Importers would have to 'decipher' all these regulations all by themselves. Instead, an NTR should list NTM measures, not laws, and, better yet, outline the step-by-step import procedure for shrimp.[16]

[16] In principle, the NTR should provide easy-to-understand details on NTMs. A case in point is Malaysia's NTR, where, on the Sanitary and Phytosanitary Measures and Technical Barriers to Trade, MNTR has put very comprehensive information about those two measures including the background, scope, institutional coverage, standard setting bodies, detailed measures on each category and a list of Malaysia's SPS and TBT measures (see section on Malaysia experience).

A search of 'National Trade and Customs Laws and Rules' also result in a list of laws with no detail on what the traders should do to follow these rules. A search of 'Procedures and Documentary Requirement' for import results in a list of seven basic documents that importers already know. Not enough detail is provided in the import declaration and clearance documents. Generally speaking, Thailand NTR is in a preliminary stage and has not been useful in practice. Interviews with traders and related government officials also confirm this point.

To recap what has been discussed, we found that Thailand NSW has been making some progress on the G-to-G electronic data exchange. A lack of B-to-G and B-to-B platforms is the major obstacle to Thai NSW attaining its full potential. Thailand NTR is very preliminary and has very limited usefulness.

In summary, it is fair to say that we lack a strong commitment and mandate, especially from high level administration, to make trade rules/regulations (and all business regulations for that matters) more transparent in Thailand. This lack of a clear policy directive results in insufficient resources devoted to this purpose. Without a strong mandate, agencies at the operational level are not committed to pursuing this objective on a long-term basis.

Despite its efforts to improve transparency on regulations related to trade, Thailand has been rather passive in its efforts to streamline NTMs. In the past, ad-hoc committees would be formed when NTM issues arose. Interviews with government officials who are listed issuing NTMs, conducted by authors in August 2017, indicate the need for Thailand to be more proactive. Findings from these interviews are indicative of real, on-the-ground institutional circumstances in Thailand. Since there has essentially been no systematic effort on NTM streamlining in Thailand, we attempt to build on the insights derived from the interviews and refer to the World Bank toolkit for NTM streamlining (2012) (from here on WB toolkit 2012) for experiences and recommendations. What follows is a preliminary suggestion on how Thailand should handle NTM issues in general and how the process of NTM streamlining could be kicked off.

Thailand needs an independent institution to handle NTMs with a clear mandate (supported by laws or decree) and strong support from the highest levels of administration. This institution should have two sub-units, one to handle short-term NTM issues and the other to carry out medium-term to long-term objectives.

The unit to handle short-term NTM issues could be a one-stop NTM help desk that serves as a focal point for exporters and importers to file their complaints. There is currently no one clear focal point for traders to report the NTMs they face in the course of carrying out their business. This one-stop help desk must be sufficiently funded and staffed. The staff should have enough technical capability to clarify and explain basic NTM issues to complainants. If the issue is very technical, they should act as a coordinator to dispatch a clearly defined question to the appropriate specialised agencies.[17] Importantly, they should have a mandate to request answers within a time limit. The desk should also closely follow the development of new NTMs issued by major trading partners and new emerging markets. They should disseminate this information in a timely manner to all stakeholders.

As for the unit that carries out medium- to long-term objectives, their main agenda is to review and streamline existing NTMs and set up and enforce a standard operating procedure in case a new NTM is being considered. They should seek private consultation such as with the Thai chamber of commerce and the federation of Thai industry, which represent the majority of business sectors. A platform to seek comments from all stakeholders must be established. This public–private consultation could start off with a 'low hanging fruit'. The process of NTM streamlining should start with 'low hanging fruit' – goods that are not too sensitive politically and economically. Most importantly, this NTM review unit should have a mandate that requires relevant government agencies, who also are members of the committee, to amend the laws under their supervision in accordance with the decision of the committee. This final suggestion implies that the appropriate level of regulation this unit can handle is sub-ministerial; for example licenses that serve similar purposes and require similar documents should be unified. We believe this setup is sufficient as a starting point and follows the gradualism principle as recommended in the WB toolkit (2012).

On a broader perspective, NTM streamlining could be part of the regulatory reform agenda. Thailand has never been successful with this agenda due to resistance from operating agencies and it lacks strong leadership to overcome this obstacle.

[17] Currently, exporters and importers have to decide, on their own, which specialised agencies they should consult and, often these agencies are not the ones whose advice they should seek. As an example, shrimp importers who are also owners of shrimp processing plants, when faced with NTM problems, would first seek help from the department of industrial works because they think the problems are related to factory processing. In fact, their issues are too technical and they should seek the help of the department of fisheries instead.

Box 3: Case Study: Imports of Maize in Thailand

Thailand has, in fact, not implemented NTM streamlining for maize or for any other products. So there is no case study on NTM streamlining process and procedures. However, we believe that choosing maize as a case study would exemplify the many constraints Thailand is facing in its efforts to streamline NTMs. The case[18] should also yield insights on the policy and institutional environment that should be improved if we were to conduct a systematic NTM review. Currently, Thailand is imposing the following NTMs on maize imports.

1. Seasonal prohibition (E312) and State-trading enterprise (H11)

The seasonal prohibition is a measure aimed at blocking maize imports from Cambodia, Lao PDR, and Myanmar (CLM) into Thailand during the months of abundant domestic maize supply following the annual harvest, when the domestic price tends to be low. The import period has been uncertain and has changed over the years. Since 2012, the Public Warehouse Organization (PWO), a state enterprise under the Ministry of Commerce, has been authorised as the sole importer of maize from CLM all year round.

Using the framework presented in the WB toolkit (2012), this measure clearly does not pass the two basic tests of NTM review. It is inconsistent with WTO rules and not clear on the market failure issue. The market for animal feed in Thailand can be characterised as an oligopsony market, a kind of market failure. A few animal feed producers can exert their market power on the purchasing price of maize from farmers. However, the problem should be addressed, as suggested by the WB toolkit (2012), by competition policy rather than through use of NTMs.

2. The complexity of import permits and registration of maize importers.

The process of obtaining permits for maize import is rather complicated, costly, and slow. Moreover, the registration is only valid for 1 year so needs to be renewed annually. This is not only burdensome, but also creates uncertainty for importers, who must invest a lot of resources to establish an import business. Four agencies from three ministries are involved in this complicated licensing measure. This is a good example of too many licenses that simply reflect the fact that 'each ministry/agency wants to ensure that the restrictions that fall under its mandate are respected, irrespective of what other ministries/agencies do (WB toolkit 2012)'. Perhaps, the sanitary and phytosanitary (SPS) measures, technical barriers to trade (TBT), and Good Agricultural Practice (GAP) should adequately regulate trade of maize for the purpose of protecting people, animals, plants, and the environment.

3. Post-import regulations.

After importing maize, importers have to file reports on the quantity of import, usage, distribution, and leftovers to the Department of Foreign Trade. This post-import requirement serves as a device to monitor and regulate the flow of maize from CLM and prevents it from competing in Thailand's domestic market. In reality, it is not necessary because Thai maize has been developed over decades to meet high quality standards, such that maize from CLM is not truly competitive in Thailand's domestic market. On the other hand, these reports add time and unnecessary costs for importers.

Source: Authors' assessment.

[18] This case is based primarily on Pupphavesa et al. (2016).

3. Lessons Learnt from the ASEAN-5 for other Developing Countries

Our exercise indicates that the ASEAN-5 have achieved rather different levels of development of the NSW and NTR. Regarding NSW, we believe the coverage and depth of data exchange between stakeholders are the most important criteria in determining the efficiency gain and level of regulatory transparency as a result of NSW. We can classify data interchange through NSW into three categories: G-to-G, B-to-G, and B-to-B. G-to-G data exchange is a common data-sharing platform so documents submitted at one government agency can be accessed by another agency, if needed. This platform avoids the duplication of submitting the same documents to different agencies. The G-to-G platform is the first level of achievement in NSW development.

Most of the five countries have almost completed their G-to-G platform. B-to-G data interchange is more difficult. It refers to different government agencies requiring different licenses/permits and businesses have to apply for all these licenses or permits. In some cases, businesses have to apply to more than 10 agencies. Although most of these applications are done online, they still represent a huge burden. A complete B-to-G platform would standardise applications of different agencies and require single submission. Perhaps due to the difficulty in standardising applications due to the different nature of the work of different agencies, most of the five countries have made only limited progress on this front.

While Singapore has completed the system, Malaysia has made good progress and Indonesia's B-to-G platform is a work in process; currently, businesses must still contact around 18 agencies to get their licenses. Thailand and the Philippines are followers. Perhaps the greatest efficiency gains from NSW are made with the B-to-B data exchange platform. This platform refers to sharing trade documents between private companies involved in the whole chain of cross-border trade such as exporters/importers, shipping agents, forwarders, logistics providers, and trade financers/insurers. Singapore's current TradeXchange and their upcoming National Trade Platform (NTP) is best positioned to have the complete B-to-B platform. Malaysia's myTRADELINK and Indonesia's INSW are upgrading their system in this direction. The Philippines' TradeNet and Thailand's NSW is still lacking on this front. Table 7.5 compares different aspects of the five countries' NSWs.

Table 7.5: Comparison of the Five Countries' National Single Window

	Indonesia (INSW)	Malaysia (myTradelink)	The Philippines (PNSW)	Singapore (TradeXchange)	Thailand (NSW)
Responsible Agency	Independent INSW Portal administrator (PP-INSW)	Private company: Dagang Net; under supervision of Ministry of Finance (owner), Ministry of Trade and Finance, and customs dept.	The government expert project implementation team	Private company: CrimsonLogic Pte Ltd	IT dept. under Dept. of Customs
Development of B-to-G and B-to-B data exchange (For most countries, the G-to-G data exchange is almost finished)	Work in process: On B-to-G data exchange, for some products, business must contact 18 agencies to get their licenses.	Good progress: On B-to-G data exchange, connecting 26 permit issuing agencies, 8 local banks, 23 ports.	Work in process: We could not find evidence that the current PNSW provides B-to-G and B-to-B data exchange functionalities.	The newly developed TradeXchange have an almost complete B-to-G and B-to-B data exchange.	Work in process: On B-to-G data exchange, for some products, business must contact 8-10 agencies to get their licenses.
Utilisation	Widely used: 92 percent of trade transactions, 20,000 traders, 200 shipping agencies	Widely used: 9000+ organisations, >13,000 users	Not clear: We only found that 17,927 registered traders are using the system.	The usage rate is almost 100 percent.	Widely used: Most traders and shipping agencies are using the system.
Further development	Very promising with revision of Government Regulation No.76: Many new features will be introduced.	Very promising with 6 core services and upcoming new services.	PNSW is being upgraded to TradeNet, which covers all PNSW features and more.	The upcoming National Trade Platform (NTP) is supposed to be a complete NSW system with added features.	Rather slow due to the lack of strong commitment from higher administration.
Support by higher administration	Full support by Presidential Regulation No. 76/2014 and its revision in 2016	Full and continuous support from cabinet and Ministry of Trade and Finance despite initial resistance from other agencies and business.	Under the leadership of Export Development Council, the Dept. of Finance and the Dept. of ICT are working actively with 66 Trade Regulatory Government Agencies to develop TradeNet.	Singapore Trade Development Board (STDB) supervises the operation of CrimsonLogic.	One-time cabinet's resolution in 2005 and little support after then.

B = business; G = government.

Source: Authors' compilation.

4. Policy Recommendations

There are four keys that we would like to highlight in improving transparency and streamlining NTMs:

- Strong and continuous support from higher administration is essential. The outstanding case as shown by Singapore.
- Strong inter-agency collaboration is key: the NSW requires full collaboration of trade-related government agencies to synchronise their information technology system, exchange information, and standardise application forms.
- A dedicated, independent agency appropriately mandated (supported by law) is needed to implement and further develop NSW. The agency should have full-time staff, sufficiently funded with clear duties and structure. Indonesia's INSW portal administrator (PP–INSW) is a good case. Malaysia and Singapore have gone one step further by outsourcing this activity to private companies, under government supervision.
- Public–Private Partnership: A successful NSW requires strong support from the private sector for information, suggestions, and collaboration, in particular for the development of B-to-G and B-to-B data exchange platforms.

As for the development of NTR, the five countries differ even more widely in their interpretation and implementation of their NTR. Article 13 of the ASEAN Trade in Goods Agreement (ATIGA) has specifically identified the nine categories of information for AMS to use as a framework. All countries, except Singapore, have developed dedicated NTR websites that contain the nine categories. However, when tested, the information accessible from these websites is inaccurate, incomplete, and, typically, not very useful. The five countries also differ in their interpretation of 'ASEAN Trade Facilitation Best Practices', 'Administrative Rulings', 'National Trade and Customs Laws and Rules', and 'Authorized Economic Operators (AEOs)'. The information provided for these categories are thus not consistent across countries. Information on NTM is also lacking for most countries. Malaysia's NTM classification is based on MAST classification, while those of Indonesia and Thailand are not. Most countries do not provide enough information on NTM.

From our findings of the five countries' NTR, we propose the following:

- Ensure consistency of information required of the ATIGA's nine topics across countries. This includes a common and agreed-upon interpretation of each topic, e.g. scope, coverage, comprehensiveness, format, classification standards, etc. A regional technical workshop should enhance common understanding, highlight the differences, and suggest ways towards harmonisation.
- AMSs should develop a common platform for NTR from the beginning. Since we already have ATIGA's designated common framework, it should be feasible to develop a platform that in the future would easily link each country's NTR into the ASEAN Trade Repository (ATR).

- Developers of NTR should keep end-users' views in mind and develop information for each topic accordingly. Information on 'Procedures and Documentary Requirements' is a prime target here. The information should list easy-to-understand, step-by-step procedures and documents required for each good imported and exported.
- Creating a comprehensive and updated database of NTM in the region; published and easy-to-access database; building up countries' NTR and ATR.

In terms of streamlining NTMs, the following lessons recommendations could be derived from the experiences of the ASEAN-5:

- NTM streamlining should be part of a broader context of regulatory reform agenda. This evidence is consistent with experiences of other countries that have been successful at taking advantage of simultaneously liberalising trade and reforming regulations (see Cadot et al., 2012). Malaysia's Modernising Business Regulations (MBR) programme aimed at improving the quality of existing regulations and ensuring good quality of new regulations is a good example. Indonesia's economic package I aimed at deregulation and 'debureaucratisation' is another. Singapore's Smart Regulation Committee (SRC) is also a prime example of a dedicated organisation initially mandated to take stock and evaluate which rules can be simplified or removed. The establishment of the Philippines' National Competitiveness Council (NCC) with a broad objective of regulatory reform at national level is an effort in the right direction, although NCC's working groups and projects need to address NTM issues more specifically.
- A dedicated and independent agency on regulatory reform appears to be a good model for NTM streamlining. The agency needs to have the following characteristics:
    - Fully supported by higher administration. The fact that there has never been a systematic regulatory reform agenda in Thailand is due to the lack of strong commitment from higher administration to overcome resistance from operation agencies. Strong political leadership is particularly important in sensitive cases such as Thai maize imports.
    - Appropriately mandated (supported by law with clear and specific objectives), permanent, with long-term objectives.
    - Appropriately structured: The agency's executives should comprise of high-ranking officials from different regulatory bodies. Its administrative structure should be set so that it can efficiently coordinate different agencies and stakeholders. The agency should also have a dispute settlement mechanism capable of resolving disputes for common good.
    - All stakeholders involved. Malaysia's halal certification is a good example of public-private collaboration.
    - Technically competent.
    - Sufficiently funded.

Malaysia's PEMUDAH and NDPC, Singapore's SRC, the Philippines' NCC are good model examples of this type of agency.[19] The Philippines' inter-agency National Committee on Trade Facilitation (NCTF) has good potential for the task but it is currently not operational.

On this front, Ing et al. (2016) has proposed that each country establish a National Economic Council (NEC) that has a direct mandate from the president or prime minister. It consists of related in-line ministers and high-level government officials with a technical secretariat. The mandate is to review and design strategic trade and investment policies and regulations. The NEC consists of divisions of trade facilitation, NTMs, national single window, investment procedure and regulations, and free trade agreements/ economic cooperation. Each AMS should consider the structure of the proposed NEC and its divisions and apply/modify it to their existing organisations or create new ones. For example, in the case of Indonesia, the task force called 'an acceleration and effectiveness of the implementation of economic policy' can be transformed into a NEC with appropriately designed divisions. The current NTM division can be the NEC's technical secretariat.

- Procedural Obstacles (POs) are as costly as (if not more than) the NTM itself. The case of the Philippines exemplifies this type of issue. Trade related regulatory agencies should attempt to reduce delays, redundant documents, too many administrative windows involved, etc.
- Each country should consider establishing an NTM focal point or enquiry point. New regulations or changes to existing regulations should be publicised and ample opportunity for comments and suggestions from domestic and international interested parties are provided. The case in point is Thailand, where there is no clear focal point for NTM issues.

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[19] Although, as mentioned above, NCC's working groups have too broad mandate particularly those pertaining to trade facilitation.

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CHAPTER 8

Good Practices in Dealing with NTMs in CLMV: How Can They be Leveraged?

Fabio Artuso
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1. Designing and Implementing NTMs: The Tension between Facilitating Trade and Achieving other Legitimate Policy Purposes

With the global decrease of tariffs in international trade, policymakers have focused their attention on the role played by non-tariff measures (NTMs) in preventing countries from accruing the full benefits of globalisation. NTMs are defined as policy measures, other than tariffs, that can affect the quantity and/or value of international trade flows. NTMs include a large variety of trade regulations, including sanitary and phyto-sanitary (SPS) regulations, technical barriers to trade (TBT) regulations, rules of origin, licensing, price-control measures, and distribution restrictions (UNCTAD, 2013). Often, the primary objective of NTMs is not directly trade related but is about the achievement of 'common goods' for the broader population, such as the protection of the environment, human and animal health, and bio-diversity. Nonetheless, this type of NTMs can also have restrictive or distortionary effects on international trade.

NTMs can affect trade volumes. Hoekman and Nicita (2008) conclude that cutting the ad valorem equivalent (AVE) of NTMs in half, from around 10 percent to around 5 percent, would boost global trade by 2–3 percent. Djankov, Freund and Pham (2006) indicate that a one-day delay caused by NTMs reduces the overall export value by 1 percent and by 7 percent for agricultural products specifically. Ven (2017) estimates that a 10 percent increase in non-technical NTMs (i.e. excluding SPS and TBT) faced by Cambodian exporters would reduce Cambodia's agricultural exports by 2.7 percent.

Moreover, NTMs affect trade competitiveness and diversification. NTMs increase trade-related costs, including cost of compliance with technical regulations and bureaucratic procedures for permits and licenses. Such costs increase also in the absence of an information technology platform to facilitate submissions and approval of import-related licenses. In Lao PDR for example, rural traders have to incur time and resources costs to obtain the certificates since the system to grant such documents is centralised in Vientiane (World Bank et al. 2017). In turn, poorly designed NTMs can also affect poverty. NTMs increase the cost of food staples and basic commodities for the poorest. Cadot and Gourdon (2012) conclude that SPS measures increase the price of food staples by 13–15 percent in Africa; quantitative restrictions by an additional 20 percent.

NTMs can cause unnecessary problems both for the way they are designed and/or administered. Poor design is often due to lack of coordination across ministries on national trade policy. Line ministries, such as those for industry, agriculture, health, environment, etc., have limited interest in considering the negative trade consequences of regulations designed to achieve other policy objectives, such as protecting human/animal/plan health and preserving the environment. Poor design may also be due to the unjustified fear of asymmetric impacts of regulating, i.e. the costs of adverse events happening in the absence of regulations are considered larger and less tolerable than the community's compliance costs of regulations.[1] If the effect of a regulation on trade volumes or quantities is not appropriately documented and/or not considered, most likely this will result in a regime, which is more trade restrictive than necessary to achieve the legitimate policy purpose underpinning the regulation. Even when NTMs are properly designed, problems can be caused by the way in which they are implemented. In fact, border authorities and other enforcement agencies often have an incentive to interpret regulations in such a way that empowers them to expand their control over issuing certificates, permits, and authorisations. This is often linked to informal practices, whereby the extraction of unreported fees from traders is facilitated by overcomplicated import and export procedures.

Until recently, as an example in Cambodia, local regulations required exporters to obtain a certificate of origin also for consignments that could not benefit from preferential treatment in the country of destination, such as garments and apparel exported to the United States market. This requirement was justified by the Ministry of Commerce on the basis that the government needed to collect statistical data in real time, as they could not rely on late export statistics shared by the General Department of Customs and Excises. However, when the cost to exporters of this unnecessary requirement was quantified, the Ministry decided to drop this NTM, aiming to save a substantial amount of administrative fees otherwise originating from the certificates' issuance.

2. NTM Policies in CLMV (Cambodia, Lao PDR, Myanmar and Viet Nam)

Despite the substantial reduction in tariffs over the last decade, intra-ASEAN trade increased slightly from 23.0 percent of member states' total trade in 2000 to 25.3 percent in 2014. Amongst the factors that cause underutilisation of preferences are the high costs in obtaining certificates of origin and the proliferation of NTMs, which contribute to increasing trade costs.

As discussed in Chapter 2, the NTMs surge in ASEAN could be a protectionist response to tariff liberalisation or it could be explained as a reflection of improved living conditions of a

[1] For instance, Viet Nam applies some measures – which are excessively restrictive from businesses' perspectives – on imported fishery products, notwithstanding growing needs for imported inputs to support export-oriented processing. This application is partly justified by the need for quality control to avoid reputational costs to Viet Nam's fishery sector. See Vo and Nguyen (2017) for reference.

population requiring a more sophisticated protection against imported goods that do not meet socially accepted standards.

Notwithstanding the reasons for the recent NTMs proliferation, ASEAN Member States recognise the importance of nurturing regional policy dialogue on NTMs. Furthermore, some of the language used in official documents indicates the policymakers' awareness that trade regulations are often used as barriers to intra-regional trade and that common actions are necessary to overcome their negative effects on the regional integration process.

Chapter IV of the ASEAN Trade in Goods Agreement (ATIGA) regulates regional cooperation in this area. ASEAN Member States (AMS) agreed to refer to World Trade Organization (WTO) rights and obligations (Article 40, paragraph 1) and to ensure transparency of NTMs, which should not be 'prepared, adopted or applied with the view to, or with the effect of, creating unnecessary obstacles in trade among member states' (Article 40, paragraph 2). Moreover, AMS have undertaken the obligation to notify their NTMs to the Secretariat. The ASEAN Trade Repository (Article 13) will include web-links to the Member States' National Trade Repositories.

The ASEAN Economic Community (AEC) Blueprint called for the elimination of non-tariff barriers (NTBs) by 2015. The AMS were meant to review their NTMs and identify NTBs for elimination, in cooperation with the relevant committees. The Blueprint empowered the ASEAN Free Trade Area (AFTA) Council to take decisions based on recommendations from the Senior Economic Officials Meeting (SEOM) (Article 42, paragraph 1). The Coordinating Committee for the implementation of ATIGA (CCA) serves as a focal point for the notification and review of measures reported by AMS or by the private sector (Article 42, paragraph 3 and 4). The AEC 2025 Blueprint reaffirms these commitments requesting AMS to intensify their efforts in this area.

In October 2011, the AEC Council Retreat in Kuala Lumpur discussed the issue of addressing trade barriers that impede intra-ASEAN trade and tasked the SEOM with preparing a work plan for consideration by the ASEAN Economic Ministers (AEM). The ministers agreed that ASEAN should develop a mechanism and/or have standard procedures for recording all NTMs including a robust means of examining these for Non-Tariff Barriers effects and eliminating those with restrictive, discriminatory or disproportionate effects, and for officials to discuss with the business communities on the specific bottlenecks, and address the concerns on a case-by-case basis.

In 2012, the report of the AEC Council to the 20th ASEAN Summit in Phnom Penh, Cambodia, mentioned that 'Despite the achievements in liberalising tariffs under the AFTA, NTMs continue to impede the free flow of goods in the region. To address the restrictive elements in these measures and look into the possibility of eliminating them, priority should be given to the development of the roadmap for putting in place a robust mechanism to ensure that border and behind-the-border measures do not negate the benefits of tariff liberalisation in the region. ASEAN Member States should also strictly adhere to the protocol on notification procedures, especially before adopting NTMs that could potentially affect intra-ASEAN trade and investment'.

In 2012, the Cambodian chairmanship tabled a draft 'NTM Work Programme'. The document was subsequently divided in two work programmes (national and regional) and was approved by the ASEAN Economic Ministers in 2013.

The work programme provides for the establishment of a National NTM Committee, which should be tasked with the following:

- Collect and classify all regulations on NTMs;
- Develop guidelines on operating procedures for each NTMs;
- Notify NTMs inventory to the ASEAN Secretariat;
- Publish NTMs in a web portal (National Trade Repository) to be connected with ASEAN Trade Repository (ATR);
- Collect and classify all regulations on NTMs;
- Develop guidelines on operating procedures for each NTM;
- Notify NTMs inventory to the ASEAN Secretariat

Based on existing legal commitments and practices,[2] the ASEAN approach to NTMs can be summarised as follows:

1. NTMs notification:
    - Member States are expected to notify to the Secretariat existing and new NTMs;
    - An NTM database is maintained by the ASEAN Secretariat;
    - National NTM Committee and focal points are established at country level; and
    - National Trade Repository (NTR) are made available online and they interoperate through the ASEAN Trade Repository.
2. NTMs classification and evaluation:
    - Member States classify NTMs using the Multi-Agency Support Team (MAST) methodology;
    - National NTM Committees establish capacity to evaluate NTMs; and
    - Evaluation can be launched ex officio or based on complains by private sector or other Member States.
3. Identification of NTBs:
    - Member States report actual cases of other Members' identified NTBs, which are discussed amongst Member States representatives for agreement;
    - A Matrix of Actual Cases of identified NTBs is maintained by the Secretariat;
    - Initiatives for Private Sector Dialogues are launched to identify NTBs; and
    - An online complaint mechanism (ASSIST) is managed by the Secretariat in consultation with Member States.

[2] For instance, see ASEAN (2015), ASEAN (2017a).

4. Elimination of NTBs:
    - NTMs can be streamlined and NTBs eliminated as a result of the National NTM Committee's review process;
    - Consultations on actual cases are held bilaterally;
    - Cases are discussed at CCA/SEOM level, if bilateral discussions are not conclusive;
    - Member States can also make use of the Enhanced Dispute Settlement Mechanism.

As of September 2017, some of the ASEAN commitments in this area have been fulfilled better than others. Some countries have succeeded in establishing fully functioning National Trade Repositories, using the MAST methodology to classify NTMs. Others are still in the process of completing them. The system of notification and resolution of actual cases have worked patchily and do not appear to have sufficient strength to solve the ominous issues they are faced with. Some countries have established and staffed effective National NTM Committees, while others have not gone this far. In all cases, linkages between ATR and NTR require further efforts as currently they are very weak.[3]

The ASEAN national think thanks working together with the Economic Research Institute for ASEAN and East Asia (ERIA) and the United Nations Conference on Trade and Development (UNCTAD) have completed a comprehensive NTMs collection covering all 10 AMS in 2015, and recently updated in 2018.[4] This is an important step forward in the analysis of global and regional trends in trade policy and regulation, as it is now possible to compare NTMs regimes across countries and draw some conclusions and policy recommendations. Ideally, this collection should be regularly updated and reviewed by the relevant institutions of the ASEAN Member States and can be accessed at their national trade repositories (NTRs).

3. Entry Points in the Trade Facilitation Agreement to Crystallise into a Solid NTM Approach in ASEAN

Under General Agreement on Tariffs and Trade (GATT) Article X, WTO members are bound to publish their trade laws in a prompt and accessible manner and to refrain from enforcing measures prior to publication. More specific guidance on NTMs' legitimacy is provided by the WTO only in the areas of SPS, TBT and licensing. In line with WTO commitments, members are also expected to ensure that regulations are publicly accessible, possibly online, and to review regularly their measures to make sure that the regulatory regime is effective in achieving its policy objectives. Moreover, members have to provide annual public notice of any relevant regulation that they reasonably expect to issue within the following 12-month period.

[3] See ASEAN (2017b).

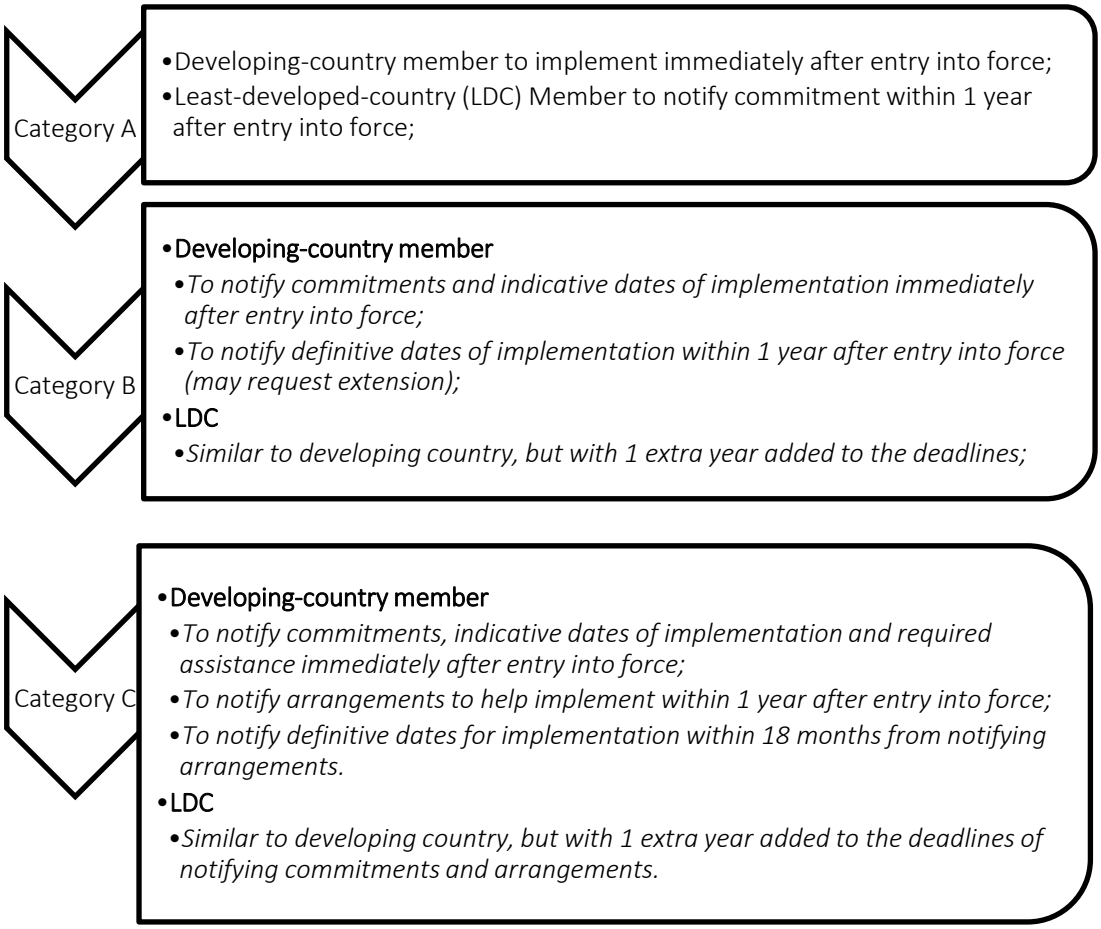
[4] The data on NTMs for the 10 ASEAN countries can be accessed at: http://asean.i-tip.org/

The WTO Trade Facilitation Agreement (TFA) went one step further by establishing a multilateral framework to facilitate trade, balance the facilitation of trade and compliance with trade-related regulations, and promote technical assistance and capacity building, amongst others. The TFA was endorsed on 14 July 2014 and entered into force on 22 February 2017. The TFA consists of three Sections: (i) provisions related to technical measures, in the aspects of accessibility and transparency of regulations, management of regulations related to trade, customs clearance, and transit; (ii) special and differential treatment for developing and least-developed countries, including technical assistance and capacity building; and (iii) institutional arrangements and final provisions.

Under the TFA, WTO Members have undertaken specific commitments in the area of NTMs, particularly on transparency. Section I, Section II and Section III are significantly relevant to Cambodia, Lao PDR, Myanmar and Viet Nam (Figure 8.1). Section I requires the prompt publication of: procedures for importation, exportation and transit; and import, export, or transit restrictions or prohibitions, amongst others. Procedures, practical steps and required forms needed for importation, exportation and transit shall be made available through the Internet. In addition, the amendment/introduction of laws and regulations related to the movement, release and clearance of goods should incorporate public provision of related information, and opportunity for the public to make comments. The section also provides for other measures to enhance impartiality, non-discrimination, and transparency of NTMs, such as notifications for enhanced controls or inspections.

Section II of the TFA includes provisions on special and differential treatments for developing and least-developed countries. Such treatments categorise commitments into three groups. The commitments under Category A are to be implemented immediately upon entry into force of the TFA. Commitments under Category B shall be implemented after a transition period. For commitments under Category C, developing and least-developed countries are allowed a transition period and supported with technical assistance.

Figure 8.1: Summary of Special and Differential Treatment to Developing and Least Developed Countries under TFA



Source: WTO (2014).

Section III of the Trade Facilitation Agreement foresees the establishment of a permanent committee on trade facilitation at the WTO. This Section also requires members to establish a National Committee to facilitate domestic coordination and implementation of the provisions of the agreement. Efforts to streamline NTMs in Southeast Asia are also consistent with commitments towards ASEAN integration, as summarised in the ASEAN Economic Community blueprints. The ASEAN Economic Community blueprint 2015 sets out a target of full elimination of NTBs by 2015. Actions to achieve this target include enhancement of transparency by abiding by the Protocol of Notification, enhancement of transparency of NTMs, and harmonising regional rules and regulations consistently with best practices, *amongst others*. The 2025 ASEAN Economic Community blueprint aims more specifically to minimise protection and compliance costs of NTMs.

Commitments include: increasing adoption of good regulatory practices in domestic regulations; strengthening coordination with the private sector in determining, prioritising, and reducing the unnecessary regulatory burden of NTMs on the private sector; and exploration of alternatives to deal with NTMs. The ASEAN Work Programme on NTMs also requires the establishment of a National NTM Committee in each AMS.

In addition, the draft text of the Trans-Pacific Partnership (TPP) foresees a detailed discipline to achieve regulatory coherence across member countries. In November 2017, the TPP was renamed as the Comprehensive and Progressive Trans-Pacific Partnership (CPTPP) agreement. As of November 2017, four out of the 10 ASEAN Members (Brunei Darussalam, Malaysia, Singapore, and Viet Nam) are already signatories to the CPTPP. By blending in a crystallised single approach to commitments originating in WTO, CPTPP, and AEC agreements, ASEAN countries could develop an effective system to ensure that NTMs are not an impediment to building an integrated trading block in South-East Asia.

CPTPP requires the establishment of a Regulatory Coherence Committee to ensure that NTMs are no more trade restrictive than necessary to achieve their legitimate policy objectives. However, the substantial overlapping between the mandate of this Committee and the National NTM Committee to be established under the ASEAN Work-Program on NTMs suggests setting up one single body responsible for reporting both to TPP and ASEAN Members. Moreover, consideration could be given to merging this body with the Trade Facilitation Committee to be established under the WTO Trade Facilitation Agreement. These various committees, in fact, have in common the overall objective of maximising trade flows in and out of the country while fulfilling, at the same time, specific policy objectives such as the protection of national security, human/animal/plants health, or the environment.

The Committee will be called upon to play a sensitive role in designing and implementing trade policy, to attempt to balance the interests of different economic players and consumers in general. It is important that a clear platform is established to ensure transparency of the process and inclusion in consulting the stakeholders involved. This Committee would essentially be tasked with a policy role, which would have to be underpinned by solid economic analysis to be carried out by a permanent Secretariat. The Secretariat would have to be equipped with the necessary skills and resources to carry out cost–benefit analysis of specific trade regulations, considering the impact on the overall economy of NTMs aimed at addressing a specific policy objective. Issues related to the implementation of specific import–export rules and procedures will also have to be considered to ensure the facilitation of trade by streamlining processes and removing unnecessary bureaucratic bottlenecks.

4. Lessons Learned from CLMV

A number of ASEAN countries have taken important steps to increase NTMs transparency and to limit their adverse effect on consumers and producers. We will analyse in more detail efforts made by Cambodia, Lao PDR, Myanmar and Viet Nam, the less developed member countries in ASEAN, which received comprehensive assistance from the World Bank Group (WBG), with other specific but limited interventions by other Development Partners.

The WBG has addressed requests from several ASEAN countries, based on the following approach:

- Encouraging governments to address unilaterally the NTM agenda to improve domestic firms' competitiveness and reduce poverty, rather than from a mercantilist standpoint of concessions to trading partners;
- Shifting the focus from 'eliminating' NTMs without a comprehensive analysis (an objective that is often doomed because it does not take into account NTMs' multi-purpose nature) to identifying ways to reduce the trade-impeding effects of NTMs while ensuring that legitimate regulatory objectives are attained; and
- Promoting stronger governance over trade regulation through data transparency and improved institutional coordination, as well as capacity building through analysis and policy advice.

The WBG's toolkit 'Streamlining Non-Tariff Measures: A Toolkit for Policy Makers' helps policymakers navigate the maze of trade regulations when engaged in trade competitiveness and regulatory improvement agendas. It offers a novel approach to addressing NTMs by recognising the complexity and variety of NTMs in terms of their objectives, policy measures, procedures, and economic and societal impacts. It advocates for problems to be identified through consultations with the private sector, and technical solutions sought through careful analysis and private–public dialogue. The toolkit provides methodologies to assess the associated economic costs and benefits, and a framework for helping governments build an adequate institutional setup to address NTMs as a cross-cutting issue involving multiple government agencies and stakeholders.

The sustainability of the work supported by the WBG and other development partners relies substantially on the capacity and the political will of the government institutions to keep updating the NTMs collection and making sure new regulations are published regularly. This is challenging in countries with poor institutional resources. Chances for success would increase if development partners would align their efforts in support of the governments' policy in this area. A good opportunity exists, for example, to enhance synergies between development partners supporting the establishment and maintenance of Trade Portals or NTRs and development partners focusing on NTMs collection and classification.

A tremendous opportunity exists, moreover, to explore the possibility of involving private sector organisations and individual legal firms in keeping regulatory information updated. This can be done by using innovative technologies including by offering the possibility to a selected group of stakeholders to access the online repositories, under a clearly defined memorandum of understanding establishing tasks and responsibilities. It could be envisaged, for example, that business associations and law firms could upload directly new regulations, which would then have to be validated by the government authorities with the responsibility of managing the Trade Portals. Information uploaded by authorised private parties could be displayed online immediately, as long it is clear that it has not yet been validated by the authorities. This mechanism would contribute to keeping the regulatory information relevant and up to date. It would also help to facilitate the work and increase the accountability of those who are mandated to maintain the Trade Portals.

Cambodia

Since 2012, the Cambodian Ministry of Finance has intensified efforts to formulate and implement the ASEAN Work Programme on NTMs. About 120 laws and regulations have been collected and analysed, resulting in the compilation of a database with almost 400 NTMs, which have been classified according to the MAST nomenclature.

In the absence of a legal basis supporting the process, regulations were collected by the Ministry of Finance with the support of one local and one international expert funded by the WBG. A 5-day training was provided to officials from the Ministry of Economic and Finance (MEF) and all line ministries with the objective of developing their capacity to identify and classify NTMs. Those officials cooperated in the following months to collect legal texts, which were translated when not available in English, with the support of the Royal University of Law and Economics in Phnom Penh.

In 2015, after intensive consultation across all interested ministries, the Prime Minister signed two Sub-Decrees establishing the National NTM Committee and National NTR Committee.

The National NTM Committee is chaired by the Director of Department of Economic Integration and ASEAN of the Ministry of Economy and Finance, with co-chairs from the Ministry of Commerce and the Ministry of Agriculture, Forestry and Fisheries. Its members include: Council of Ministers, Ministry of Interior, Ministry of Defense, Ministry of Foreign Affairs and Cooperation, Ministry of Planning, Ministry of Environment, Ministry of Industry and Handicraft, Ministry of Mine and Energy, Ministry of Post and Telecommunication, Ministry of Health, Ministry of Culture and Arts, General Secretary of Civil Aviation, Cambodian Development Council, General Department of Customs and Tariffs, Trade Assembly of Cambodia.

The National NTM Committee was provided with a legal mandate to carry out the following tasks:

- Collect, classify, analyse, and formalise all NTMs.
- Present, publish, and maintain all NTMs.

- Prepare all necessary operational guidelines to guarantee proper and effective NTMs implementation.
- Evaluate and streamline NTMs to promote trade and investment.
- Cooperate with line ministries to ensure compliance of new NTMs with international and regional agreements (the Committee has to provide an answer within 90 days). NTMs could be enacted by line ministries without prior consultation with the Committee only in case of emergency. In any case, the Committee should be informed promptly of any new NTMs.
- Cooperate on notification to the WTO through the Ministry of Commerce and to the ASEAN Secretariat through the Ministry of Economy and Finance.
- Develop operational procedures and yearly work plans, including for use of official development assistance.
- Issue recommendations and a yearly report to the government.

According to the Sub-Decree, the National NTM Committee is supported by a Secretariat, whose duties are performed by the General Department of Economic Policy and Public Finance of the Ministry of Economy and Finance.

The NTR Committee has a similar composition and it is tasked with collecting and publishing all relevant trade information, including NTMs, collected in cooperation with line ministries. The Committee can report delayed submissions of information from line ministries and it can object to the publication of NTMs, which are not compliant with regional or international agreements. Line ministries are expected to inform the Committee of any plan to publish new trade rules and to ensure full communication on new and existing NTMs.

In 2015, using this legal basis, the Ministry of Finance hired a team of about 10 junior professionals who are now staffing the NTM Secretariat and the NTR Secretariat on a full-time basis. In the same year, the National Trade Repository was published, using an off-the-shelf software solution made available by the WBG.[5]

The NTM Committee is currently engaged in a training programme aimed at developing sufficient analytical skills to assess the impact of NTMs on the welfare of the population or the competitiveness of specific production sectors. The training programme foresees a mix of frontal teaching with hands-on practical exercises using real cases and real data. This has resulted so far in the production of two notes focusing on: a) the need to eliminate unnecessary requirements to obtain certificates of origin also for consignments imported by destination countries on a most-favoured nation basis; b) the need to eliminate a quota system to license importation of meat and fish. Additional work is ongoing in the attempt to institutionalise the review process and make it sustainable over time.

[5] The NTR is currently available at http://cambodiantr.gov.kh/index.php?r=site/index.

The NTM Secretariat has also compiled a detailed document describing its working procedures, including modalities to receive and deal with complaints from various sources, including the private sector and civil society organisations. The working procedures are expected to be made public soon, after their official adoption.

Lao PDR

The Lao Government was the first in ASEAN to develop a National Trade Repository (www.laotradeportal.gov.la) substantially compliant with the ATIGA's requirements. The Lao Trade Portal was developed by the Department of Import and Export of the Ministry of Industry and Commerce (MoIC) with support from the Trade Development Facility, a multi-donor trust fund established by the European Union, GIZ (Germany), and AusAID (Australia) and administered by the World Bank. The portal currently lists about 300 legal documents and about 400 NTMs. The Lao Trade Portal was launched in 2012. NTMs and other trade-related information were collected with the assistance of a team of consultants who developed the capacity of a unit in the MoIC's Department of Import and Export (DIMEX) to maintain and update the system on a regular basis.

With the Lao Trade Portal, Lao PDR succeeded in improving transparency of regulatory information and it enabled traders to get better and faster access to information they need to import and export. In addition to making available in English all relevant regulations (indexed by HS code), the portal describes step-by-step procedures required to import and export. With the development of the portal, the Lao PDR government fulfills the requirement of Article 13 of ATIGA to establish an ASEAN Trade Repository (ATR), although a full set of weblinks to the ATR is still being developed.

Before the portal was launched, NTMs were collected and classified according to the MAST nomenclature and training was also provided to review and streamline NTMs. As compared to Cambodia, Lao PDR's MoIC decided to proceed with the compilation and the publication of NTMs without an explicit and dedicated legal basis. This enabled them to complete the work more speedily. However, in the absence of a strong mandate, the NTM Unit in DIMEX could not be staffed with resources similar to those mobilised in Cambodia. Currently, three professional staff are devoting half of their time to the Trade Portal's maintenance but they have limited time and capacity to focus also on reviewing and streamlining NTMs. They successfully carried out Regulatory Impact Assessments (RIAs) on Vehicle Import Licenses and Petroleum Import Licenses, but efforts will have to be intensified to enable a systematic approach across different agencies and ministries.

With assistance from the WBG, DIMEX organised two workshops in 2015 and 2016 with the objective of reaching consensus amongst the main stakeholders on how to improve the institutional infrastructure to ensure coordination across ministries and agencies with responsibility to design and implement NTMs. The latest workshop concluded that there was merit in considering the overlap between the NTM Committee foreseen under the ASEAN NTM Work Programme and the Trade Facilitation Committee foreseen under the WTO's Trade Facilitation Agreement.

The proposal is to set up a Steering Committee for Trade Competitiveness Promotion, chaired by the Deputy Prime Minister, to guide the implementation of reforms both in the areas of trade facilitation and NTMs. The Steering Committee will be supported by the Secretariat of Trade Facilitation and NTMs, chaired by the Vice-Minister of Commerce, and it will consist of two separate working groups, for trade facilitation and NTMs. The NTMs Working Group is expected to be split into three sub-working groups with responsibility, respectively, for Import and Export Licensing, Technical Measures, and Non-technical Measures.

Because of the high level of administrative decentralisation, DIMEX is also planning to establish focal points at the provincial level. They would be charged both with distributing information and collecting complaints and data to be reviewed by the Secretariat at the central level, to obtain faster and more informed decisions by policymakers.

This new structure is expected to link formally to the Lao Business Forum, which will be considered one important source of complaints to identify issues on which the Secretariat should focus its review. Private sector representatives, including from the Lao National Chamber of Commerce and Industry and the Lao International Freight Association, are also expected to be members of the sub-working groups. This institutional arrangement is expected to be established under a Decree signed by the Prime Minister, followed by a Decision by the Deputy Prime Minister.

Evidence-based trade policy measures are difficult to shape in Lao PDR, where data availability is scarce and where administrative responsibility is spread across several ministries and authorities. The establishment of a dedicated structure focused on collecting and reviewing data is a necessary step towards designing and implementing NTMs in a less trade restrictive manner. Specific technical skills are necessary to analyse the impact of trade measures. These can be built only if adequate staffing is secured once a solid institutional set up is formalised by law.

Recent developments in Lao PDR, moreover, provide evidence of the importance of linking the NTM agenda to the Trade Facilitation agenda. Very often, the real impact of an NTM is determined by the way this is implemented by border authorities, which makes it necessary to adopt an approach that cuts across these two trade reform areas.

Myanmar

In 2016, Myanmar also completed its work on establishing a National Trade Repository, which is currently available online at www.myanmartradeportal.gov.mm. The Myanmar trade portal was developed with assistance from USAID, using the software platform of the Lao Trade Portal, based on a bilateral agreement between Myanmar and Lao PDR. The website lists about 40 laws and regulations, but only 20 NTMs have been published so far as approval from line ministries on the publication of other NTMs is still pending.

At the end of 2016, the Government of Myanmar was engaged in an effort to streamline platforms for inter-agency coordination on trade and economic matters. A Trade Facilitation Committee is likely to be established in compliance with the WTO's Trade Facilitation Agreement (TFA) and responsibility to cover NTMs is likely to be assigned to a technical team reporting to the Committee.

Training has been provided both on classifying and streamlining NTMs. The main constraint in Myanmar is the scarcity of professional staff in the Ministry of Commerce, including officials versed in English. Similarly to Lao PDR, however, Myanmar is currently considering the establishment of a joint institutional mechanism to overlook both trade facilitation and NTMs. This reform would go in the right direction to promote the allocation of adequate human resources who could receive more training specifically on carrying out RIAs.

Currently, the Ministry of Commerce is embarked in a comprehensive effort aimed at reducing the number of licenses required to import goods into Myanmar. Licenses for each and every imported item used to be issued by the Ministry of Commerce with the alleged purpose of collecting trade data. In 2012, under the new economic policy, the Ministry of Commerce replaced a universal non-automatic licensing requirement for all merchandise imports with a hybrid system in which a 'positive list' of products was designated for automatic licensing. In April 2013, import licensing requirements were abolished for 166 products and in 2015 the Ministry successfully compiled a negative list.

With the assistance of the WBG, the reform is still underway and attempts to decrease as much as possible the number of products subject to automatic licenses. The reform's overarching principle is that with an adequate toolbox of WTO-consistent trade-policy instruments (including the safeguard clause), licenses should be fully decoupled from trade concerns and imposed only (i) on the basis of safety (health and environmental) concerns, and (ii) when they provide effective enforcement tools for SPS or TBT measures.

Work is still ongoing to make sure all products in the 'negative list' are chosen based on rational consumer protection criteria. This is an area where inter-ministerial coordination is fundamental. It has been proven that ad-hoc institutional arrangements are hardly ever effective in achieving sustainable results in these difficult reform areas. A strong coordinating mechanism, supported by a clear legal mandate, would support the Ministry of Commerce in achieving agreement across line ministries on the criteria to be used to compile the negative list.

Viet Nam

In the period from 1986 to 2016, NTMs in Viet Nam were drastically simplified. After Doi Moi (Renovation) in 1986, Viet Nam abolished monopoly in trading rights, and has since 1988 permitted foreign invested enterprises to undertake trade activities. Since 1998, all enterprises have been allowed to export and import goods described in their business license without having to ask for additional product-specific licenses to trade (except for four groups of the special goods).

Non-tariff barriers (NTBs) were introduced when Viet Nam shifted from a centrally controlled economy to market trade from the late 1980s to the early 1990s, and they quickly became a key component of Viet Nam's trade policy (Figure 8.2). However, in the late 1990s and early 2000s, with bolder moves towards trade liberalisation, Viet Nam made significant progress in reducing the use of NTBs, largely by replacing NTBs with tariff rates (i.e. the so-called 'tariffication' process). Only for a few selected products did Viet Nam retain limitations by using tariff-rate-quotas, which was consistent with WTO rules.

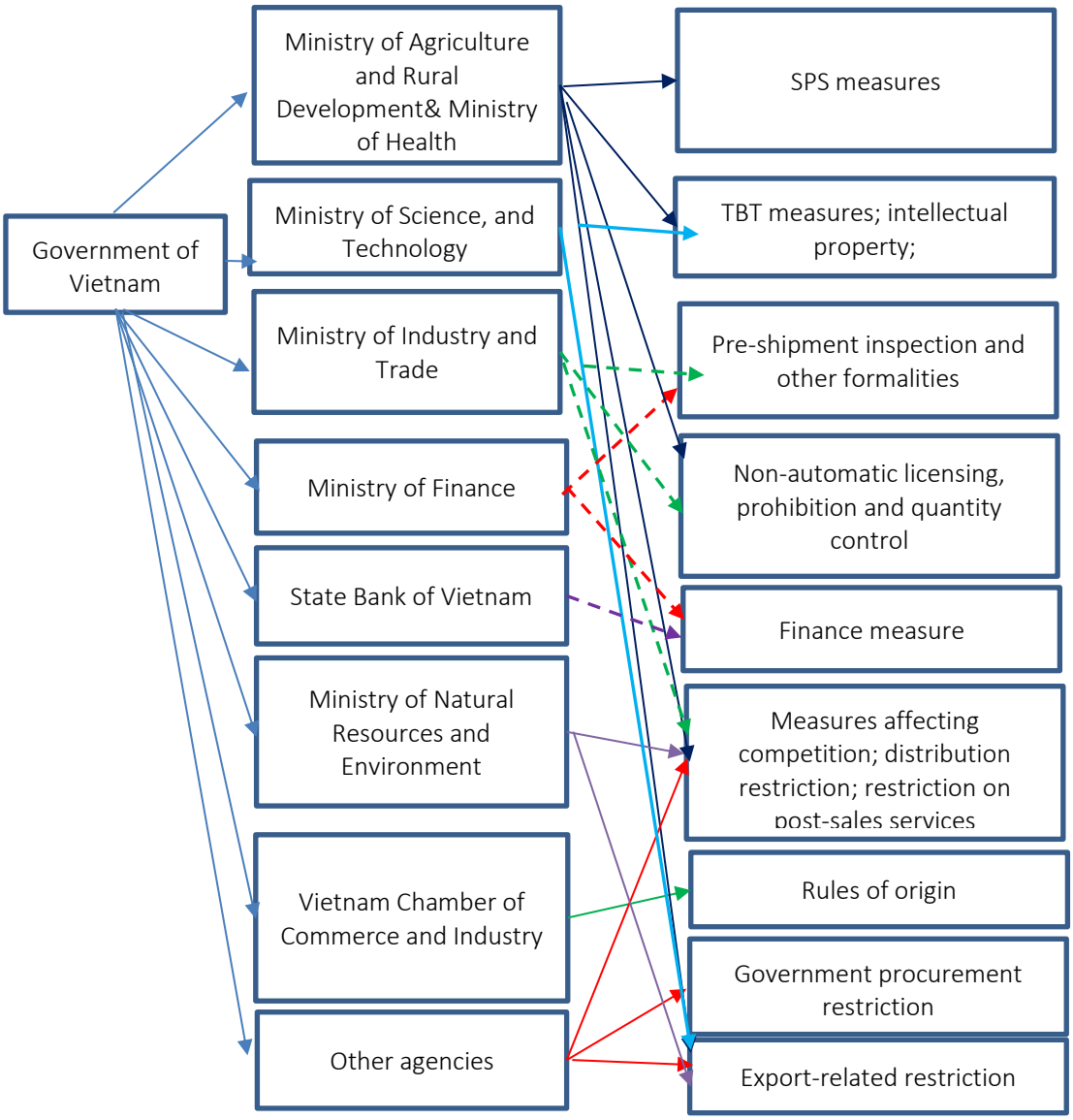
As Viet Nam was preparing for WTO accession, improving transparency of NTMs became an important policy drive. The country accordingly established an inquiry point on SPS under the Ministry of Agriculture and Rural Development, and an inquiry point on TBT under the Directorate for Standards, Metrology and Quality (STAMEQ), under the Ministry of Science and Technology. Responsibility for other types of NTMs is scattered across various agencies in Viet Nam.

Since 2008, Viet Nam has resumed the use of NTMs to restrain imports. As tariffs have diminished, NTMs have become a trade policy tool with the undeclared objective of restricting trade, although most of them have been developed to serve specific purposes, such as protection of domestic consumers' health, local biodiversity, etc.

Up until July 2017, Viet Nam did not have any official programmes specifically targeting NTMs streamlining. Nor has there been an official classification of NTMs in the country. Most legal documents are widely and freely accessible in Viet Nam through legal portals. Only in early 2016 the first comprehensive database on NTMs in Viet Nam was set up as part of the ERIA–UNCTAD project. There are a couple of reasons for this slow process in terms of NTM documentation. First, there has been no formal agreement or consensus on the scope of NTMs. References are generally made only to SPS and TBT in the NTM-related discussion. Scoping the NTMs is also difficult because regulations in Viet Nam are multi-levelled[6] and lack explicit introduction of regulatory objectives. Second, notwithstanding emphasis on further pro-active reforms to support economic integration after the WTO accession, most regulatory changes were only meant to conform to existing commitments. In particular, during 2007–2013, few efforts were made to promote trade liberalisation in general and NTM reduction beyond commitments on a unilateral basis.

[6] Including Laws, Ordinances, Decrees, Resolutions, Circulars, etc.

Figure 8.2: NTMs and Authority of Vietnamese Agencies



SPS = sanitary and phyto-sanitary; TBT = technical barriers to trade.
Note: The arrows show the objects under authority of different Government agencies. Dash and color of arrows are for illustrative purpose only.
Source: Authors' compilations.

Devising a strategy to streamline NTMs in Viet Nam therefore has to rely on a more indirect approach. Since 2014, the government of Viet Nam has prioritised a programme to improve the ease of doing business. Amongst the measures adopted was the reduction of unnecessary regulatory burden on businesses. In early 2015, the Central Institute for Economic Management (CIEM) reviewed business conditions stipulated in various ministerial regulations.[7] Out of the 5,850 business conditions, more than 3,000 were previously

[7] Viet Nam's laws require Decrees and Circulars for details on implementation.

introduced in regulations at the Circular level. All these conditions were to be abolished from 1 July 2016 according to the (amended) Investment Law. Indeed, according to this law, these 3,000 conditions should no longer apply from 1 July 2015.

Moreover, some business conditions have recently been the topic of debates. Circular 20/2011/TT-BCT of the Ministry of Industry and Trade (MOIT) in 2011 offered the most controversial case. In 2011, judging that parallel imports of completely built automobiles were amongst the main cause of widening trade deficits, the MOIT stipulated additional conditions for the import of such automobiles, such as a certificate of post-sale services and a certificate of authorised imports issued by the headquarters of the carmakers. Similarly, a formaldehyde test was required on imported textile products – which accounted for a large share of Viet Nam's imports. Due to their adverse implications for trade, these regulations on conditions – amongst others – have been identified by the CIEM and the Viet Nam Chamber of Commerce and Industry as creating unreasonable additional costs for businesses and undermining market competition without adequately considering the forgone benefits for consumers. The promulgations of such documents were also criticised for not abiding by good regulatory practices, in that there were no regulatory impact assessments, no efforts to consult with business in advance, and no appropriate consideration of feedback from importers.

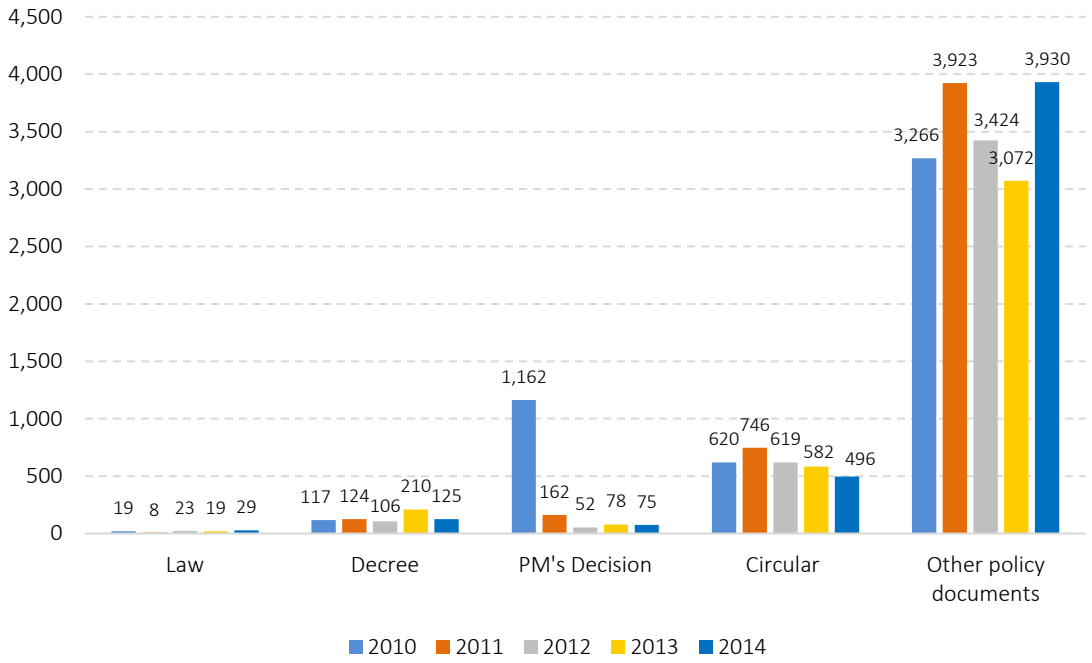
Following various debates at the government, ministerial, and expert levels, the MOIT had to amend these regulations. The requirement of a formaldehyde test on imported textile products was abolished in October 2016. The conditions for imports of completely built automobiles were partially amended, lifting the obligation to include submission of a certificate of post-sale services.

In August 2017, the Ministry of Planning and Investment tabled a proposal to the government to remove or simplify about 2,000 business-related conditions (or nearly a half of all business conditions in Viet Nam's regulations), many of which are effectively NTMs. Amongst them are 302 conditions related to financial aspects, 85 conditions related to business premises, 1,336 conditions related to production capacity, 127 conditions related to business modality, and 80 conditions related to master planning. These measures aim to reduce the unnecessary obstacles to market entry and/or business operations, which would strengthen the microeconomic foundations for more sustainable productivity growth.

Looking ahead, efforts to further reduce NTMs in Viet Nam may encounter some challenges. First, so far there has not been sufficient consensus in Viet Nam on the rationale for and scope of NTMs. While some regulations serve non-economic purposes and certainly have NTM implications, others are considered necessary to indirectly target import flows of goods without violating international agreements. Second, Viet Nam still fails to effectively manage its regulatory system, which is hampered by the proliferation of regulations at various levels. Efforts to review NTMs in existing regulations must be an ongoing process, therefore, but it never ends as some NTMs may have already been incorporated in new draft regulations.

Finally, Viet Nam has only barely established a fully detailed and functioning national trade repository (NTR) as per the measure towards ASEAN Economic Community in July 2017.[8] Although this could be explained by the slow consensus on a technical design for the ASEAN trade repository with which the NTR will have to integrate, the failure to promptly establish the NTR has burdened trade activities, especially related to the identification of requirements vis-à-vis a specific HS code.

Figure 8.3: Number of Issued Documents in Viet Nam, 2010–2014



PM = Prime Minister.
Source: CIEM (2015).

[8] In July 2017, the World Bank and General Department of Customs of Viet Nam launched the Trade Information Portal. This Portal is an attempt by Viet Nam to comply with the requirement of the Trade Facilitation Agreement under the WTO. It aims to help traders comply with regulatory requirements associated with imports and exports of goods. However, this information portal is not sufficiently interactive, as certain topics such as business opportunities, lists of partners, etc. will still require traders to directly consult the Ministry of Industry and Trade, the Ministry of Planning and Investment, etc.

Summary of lessons learned from CLMV for other Developing and Least Developed Countries

Although the experiences of Cambodia, Lao PDR, Myanmar and Viet Nam (CLMV) in dealing with NTMs described above are only a selection, they provide some important lessons:

1. It is essential to have a strong political commitment at the highest level of government. The political will should thus be anchored to the understanding of the potential impact that badly designed NTMs can have on the country's competitiveness, on the population's welfare, and on the government's effort to decrease poverty.

2. An independent group of regulatory reformers should be identified to staff a team of researchers capable of absorbing training on NTMs impact assessment. Where government staff is not available or lacks minimal capacity to enroll into a training programme, it is advisable to draw external resources from local think tanks, research institutes, and universities.

3. The institutional setup to deal with NTMs is of critical importance, since cross-ministerial coordination and consultation are typically less than optimal. The local NTM Committee should function based on a clear and formal description of responsibilities and it should be provided with staff and financial resources commensurate with the volume of work it is expected to perform. In addition, having some capable think tanks and institutions to publicly review the NTM implications under existing regulations may help leverage attention and support streamlining.

4. A distinction is made between the tasks and responsibilities of the Committee and the Secretariat. The Committee should be inter-ministerial and its members of the highest possible political ranking (no lower than Secretary of State or Director General). The Secretariat could also be hosted in one single agency and it should comprise of technically sound professionals capable of reviewing NTMs and presenting policy options on how they could be streamlined.

5. A set of clear and consistently applied criteria to review regulations should be developed by the analytical team, in order to increase accountability and transparency of the streamlining process. When the consultation rules are transparent and made available also to the private sector, they can more easily provide the necessary inputs to make sure their interest is taken into consideration in reviewing existing NTMs.

6. New NTMs should be designed in a transparent regulatory policy development process, which includes consultation with stakeholders and, ideally, a Regulatory Impact Assessment at least for those regulations that are more likely to cause problems.

7. NTMs should be notified early to the ASEAN Secretariat (ASEC) and other AMS. They should be classified and uploaded into the NTRs/ATR as soon as they are adopted, triggering a process of peer review stimulated by private sector complaints.

8. A long-term capacity building programme should be designed and funded to ensure the necessary skills are available to carry out the mandate of the local NTM Committee. A mix of frontal training and on-the-job training should be tailored to the specific needs of the targeted administration.

5. Suggested Course of Action to Deal with NTMs in ASEAN Member Countries

NTMs collection, classification and publication

Several ASEAN countries have delivered or are delivering on their commitments towards increased transparency of their NTMs. By September 2017, all countries had launched online NTRs (also known as Trade Portals), and are working on linking such NTRs with the ASEAN Trade Repository (ATR). A close look at the content of the published regulations suggests that the preparatory work in some countries has been more intensive than in others, with reference made to existing websites or NTMs databases that sometimes are not user-friendly or easy to consult for traders.

The ASEAN Secretariat would have to fulfil its mandate of reviewing the content and structure of the existing websites, outlining best practices and formulating a standard template for all ASEAN member countries to consider in view of improving their NTRs and increasing consistency across countries. The use of a similar information technology platform would also help to promote inter-operability across national trade portals and support ease of use for traders.

There are also differences between countries in terms of their capacity to identify, collect and identify NTMs. The database developed by ERIA/UNCTAD in 2015/16 offers a tremendous opportunity to institutionalise this process and make is sustainable over time. Similar to what has been done in Cambodia, Lao PDR, and Myanmar, each country would have to give one institution the task of officially validating the list of NTMs collected. Countries should consider also supporting the institution with a dedicated team of officials to identify and collect NTMs across ministries. This is only possible if the team is supported by a legal instrument giving it an official mandate to request cooperation of line agencies issuing new NTMs. Legal mandates could go as far as ensuring that NTMs could not be lawfully enforced unless they are previously communicated to the team in charge of classifying and publishing them.

The validation process would have to be done in close cooperation with line ministries, ideally under the coordination of a National NTM Committee, which would have to be formally established and convened where this has not been done yet.

It is critical that regulations are classified according to the MAST classification system and that they are searchable by product and HS code to improve usability for traders. Listing the HS codes can help traders in making customs declarations and improves the quality of customs data on trade. Failure to precisely identify the scope of affected products in the regulation would increase the difficulty for traders, or could create inconsistencies and leave the decision about whether the traded products are compliant or not at the discretion of the trade and custom authorities. This would mean transparency in the NTM process cannot be fully guaranteed.

Whenever necessary, the training delivered to officials in Cambodia, Lao PDR, Myanmar, and Viet Nam could be offered also to other ASEAN members, benefiting from existing manuals and training materials.[9] These countries could also seek assistance to set up and operationalise the National NTM Committees, taking into consideration good practices and experience from other countries in the region and beyond.

NTMs streamlining

Efforts to develop capacity of the team staffing the NTM Secretariats, however, should focus on methodologies and techniques to measure the impact of NTMs and recommend options for streamlining. Analytical methodologies have been developed to quantify the impact of NTMs (i) on firm competitiveness using sector-level and firm-level data, and (ii) on poverty using household data. Elements of Regulatory Impact Assessment could also be included in the training programme targeting the staff of NTMs Secretariats.

More importantly, as the CLMV are all in the transition process with emphasis on improving economic institutions, efforts to streamline NTMs should thus be integrated into the broad programme to enhance the ease of doing business. Designing a stand-alone programme to target NTMs specifically may not help produce desirable impacts. Instead, such a programme may encounter difficulty gathering enough supports to attract attention of regulators – which often come from a wide range of agencies. In this regard, ensuring sufficient political will is necessary, but not enough to prioritise NTM simplification over other issues for reforms in the CLMV.

[9] The first day covers an overview and definition of NTMs in the WTO and ASEAN contexts. Once NTMs are defined, database structures used to facilitate the classification of NTMs are introduced and a series of classification exercises in breakout groups are conducted. Over the next 3 days, the training elaborates on specific NTM classification categories and provides opportunities to apply the knowledge gained from the presentations in breakout groups supported by plenary reporting and discussions. The last day of the training includes presentations on the general principles and operating procedures relating to government notification of NTMs, introduction to criteria and strategy for streamlining NTMs (including international experiences with these), and brainstorming on institutional follow-up support to implement the ASEAN NTM Work Program, including on the details of setting up and operationalise National NTM Committees.

The CLMV should unilaterally and jointly work to increase the adoption of good regulatory practices in the rulemaking process. The process should ideally start with regulations that may have potential NTB effect and that potentially affect a large range of stakeholders. That is, debatability in the NTMs that set the early examples for adopting good regulatory practices should be encouraged. It should be borne in mind that these practices do not alter the role of regulators; instead, they just improve how the regulators interact with the stakeholders to arrive at the NTMs that best meet the economy-wide interest.

From CLMV perspectives, improvement of the laws and regulations is still an ongoing need. Nonetheless, the need for such an improvement should not and must not constitute a ground for quickly issuing regulations just to be in line with the pre-set lawmaking agenda. In many cases, the cumulative burdens of formulating and enforcing a low-quality regulation, which would unavoidably trigger future amendments, may simply exceed the costs associated with more time and effort to have a good enforceable regulation right from the beginning. Accordingly, it may be worthwhile to patiently prioritise compliance of NTM-related regulations with good regulatory practices.

Specifically, the CLMV should aim for better and more transparent justification of NTMs. Awaiting precedent simplification of NTMs in trade partners, or citing similar NTMs in trade partners should no longer justify the NTMs enforced by the CLMV. In particular, regulations should not be formulated solely or overwhelmingly for the purpose of restricting trade just on the ground of trade balance. Explicit elaboration of regulatory objectives is important, but not enough without weighing those objectives and associated cost–benefit analysis. This will help reduce the unnecessary burden of NTMs on traders and businesses. In various cases, ex ante consultation might help collect relevant insights from traders and businesses, which actually improves the quality of the regulation itself. That is, having affirmed the confidence of the business community regarding the legitimacy and neutrality of NTMs will improve the actual effectiveness of such NTMs.

In particular, trade effects of NTMs should be well documented and, at best, disaggregated to the sectoral level. This will give more insights into the types of NTMs that are relevant and/or can be phased out. In addition, given the complexity of regulations that might have NTM implications, analysing the trade effects can actually help in avoiding unnecessary burdens on trade activities. At the same time, the need for documenting such trade efforts will induce further development in the statistical system – which is an ongoing need for the CLMV.

Both the stock and flow of NTMs should be subject to examination. A process of review and impact evaluation should be put in place for new NTMs proposed for adoption to ensure that their policy objectives are justified and that they will not be not overly trade restrictive in achieving these. Governments will need to introduce regulatory impact assessment principles when designing new rules and regulations. For example, the ministry/agency issuing a new regulation, especially if it is projected to restrict trade, should communicate the rationale for the regulation, its objectives, justification, WTO compliance, alternative measures considered and reasons they were dropped, affected groups/products/industries, and end date.

The proposed training will have to be adapted to the experience and technical expertise of the audience. It could cover the following issues:

1. Measuring the impact on NTMs. NTMs are complex legal instruments, including sanitary and technical regulations. Yet they can have major impacts on the economy. How can we make them amenable to economic analysis? How can we measure the effect they have on the cost of living? Can we measure the similarity of national regulatory systems? What data can we use? The worldwide database on NTMs to analyse national regulatory systems in a systematic, quantitative analysis could be introduced.

2. Streamlining NTMs: Policy perspectives. NTMs can impose costs on businesses and hamper trade. Should they be eliminated through international or regional negotiations? Alternatively, do they play a useful role in a modern economy? Can we think of systematic ways of making them better? What are the 'disciplines' imposed by the WTO on the way countries make use of NTMs? Would it be desirable for a country to go beyond those disciplines? This module could propose a formal, systematic method to analyse the effects of NTMs on country's trade and economy.

3. Toward cost–benefit analysis: Estimating regulatory gains. Regulations are typically imposed for non-trade objectives, amongst which public health is one of the most important. To carry out a full cost—benefit analysis of regulatory decisions, a government needs to be able to put a value on health. How can we do this? This module could introduce some of the best-practice methods used to put a monetary value on the avoidance of disease outbreaks through SPS regulations.

4. NTM streamlining: Case studies. This final session could focus on real-life NTMs to streamline taken from the experience of other countries. Participants could be asked to analyse three regulatory reviews in groups and propose and defend publicly a recommendation (to uphold the regulation, to modify it, or to eliminate it).

The above proposal is by no means exhaustive. The CLMV should also take advantage of the development cooperation chapters under various FTAs to build its capacity for streamlining NTMs, particularly via broader efforts for regulatory coherence. For instance, Viet Nam benefited a lot from actively participating in the range of activities related to building capacity for regulatory impact assessment, public consultation, etc. under the framework of the Asia–Pacific Economic Cooperation (APEC) forum. Looking forward, Viet Nam may also use the provisions under Cooperation and Capacity building chapter under EU–Viet Nam FTA to seek relevant capacity building programmes to support trade, including the NTM-aligned regulatory coherence. In this regard, the recently concluded chapter of the Regional Comprehensive Economic Partnership (RCEP) may offer an opportunity for CLMV to jointly build capacity to formulate regulations that may have NTM implications, supported by more advanced trade partners.

NTM institutional mechanisms

The need to set up inter-ministerial mechanisms to review NTMs and to assess their impact is therefore evident. It is also clear that private sector organisations should be consulted sooner rather than later as they are in the best position to assess the compliance cost of new bureaucratic requirements. Regulatory impact assessments (RIAs) would have to be performed ex ante, but the same principles would also have to employed to assess the potential negative effect of existing regulations. This can hardly be performed by line ministries and agencies, particularly in developing countries with relatively limited governance and research capacity. Inter-ministerial mechanisms, tailored to the specific needs of each country, could be given a detailed mandate to perform these tasks. The staff of the inter-ministerial institutions could be easily targeted with capacity development interventions, which would otherwise risk being less sustainable.

As mentioned above, a number of ASEAN countries are considering simplifying the institutional structure to manage their NTMs by establishing one single mechanism to comply with the WTO's TFA, ATIGA and TPP commitments. This is a difficult process as it needs to fit within existing political and administrative structures, meaning that each country will have to adapt this general concept to the specific local circumstances.

Mandates and responsibilities of the Committee will have to be clearly formulated in a high-level official mandate, establishing also a technical secretariat responsible for preparing evidence-based political decisions to be taken by the Committee. Each agency issuing NTMs would have to be represented in the Committee by a focal point at senior level, so that it could take important decisions.

Countries could consider the possibility of establishing sub-committees with more specific mandates, whenever this is justified in the local circumstances. Sub-committees or specific secretariats could be charged with establishing and maintaining the Trade Portal, or reviewing NTMs' impact, or focusing on enforcement issues linked to trade facilitation, etc. In any case it is important to make explicit provision for the participation of private sector representatives as their views are keys to identify problematic NTMs and fully assess their impact.

Last, the CLMV should continue to apply NTMs equally to all partners. In other words, they should avoid particular NTMs for imports from certain countries/territories, except under special circumstances or for a short period. Using NTMs on a discriminatory basis is likely to divert trade away from the partners concerned and increase administrative costs for managing NTMs.

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CHAPTER 9

Government Procurement in ASEAN: Issues and How to Move Forward*

Julien Gourdon
Veronique Bastien

1. Introduction

With the decrease in tariffs, behind-the-border measures have become increasingly important barriers to economic integration. Policies providing preferences for domestic over foreign firms in government procurement – or home-biased government procurement – are one such example. Government procurement (GP) systems are governed by detailed procedural rules and regulations. In some cases, foreign suppliers can have the impression of being entangled in restrictions, lack of transparency or complexities of procedures – perceptions that can have implications for trade and business.

Home-biased government procurement is widely believed to be a pervasive phenomenon (Brülhart and Trionfetti, 2004; Shingal, 2015). More recently, in response to the global economic crisis, governments have increased the use of home bias in procurement policies to avoid, inter alia, leakages from their fiscal stimulus packages (OECD, 2013). The re-emergence of these policies has caught the attention of international trade policymakers and highlighted gaps in the evidence base.

There are three reasons for paying attention to this matter in Association of Southeast Asian Nations (ASEAN) countries. The first is the significant role of government procurement in Asian economies. Secondly, an efficient procurement system founded on the principles of non-discrimination and transparency can help ensure the optimal use of public funds. Thirdly, as recent Organisation for Economic Co-operation and Development (OECD) studies show, efficient government procurement open to competition can be a key factor in facilitating FDI flows, as well as in the development of production networks and innovation, which are priorities for ASEAN countries.

There is a lack of reliable information, at the global level and more particularly for ASEAN countries and regional partners, about government procurement markets and the policies that govern them. Few statistics are widely available to understand the size of procurement markets, the flows of trade in procurement, and the types of discriminatory procurement

* This work has benefited from with key contributions from Anna Mueller and Philippe Pelletier from WTO and Samira Musayeva from UNCITRAL. Special thanks to Julia Nielson for helpful guidance.

measures that governments choose to implement.[1] There is thus uncertainty not only about the size of procurement markets, but also the degree to which governments actually discriminate in their own markets.

This chapter seeks to fill some of these evidence gaps. Section 2 aims to collect available information, based on indirect estimation methods, to give an updated picture of the size of government procurement in ASEAN and to look at the trend since the mid-nineties. Section 3 looks at the available evidence of discrimination using output-based approaches. Section 4 uses the OECD taxonomy on government procurement measures as a tool to better understand the nature of potential barriers for foreign firms seeking to access GP markets in the region. Section 5 compares the taxonomy with international standards in GP, such as the World Trade Organization (WTO) Agreement on Government Procurement (GPA) provisions or United Nations Commission on International Trade Law (UNCITRAL) Model Law on Public Procurement (2011), highlighting examples of measures from selected ASEAN countries. Section 6 explores the coverage of government procurement in free trade agreements signed by ASEAN countries and other countries in the region.

2. What is the size of the Public Procurement market in ASEAN countries?

Countries rarely publish procurement statistics, which makes analysis reliant on estimates. The OECD (Audet, 2002) has estimated the value of government procurement in OECD countries to be roughly 9 percent of gross domestic product (GDP).[2] More recently, Fronk (2015) finds that the average procurement market size represented 8.7 percent of GDP across 48 countries over 1990–2010 on the basis of System of National Accounts (SNA) data.

The International Monetary Fund's Government Finance Statistics (GFS) provides a slightly larger sample than SNA data. The GFS does not include a specific measurement of procurement spending, so this value must be estimated based on other GFS series. The two most pertinent series are Intermediate Consumption (IC) and Gross Fixed Capital Formation (GFCF). IC consists of gross consumption spending on goods and services, whereas GFCF represents government expenditure on investment in new physical capital. An approximation of total procurement is the sum of IC and GFCF and this measurement is defined as 'standard GP' for the remainder of this study.

As part of its *Government at a Glance* statistics, the OECD uses OECD National Accounts Statistics and defines GP as the sum of IC, GFCF, and also social transfers in kind (ST) .[3]

[1] The WTO Government Procurement Agreement (GPA) seeks to enhance transparency in this area.

[2] Audet (2002) also estimates the size of procurement markets in over 130 countries, based on 1998 data.

[3] In theory social transfers could possibly be tradable (i.e. provided by a foreign supplier). But it should be noted that they do not fall under the scope of the GPA or preferential trade agreements.

This ST component contains purchases by the government of goods and services produced by market producers and supplied to households. However, as this series is usually only found in the National Accounts Statistics of OECD countries, using this definition would restrict the coverage of the analysis.

An alternative definition is given by Rickard and Kono (2010, 2014) and Fronk (2015), who use government spending on goods and services, excluding defence spending (DF) which, for national-security reasons, is generally restricted to domestic suppliers and a handful of close military allies.[4] They define what they call 'contestable procurement' and consider that defence procurement lies outside the scope of non-discrimination provisions included in procurement chapter of trade agreements.[5] The average GP size over 2006–2012 is presented in Table 9.1, using the 'standard GP' measurement based on IC plus GFCF since ST and DF are not available for ASEAN countries.

The average size of GP markets for ASEAN countries is roughly 5–8 percent of GDP, which is slightly below that of OECD countries, which average 9 percent. However, with a value of approximatively USD 140 billion, it represents an important potential GP market, including together with the broader regional market (USD 700 billion for the region of Australia, New Zealand, Japan, and Republic of Korea).

Table 9.1: Estimates of the Size of GP Market (% of GDP): Average over 2006–2011

With GFS data		With WDI data		With OECD data	
Europe and Central Asia	*8.4*	Cambodia	5.2	Australia	12.14
OECD +	*9.1*	Lao PDR	7.9	Korea	12.31
Latin America	*4.2*	Malaysia	7.0	New Zealand	14.39
Middle East and Africa	*6.2*	Philippines	7.8	Japan	13.33
Asia	*6.3*				
Hong Kong SAR	5.6				
Indonesia	2.9				
Singapore	4.7				
Thailand	6.2				

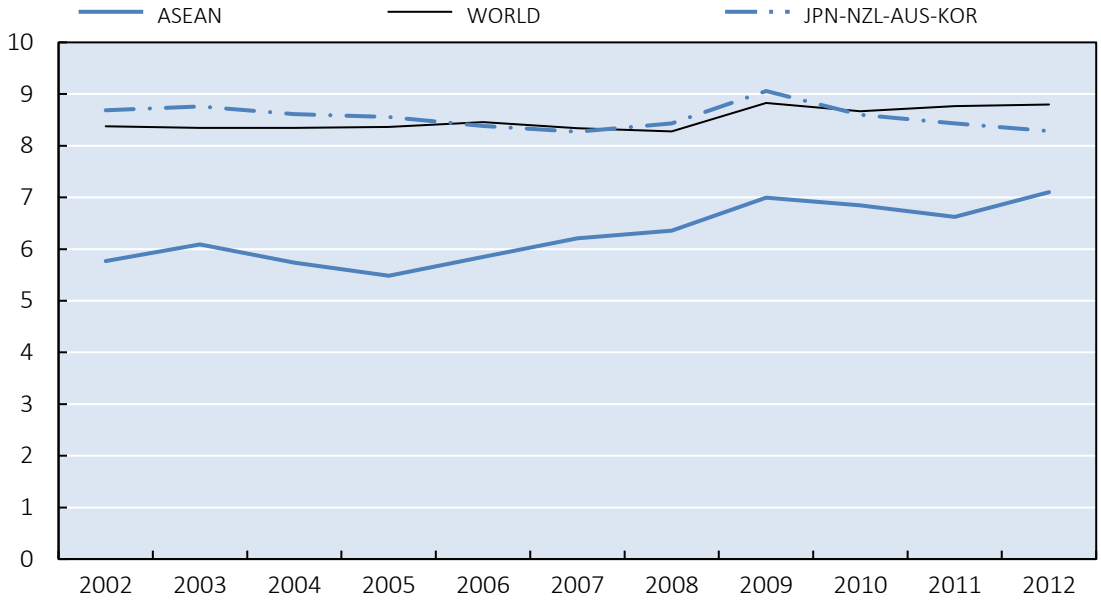
GDP = gross domestic product; GFS = Government Finance Statistics; WDI = Word Development Indicators; OECD = Organisation for Economic Co-operation and Development
Source: Authors' calculation, based on Government Finance Statistics (GFS), World Development Indicators (WDI), and OECD data.

[4] While it is true that within the group of pre-qualified firms contracts are often awarded through competitive bidding the exigencies of defence considerations make non-discriminatory processes unsuitable for defence spending.

[5] The lack of reliable procurement statistics makes it difficult to assess the level of defence procurement included under international agreements. For example, the importance of defence procurement reported by parties to the Government Procurement Agreement differs by party, ranging from less than 1 percent to more than 80 percent of above-threshold procurement. Additionally, there is a lack of clarity about whether above-threshold procurement' includes defence procurement that is discriminatory due to national security exemptions. This makes it hard to assess how much defence procurement is covered under international agreements.

The trend in GP size over 2002–2012 is presented in Figure 9.1. There have been two rises in the size of GP markets, one around 2000–2002 and a more significant increase over 2008–2010 in response to the financial crisis.[6] While remaining below the global average, over time, the relative size of GP in ASEAN countries is moving closer to the average level of developed regional partners (which has slightly decreased over time).

Figure 9.1: Evolution in Size of GP Markets in ASEAN over 2002–2012 (% GDP)



GP = government procurement; ASEAN = Association of Southeast Asian Nations; GDP = gross domestic product; JPN = Japan; NZL = New Zealand; AUS = Australia; KOR = Republic of Korea.
Source: Authors' calculation, based on Government Finance Statistics (GFS).

3. Domestic Bias in Government Procurement in ASEAN Countries

Measuring domestic bias in government procurement is difficult. Looking at the text of relevant laws provides some guidance in indicating explicit preference for domestic suppliers or restrictions on foreign suppliers, but may not reveal all domestic bias, much of which is typically not explicit. Home bias can also be the result of procurement procedures that unintentionally (or not) implicitly impede foreign firms from applying for or winning contract awards.

Moreover, while laws and regulations are useful in highlighting some types of discrimination, its impact on the procurement market cannot be determined by looking at the regulations alone. The actual economic effect of domestic bias can depend on the market structure and the size of government demand for the product in question.

[6] The share of GP in GDP could increase during a recession for three reasons: the level of GDP could fall, procurement spending could increase, or a combination of both.

A price-preference policy, while conceptually similar to an import tariff, is unlikely to show the same overall economic effects as a tariff, because the latter gives preferential treatment to the domestic producer across all purchasers. A procurement price preference, on the other hand, applies only to government purchases, which the private sector can offset with an increase in imports (Evenett and Hoekman, 2013).

Detailed information on offers submitted and on the conduct of the tendering process is also important in analysing discrimination in government procurement – governments that consistently choose higher-priced domestic bids might be guilty of discrimination. However, despite the WTO GPA's efforts to enhance the transparency of relevant data, such information is not widely available.[7] Scholars attempting to measure discrimination across a wide range of countries have thus turned to outcome-based measures, using imports.

The approach adopted in this chapter compares the propensity to buy national between the public and the private sector. This method entails comparing the import share of governments with that of the private sector.[8] If the import share is lower for governments, and is large and diffused across all categories of purchases, then it could suggest some type of discriminatory policy. A systematic comparison between import shares of the government and of the private economy is a promising method for investigating the presence of discriminatory behaviour but depends on the use of data on 'unbiased' imports. Trionfetti (2000) suggested the use of household or firm import shares as 'their expenditure is driven by profit and utility maximisation and, likely, is not affected by any sort of discriminatory behaviour'. Following this approach to examine several OECD countries[9] in a single year during the eighties using Eurostat data, the author finds evidence to suggest that government purchases are home biased.

This chapter adopts Trionfetti's approach using Input–Output Tables from GTAP[10] to compute those import shares for public and private sectors for 50 countries and 3 years – 2004, 2007 and 2011.[11] As such, these estimates do not necessarily provide evidence of intentionally discriminatory behaviour, but simply indicate a bias, unintentional or not, toward home consumption. This bias could be natural given that GP spending may be more heavily weighted towards non-tradable items than comparable private sector spending – although this approach aims to control for differences in consumption bundles between public and private sectors by excluding consumption of public administration, health and education services, which are less tradable. Hence we compare the consumption of private and public sectors solely in goods and private services. We also undertake this comparison at the broad sector

[7] Collecting such information across a wide range of countries is beyond the scope of this paper.

[8] Here the import share is the ratio of the value of foreign purchases to the value of total purchases.

[9] Denmark, France, Germany, Ireland, Italy, Spain and the United Kingdom.

[10] GTAP data are reconstructed data. It should be noted, therefore, that using partially 'reconstructed data' to estimate procurement discrimination may bias results. However, Fontagné et al. (2013) use the GTAP data to estimate tariff equivalent of protection in services and find plausible results. In addition, we only use data for the 50 countries considered as most reliable in their output–input matrix (mostly developed economies).

[11] However, given that GTAP is a harmonised data source and the different years cannot be treated as independent observations, this exercise can only give indicative results.

level (agriculture, mining, manufacturing and services) to account for differences in consumption bundles between private and public sectors.

We estimate the propensity to import of the private sector (PI_i^{priv}), and the propensity to import of the public sector (PI_i^{ub}) as the share of imports in total purchases:

$$PI_i^{priv} = \frac{Import_i^{priv}}{Purchase_i^{priv}} \text{ and } PI_i^{pub} = \frac{Import_i^{pub}}{Purchase_i^{pub}}$$

Then the ratio of those import shares is calculated as: $R_i = {PI_i^{pub}}/{PI_i^{priv}}$

Table 9.2 shows the average ratio of public to private import share for three groups of countries: ASEAN, regional partners, and the rest of the world, and four sectors (after excluding consumption of public services and normalising the ratio[12]). All ratios are below 1, indicating that the government's propensity to import is below that of the private sector.

Covering 59 GTAP sectors, albeit subject to some limitations, the data provide evidence that, on average, the import share of governments is systematically lower than the import share of the private economy in ASEAN and in all the other economies (Table 9.2). While it could reflect the concentration of government purchases in less tradable goods and services, or the relative competitiveness of domestic suppliers, it is also plausible that this is a reflection of the presence of some form of government bias in favour of domestically produced products. But more importantly, this potential domestic bias is much more important in ASEAN than in other economies for the manufacturing industry (ratios are 0.4 versus 0.8 and 0.7 in other groups) and much less in services (0.75 vs 0.4 and 0.65 in other groups).

Table 9.2: Average Ratio Public to Private Import Share in Different Sectors

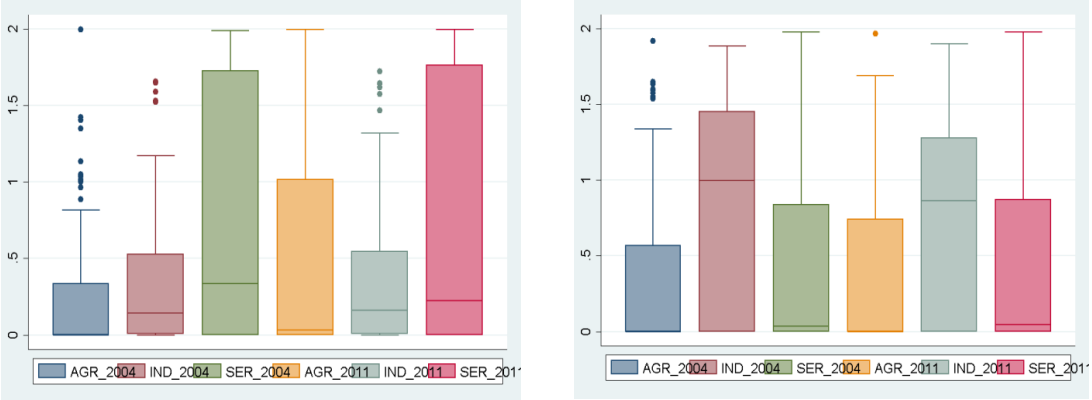
	ASEAN		Region (CHN, KOR, JPN, NZL, AUS)		RoW	
	2004	2011	2004	2011	2004	2011
AGR	0.29	0.48	0.34	0.38	0.46	0.48
IND	0.39	0.40	0.85	0.78	0.72	0.72
MIN	0.96	0.59	0.49	0.52	0.43	0.39
SERV	0.76	0.74	0.40	0.43	0.68	0.66

ASEAN = Association of Southeast Asian Nations, CHN = China, KOR = Republic of Korea, JPN = Japan, NZL = New Zealand, AUS = Australia, RoW = Rest of the World, AGR = Agriculture, IND = Industry, MIN = Mining, SERV = Services.
Source: Authors' calculation, based on GTAP data.

[12] In some cases the ratio could be extremely large and such large numbers exert a disproportionate influence on sector averages.

Figure 9.2 shows the distribution of the ratio of public to private import share across the 70 countries and 59 sectors in the dataset and the median of this distribution (line). There is a declining trend over the years between 2004 and 2011 elsewhere in the Region (defined here are Australia, Japan, New Zealand, China and Republic of Korea) suggesting that 'domestic bias' as approximated by this approach is growing in importance over this period in those economies. Conversely, ASEAN countries do not seem to experience an increase in domestic bias.

Figure 9.2: Distribution Ratio Public to Private Import Share in 2004 and 2011 In ASEAN Region (CHN, NZL, AUS, JPN, KOR)



ASEAN = Association of Southeast Asian Nations; CHN = China; KOR = Republic of Korea; JPN = Japan; NZL = New Zealand; AUS = Australia.
Note: The figure shows the distribution of the ratio of public to private imports across each country. The bottom line reflects the minimum ratio, the bottom of the box represents the first quartile (or 25th percentile), the line in the box is the median (or 50th percentile), the top of the box is the third quartile (or 75th percentile), and the top line represents the maximum ratio in each year.
Source: Authors' calculations, based on GTAP.

While there are limits to this kind of empirical analysis in capturing home bias, this same trend is seen over the entire 2000–2011 period: no increase in home bias in ASEAN countries but increases in other countries in the region seem to experience increased home bias, which may potentially hurt ASEAN exporters to those markets.

4. GP Measures Affecting Trade in ASEAN using the OECD Taxonomy

To undertake a more comprehensive, albeit not exhaustive, collection of GP measures across countries, the OECD has created a taxonomy aiming to develop a classification system of GP measures to facilitate further data collection and analysis.

4.1 The OECD Taxonomy

The OECD Taxonomy identifies different GP measures, policies, and procedures, which can impact cross-border public procurement. In setting out different categories of measures, the OECD Taxonomy has two objectives: to promote further consideration of the nature of measures, and to determine whether and how they impact foreign suppliers. The taxonomy is not designed to pass judgment on the legitimacy of the public policy objectives that measures seek to achieve. Rather, it aims to highlight the trade impact of the measures as one element for consideration in policymaking and to promote consideration of less trade restrictive measures to achieve the same policy objectives.[13]

The complete taxonomy set out in the Appendix covers explicit and implicit measures and practices that may impede trade in GP and result in loss of market opportunities for foreign suppliers. The explicit categories (M1 to M4) cover measures or practices that directly reduce or prevent foreign suppliers' access to a government procurement market. The implicit categories (M5 to M10) group measures or practices that do not expressly target foreign bidders but that may, indirectly or potentially, affect their ability to supply cross-border procurement. These measures or practices may not be restrictive de jure but in their application they may prevent access to procurement by foreign suppliers. These nine categories are described in greater detail in Gourdon et al. (2017).

Completing the taxonomy requires time and use of local legal experts able to read the laws and regulations. To populate this taxonomy for ASEAN countries and neighbouring countries in the region this chapter relies on existing databases, namely, the OECD Service Trade Restrictiveness Index (STRI), the Benchmarking Public Procurement data from the World Bank (BPP), the Global Trade Alert (GTA) and the OECD Product Market Regulation database (PMR). There is no one-to-one concordance between these sources and a number of overlaps exist. Nevertheless, together these sources provide a useful initial picture of the heterogeneity of practices across ASEAN countries and in comparison to other regional partners (namely non-ASEAN Regional Comprehensive Economic Partnership (RCEP) countries[14]). Those different sources do not provide the information under the same format (some are index, others scores etc., nor do they cover the same countries or match to the same measures in the OECD taxonomy and thus are analysed separately.

4.2 Insights from the taxonomy on regimes in ASEAN and its neighbours

The OECD STRI provides information on some taxonomy entries and countries listed in Table 9.3 for the services sectors. It should be noted that, to date the STRI only covers two ASEAN countries – Indonesia and Malaysia. The first entry (M11) groups measures and practices that expressly restrict access or give preference to national suppliers and measures pertaining to

[13] It is particularly important to bear this in mind when examining, for example, the effectiveness of measures based on preferences for certain disadvantaged groups, or requirements (technical or qualification) for bidders reflecting the right to regulate services at the national level.

[14] Australia, China, India, Japan, Republic of Korea and New Zealand.

thresholds (M15) that permit foreign firms to bid only for contracts above or below a given value. A third set of measures covers provisions that explicitly favour domestic firms by allocating a price or point preference to national suppliers (M21).

In the implicit measures, M5 groups measures related to the conduct of procurement, namely the ways procurement is carried out under specific conditions and rules. These can be considered restrictive when their purpose or effect limits or avoids competition in favour of domestic suppliers. Qualification criteria (M6) used to determine the eligibility of suppliers to participate in procurement can sometimes give preference to domestic suppliers with respect to the evaluation criteria (M7). Furthermore, the STRI also provides information on some technical conditions favouring domestic firms (M71).[15]

Finally, the STRI also provides information on the complaint and review mechanisms for GP, and in particular can help to identify if there are restrictive measures affecting the access of foreign suppliers to mechanisms to challenge a bidding process or award (M81), or measures that make it difficult or impossible for foreign firms to access the information required for any of the stages of procurement process (M9).

Table 9.3: Measures and Country Coverage with STRI Data

Table 9.3.1: OECD GP Measures covered in OECD STRI	Table 9.3.2: Countries covered in the STRI
M11: Market access restrictions to national supplier	ASEAN
M15: Thresholds	Indonesia
M21: Domestic price preference for national supplier	Malaysia
M5: Conduct of procurement	RCEP non-ASEAN
M6: Qualification criteria	Australia
M71: Technical conditions	China
M81: Challenge of bidding process or award	India
M9: Transparency	Japan
	Republic of Korea
	New Zealand

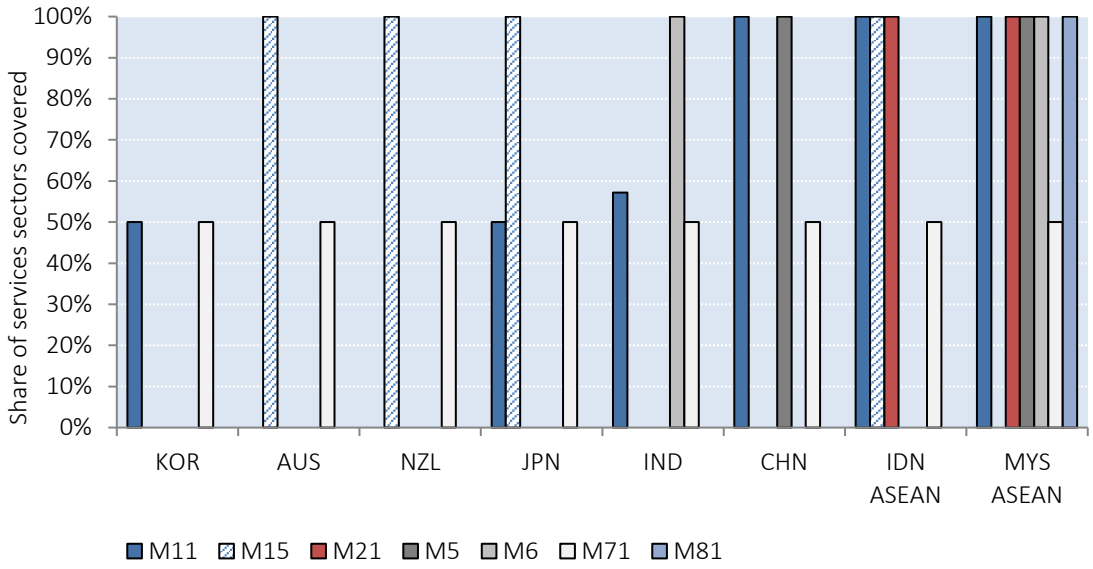
OECD = Organisation for Economic Co-operation and Development; GP = government procurement; STRI = Service Trade Restrictiveness Index; RCEP = Regional Comprehensive Economic Partnership; ASEAN = Association of Southeast Asian Nations.
Source: Authors' compilation, based on OECD Taxonomy and OECD Service Trade Restrictiveness Index.

Figure 9.3 indicates for each country for which GP information is available in the STRI the types of GP measures which can impede trade flow and for each measure the share of services sectors which are affected by this trade restrictive measure. In the case of Republic of Korea, for example, the M11 measure applies to 50 percent of services sectors, and the same for the M71 sectors.

[15] The STRI includes measures which capture if 'technical specifications affect conditions of competition in favour of local firms in public procurement', which include requirements for joint ventures or transfer of technology for foreign firms.

The STRI analysis suggests that Malaysia and Indonesia maintain more measures in relation to GP in services than other regional partners. The STRI has identified a greater number of measures affecting GP for Malaysia because of its market access restrictions (M11) (in comparison to Australia, New Zealand and Japan), domestic preference (M21) (for India and China), and also implicit measure in conduct of procurement (M5) and qualification criteria (M6). It should be noted that this indicates simply the presence of measures and not how they impact trade; for example, a thresholds measure (M15), while common, may not have a significant effect on trade depending on the level.

Figure 9.3. GP Trade Affecting Measures with STRI Source



STRI = Service Trade Restrictiveness Index.
Source: Authors' calculations, based on Service Trade Restrictiveness Index STRI–OECD.

Benchmarking Public Procurement (BPP) provides more information on the implicit measures affecting GP and covers more ASEAN economies (see Table 9.4). For the countries listed in Table 9.4.2, more detailed information was collected on measures related to registration (M52); the type of tender (M54); tender and performance securities (M561 and M562); insufficient time period for bidding processes (which have a relatively greater impact on foreign firms); or qualification criteria containing set asides for specific groups (M62). The BPP also contains useful information on measures related to review and complaint mechanisms (M8) and Transparency (M9) which, while impacting all firms, can act as a particular as disincentive for foreign firms seeking to enter the procurement market.

Table 9.4. Measures and Country Coverage with BPP Data

Table 9.4.1: OECD GP Measures covered in BPP	Table 9.4.2: Countries covered in the BPP
M21: Domestic price preference to national supplier	ASEAN
M5: Conduct of procurement	Cambodia
M52: Registration	Indonesia
M54: Direct/Limited tendering	Lao PDR
M561: Tender securities	Malaysia
M562: Performance securities	Myanmar
M57: Time period	Philippines
M6: Qualification criteria	Singapore
M62: Set asides for specific groups (SMEs…)	Thailand
M8: Review and complaint system	Viet Nam
M81: Challenge of bidding process or award	RCEP non-ASEAN Australia
M82: Choice of complaint forum	China
M83: Time period	India
M84: Cost of filling a complaint	Japan
M85: Suspension of bidding process	Republic of Korea
M9: Transparency	New Zealand
M91: Publication in accessible publication	
M92: Accessible e-procurement	
M99: Other measures	

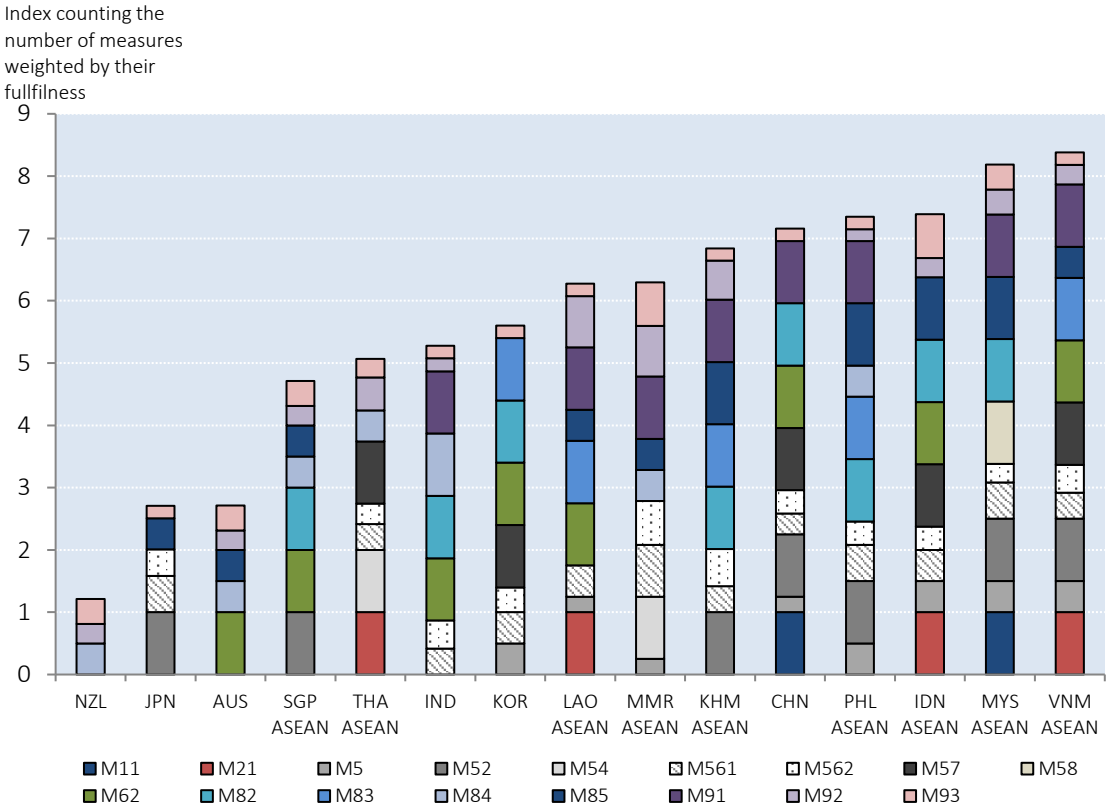
BPP = Benchmarking Public Procurement; OECD = Organisation for Economic Co-operation and Development; GP = government procurement; SMEs = small and medium-sized enterprises; RCEP = Regional Comprehensive Economic Partnership.
Source: Authors' compilation, based on OECD Taxonomy and Benchmarking Public Procurement project.

Figure 9.4 displays the presence of each type of measures collected, weighted by their degree of implementation or coverage; for some measures, a score between 0 and 1 is used, indicating that the measure is not considered to be fully restrictive.[16] Here again, with the exception of Singapore and Thailand, all ASEAN countries figure on the left-hand side with Indonesia, Malaysia, the Philippines, and Viet Nam having lower index. Particular restrictive measures are found in ASEAN countries in relation to domestic preferences (M21, for Viet Nam, Indonesia, Lao PDR, and Thailand) and the registration process (M52, for Cambodia, the Philippines, Malaysia, and Viet Nam). For example, in Viet Nam bidders using 25 percent (or more) of domestic production are granted preferential treatment.

Additionally, measures related to complaint and review mechanisms (M8) are also more restrictive in ASEAN countries than in regional partners, in particular in relation to the non-suspension of the bidding process during investigation following complaints (M85). For instance, Viet Nam, Myanmar and Lao PDR, do not allow for the suspension of the procurement process during a review or challenge, while the other ASEAN countries will only grant it if it is required by the complaint. The other main area where ASEAN countries appear to maintain more restrictive measures than others relates to transparency and information (M9), and especially accessible publication of relevant information (M91).

[16] For instance, in relation to accessible eProcurement, if some part of the procedure are accessible online the score will be between 0 and 1.

Figure 9.4: GP Trade Affecting Measures with BPP Source



BPP = Benchmarking Public Procurement.
Source: Authors' calculations, based on Benchmarking Public Procurement data World Bank.

The *Global Trade Alert* database (GTA) provides information largely on explicit measures, and in particular local content requirements (M3) (see Table 9.5). However, as the GTA reports only measures that can be collected online, it is not a comprehensive data collection exercise for ASEAN countries and can also be subject to a transparency bias (the countries which are more transparent and where more information is available are those which appear to be more restrictive). Hence, the additional entries presented here are measures that require bidders to purchase domestically manufactured goods or domestically supplied services, such as a requirement that a certain percentage of value added or intermediate inputs be purchased locally. Measures falling within this category include requirements to use inputs or to store data locally (M31), or hire staff from the country (M33). Additionally, offsets requirements (M35) require or encourage suppliers to provide additional economic benefits to the local economy, such as transfers of technology.

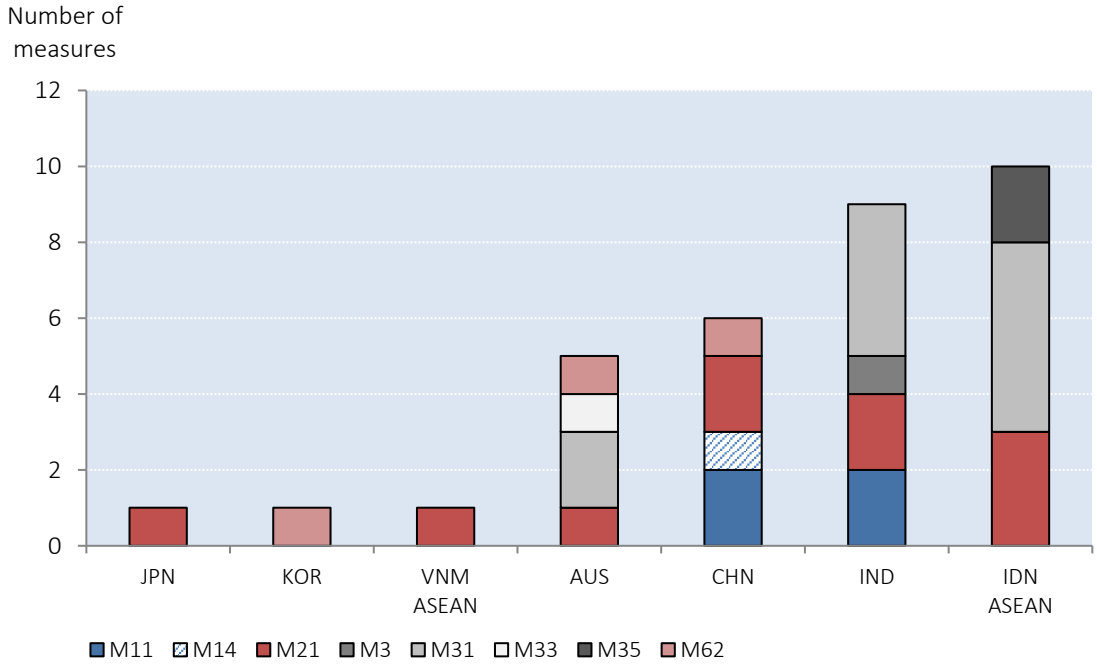
Table 9.5: Measures and Countries Coverage with GTA Data

Table 9.5.1: OECD GP Measures covered in GTA	Table 9.5.2: Countries covered in the GTA
M11: Market access restrictions to national supplier	ASEAN
M14: Exception for non-economic rational	Indonesia
M21: Domestic price preference to national supplier	Viet Nam
M3: Offset	RCEP non-ASEAN Australia
M31: Local content requirement on inputs and data storage	China
	India
M33: Staff requirement	Japan
M39: Other Offsets (transfer of technology…)	Republic of Korea
M62: Set asides for specific groups (SMEs…)	

GTA = Global Trade Alert; OECD = Organisation for Economic Co-operation and Development; GP = government procurement; ASEAN = Association of Southeast Asian Nations; RCEP = Regional Comprehensive Economic Partnership; SMEs = small and medium-sized enterprises.
Source: Authors' compilation, based on OECD Taxonomy and Global Trade Alert.

Figure 9.5 displays the number of measures in each category for selected countries. Indonesia again appears to maintain the most restrictions because of some domestic preference policies (M21) and several local content requirements in inputs (M31) and offsets (M35).

Figure 9.5: GP Trade Affecting Measures with GTA Source



GP = government procurement; GTA = Global Trade Alert.
Source: Authors' calculations, based on Benchmarking Public Procurement data World Bank.

The *Product Market Regulation* index (PMR) mostly covers collateral measures (M4) that are relevant because of their potentially restrictive effect although they are less centered on GP access per se (see Table 9.6). They include, for example, measures that act as barriers to foreign direct investment (FDI) in the country where the procurement takes place which effectively can prevent access to procurement in sectors where local presence or joint ventures are required (M42); and measures that restrict the eligibility of foreign bidders to subsidies and tax preferences (M43). The PMR also contains information related to implicit measures (M6, M7, M8 and M9), although the countries of interest in this paper are only partially covered by the PMR.

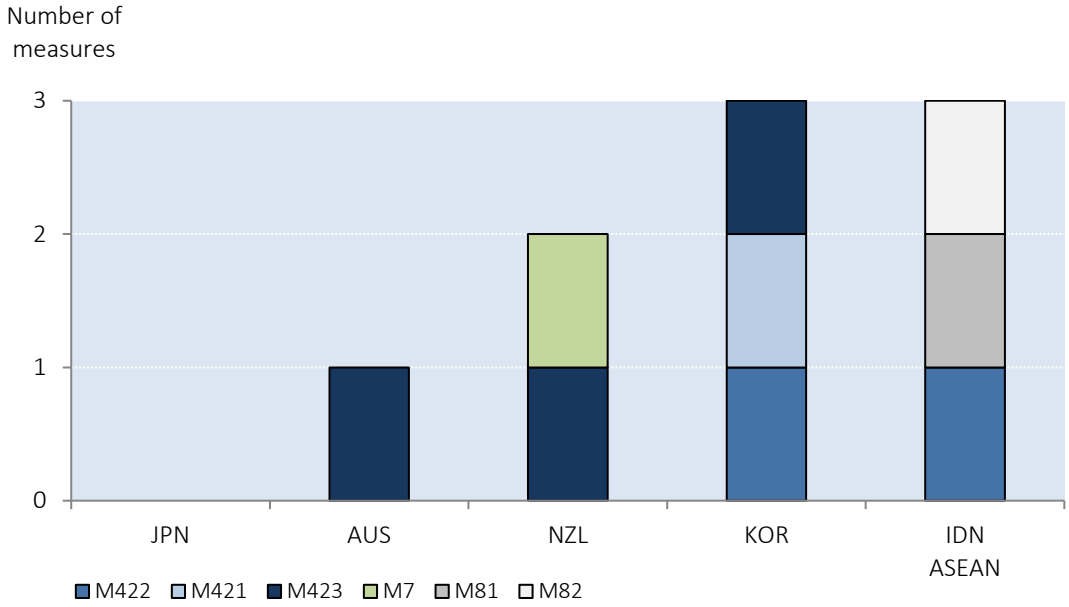
Table 9.6: Measures and Countries Coverage with PMR Data

Table 9.6.1: OECD GP Measures covered in PMR	Table 9.6.2: Countries covered by the PMR
M11: Market access restrictions to national supplier	ASEAN
M3 Offset	Indonesia
M4: Collateral measures (often FDI related)	RCEP non-ASEAN
M422 Constraints on mergers	Australia
M421: Constraints on forming joint venture	Japan
M423: Absence of national treatment	Republic of Korea
M43 Restricted eligibility to subsidies and tax preferences	New Zealand
M6 Qualification criteria	
M7 Evaluation criteria	
M71 Technical conditions	
M8 Review / Complaint Mechanisms	
M81 Challenge of bidding process or award	
M82 Choice of complaint forum	
M9 Transparency and Information	

PMR = Product Market Regulation; OECD = Organisation for Economic Co-operation and Development; GP = government procurement; FDI = foreign direct investment; ASEAN = Association of Southeast Asian Nations; RCEP = Regional Comprehensive Economic Partnership.
Source: Authors' compilation, based on OECD Taxonomy and OECD Product Market Regulation index.

Figure 9.6 displays the number of measures seen in selected countries for each entry. Most of the measures present in the taxonomy do not appear in the PMR; the only ASEAN country in the PMR maintains a number of restrictions, although the country with the most collateral style restrictions (M4) in the PMR is the Republic of Korea.

Figure 9.6: GP Trade Affecting Measures with PMR Source



GP = government procurement; PMR = Product Market Regulation.
Source: Authors' calculations, based on Product Market Regulation PMR–OECD.

Overall, this exercise suggests that ASEAN countries maintain a number of GP measures which can potentially affect cross border procurement and trade flows. This is true not only for explicit measures that directly and intentionally reduce or prevent foreign suppliers' access to a GP market, but also for implicit measures or practices that do not expressly target foreign suppliers but that may, indirectly or potentially, affect cross-border procurement opportunities.

5. Insights from the Taxonomy, the GPA and the UNCITRAL Model Law

The OECD Taxonomy can be usefully referenced to the two pillar international texts on government procurement, namely the WTO GPA and the UNCITRAL 2011 Model Law on Public Procurement (Model Law). These texts are closely connected and are generally consistent with one another (Yukins, 2015). Both set out international rules to foster cross-border procurement and non-discrimination. They also aim to promote and ensure core principles for GP such as transparency, value for money, fit for purpose and competition. By using the OECD taxonomy, countries can better assess the status of their current procurement system and determine how close they are to Model Law and the WTO GPA.

The WTO GPA has evolved since it first entered into force in 1996, particularly through regular expansions in national commitments. Initially, only a limited number of countries were signatories to the GPA, but subsequently more countries have either joined or expressed their

intention to join. The GPA is a plurilateral agreement, with voluntary membership. Approximately three-quarters of the WTO members are not part of the GPA and members are largely comprised of OECD countries; in total, 31 OECD members are parties to the GPA.[17] Currently there are 19 parties to the agreement, representing 47 WTO Members. The European Union and its 28 member states represent 29 of the current members and the integration of the European Economic Community into the European Union has contributed significantly to the growth in GPA membership since 1996 (Hoekman, 2015). That said, there are currently 30 observers to the GPA, 10 of which are in the process of accession.[18] At the time of writing, four countries in the region are GPA Parties (Japan, Republic of Korea, New Zealand, and Singapore), two are GPA acceding countries (Australia and China), and five are observers (India, Indonesia, Malaysia, Thailand and Viet Nam).

Based on the principle of non-discrimination, the WTO GPA seeks to enshrine the right of foreign suppliers to participate in procurement markets. It also promotes further competition by encouraging greater liberalisation of procurement markets. The agreement sets out minimum international benchmarks. The GPA is a significant and influential tool for promoting international trade in GP, both by guiding domestic policy reforms and serving as a model for procurement chapters in bilateral/regional trade agreements, including in Asia.

While the WTO GPA relates to a country's national procurement legislative system, the 2011 UNCITRAL Model Law governs procurement rules related to private suppliers. The Model Law offers countries a baseline for a public procurement legal framework. It is not meant to provide a full and complete list of measures for adoption in national procurement law; additional laws and regulations are needed to complete the public procurement legal framework, and local specificities may also need to be reflected in national enactments of the Model Law.

Although not a legally binding instrument, the UNCITRAL Model Law also addresses some issues related to trade-restrictiveness. The Model Law can help countries to reform their procurement systems by increasing the performance of their procurement market, and implementing further transparency and integrity rules to address corruption. Countries implementing the Model Law also are likely to bring their regimes closer to the standards in the WTO GPA.

[17] Australia, Chile and Turkey are observers to the agreement. Mexico is the only OECD member that is neither a party nor an observer to the agreement.

[18] These are: Albania, Australia, China, Georgia, Jordan, Kyrgyz Republic, Oman, Tajikistan and the Russian Federation. Six other members have undertaken commitments in their WTO accession protocols to initiate accession to the GPA: Afghanistan, Kazakhstan, Mongolia, Saudi Arabia, Seychelles and the Former Yugoslav Republic of Macedonia.

Given that the Model Law is not binding and there is no obligation on States to notify when it is implemented, it is difficult to determine how many or which countries have used it. Official numbers recorded by UNCITRAL indicate that 30 countries enacted the 1994 Model Law and 24 the 2011 Model Law.[19] However, these numbers likely do not reflect the use of the text which serves as an important template for reforming or establishing rules on procurement.

Indeed, the aim of the Model Law initially was to respond to a significant fragmentation in national rules and legislation on GP as well as to some degree of ineffective legislation (Nicolas and Muller, 2017). By fostering coherence of GP systems amongst countries the Model Law can contribute to enhanced GP market access. This is in keeping with one of the overarching goals of UNCITRAL, which is to 'further the progressive harmonisation and unification of the law of international trade'.[20]

5.1 Insights from the taxonomy and GPA provisions

Examining the WTO GPA in light of the entries of the taxonomy can help countries to establish a correspondence between the key international obligations under the GPA and the domestic procurement legal framework. Table 9.7 shows a general, initial mapping of articles in the GPA with the main entries of the taxonomy. Using the taxonomy to map relevant measures in the region and cross-reference them to the GPA can produce some useful observations. This section focuses on measures identified for four ASEAN countries (the Philippines, Viet Nam, Indonesia and Malaysia).[21]

Many of the explicit measures of the taxonomy correspond to the general principles of non-discrimination and transparency found in the GPA (Article IV), as well as to the scope and coverage articles of the Agreement (Article II). For example, for M1 (Market access restrictions) most of the relevant information is found in Articles II and IV Sections 1 and 2, with the exceptions of M14 (Reciprocity) and M16 (Exclusion for safety reasons).

These ASEAN countries have numerous GP texts, which can lead to a lack of transparency and be discouraging for foreign firms. For instance, the GP system in Malaysia is governed by various fragmented instruments, which also leads to inconsistency (Xavier and Xavier, 2016).

All four countries also maintain restrictions on market access to their GP market in favour of domestic suppliers. For instance, Viet Nam grants awards to domestic firms when two firms have submitted equally competitive offers and one is domestic. Both the Philippines and Malaysia maintain a specific threshold above which foreign firms can participate in bidding processes. Local content requirements and preferential treatment can also be found. For example, in Indonesia, companies must give preference to qualified Indonesian personnel and train such personnel for staff positions including in administration and executive management.

[19] The 2011 Model Law is the revision of the 1994 Model Law.

[20] Mandate, and Composition of UNCITRAL, http://www.uncitral.org/uncitral/en/about_us.html

[21] For the purpose of this exercise, the authors were constrained by language barriers: the review of the measures is thus based on legislative text available in English.

Under the implicit measures, there is more direct correspondence between the Taxonomy entries and the GPA provisions that pertain to the qualification and evaluation criteria or the conduct of procurement, although this may be spread across several Articles of the GPA. For example, for M5 on conduct of procurement, the equivalent in the GPA may be found in Article II (Scope and Coverage), in Article IV (General Principles), in particular Article IV:4 (on conduct of procurement), and in Article VII (for time period of notices M57), Article IX (shortlist of bidders M53, registration M52 and selective tendering M55), Article XI (for time period M57), Article XIII (for limited tendering for M54) and Article XV (for the design of procurement method M51). By contrast, for the review and complaint system (M8) all entries correspond to sections of Article 18 (domestic review procedures). Transparency and information (M9) may be more challenging, as these issues arise across many areas of the GPA.

Table 9.7: Mapping with GPA Provisions

	Sub-Chapter	
	Explicit Measures	WTO GPA
M1	Market access restrictions	Articles II (Scope and Coverage); III (Security and General Exceptions); IV (General Principles)
M2	Domestic price/point preference	Article II (Scope and Coverage)
M3	Offsets	Articles II (Scope and Coverage); III (Security and General Exceptions); IV (General Principles); Article V (Developing
M4	Collateral restriction/restrictive effects	Article II (Scope and Coverage)
M5	Conduct of procurement	Articles II (Scope and Coverage); IV (General Principles); VII (Notices); VIII (Conditions for participation); IX (Qualification of suppliers); X (Technical specification and Tender Documents); XI (Time-periods); XII (Negotiation); XIII (Limited tendering); XIV (Electronic Auctions); XV (Treatment of Tenders and Awarding of
M6	Qualification criteria	Articles IV; VIII-IX
M7	Evaluation criteria	Article IV (Scope and Coverage); VIII (Condition for Participation); X (Technical specification and Tender Documents); XV (Treatment of Tenders and Awarding of Contracts)
M8	Review / Complaint Mechanisms	Article XVIII (Domestic Review)
M9	Transparency and Information	Articles XVI-XVII; XIX
M10	Effectiveness of ethics and anti-corruption system	Article IV: 4 (General principles: Conduct of Procurement)

GPA = Agreement on Government Procurement; WTO = World Trade Organization.

Source: Authors' compilation, based on OECD Taxonomy and WTO GPA.

With regards to implicit measures, the review indicates a tendency for these ASEAN countries to use securities requirements, be it bid securities or performance securities, to impose additional requirements on foreign firms. For example, in Malaysia, local suppliers and contractors registered with the government are exempted from tender deposits. On the other hand, international bidders are required to deposit a bid security which varies in value depending on the value of the bid.

Many ASEAN countries are putting, or have recently put, in place an electronic procurement system. However, in practice, the system can be limited due to lack of information infrastructure or the geographical situations of some of the countries. For instance, in Indonesia, each region has authority to conduct its own procurement, and there is no enforcement of e-procurement (Nurmandi and Kim, 2015). On the other hand, in Malaysia, the Treasury Instruction Letter on 28 June 2013 stipulates that Cost Responsibility Centres of government agencies are required to ensure that at least 75 percent of their annual allocation of procurement must be made electronically (Xavier and Xavier, 2016). In Indonesia, e-procurement has cut down on the budget of the ministry of Finance – there was a 18.4 percent budget saving in 2009 – and has significantly contributed to increasing transparency (Trimurni et al., 2015).

5.2 Insights from the taxonomy and UNCITRAL Model Law

Similarly, examining the Model Law with the Taxonomy will help countries that are undergoing a legislative reform to assess how their legal system compares to the international benchmark. It will also help countries seeking to accede to the GPA since provisions of the Model Law are designed to foster and encourage participation in procurement proceedings by suppliers regardless of nationality. Adding this mapping exercise to the WTO GPA ensures a more complete evaluation of a country's GP system both with respect to procurement covered by GPA and procurement outside the scope of coverage by GPA that nevertheless may be of interest to cross-border suppliers.

Table 9.8 shows a mapping with the Taxonomy. As can be seen, the UNCITRAL Model Law places considerable emphasis on integrity and transparency. Transparency articles correspond to the Taxonomy (M9), including, for example, publication of GP rules, publication of calls for tender, and transparency of conduct of procurement according to set rules and procedures. As for the GPA, relevant provisions on transparency are spread across the entire Model Law, making mapping more challenging.

For entries in M1 (market access restrictions), the correspondence lays essentially in Articles 8 to 10 of the Model Law. The default position under the Model Law is to provide for full, unrestricted and international participation in public procurement. In particular Articles 8:1 and 8:2 provide for participation in the procurement process regardless of nationality. However, it adds an exception where a limitation on participation is grounded in law and regulation. For example, Articles 3 and 8 allow for procurement where only domestic suppliers or contractors may participate in the procurement proceedings (Article 8 of the Model Law). This was included to permit the use of single-source procurement to implement socio-

economic policies. Preferences for domestic tenderers need to comply with conditions set out in the Model Law, designed to avoid discretionary or arbitrary decisions to limit foreign participation. Furthermore, any countries enacting such limitations must also consider their international obligations and the risks of curbing competition (Enactment Guide). For instance, the fact that Philippine 2016 Revised Implementing Rules and Regulations includes an explicit clause restricting bidding to Filipino citizens would be in conformity with the Model Law because the procurement regulations is the source of the procuring entity's authority to resort to domestic procurement.

Taxonomy entries M2 (domestic preferences) and M3 (offsets) also cover in general Articles 8 to 11 of the Model Law; set asides are specifically covered under M62 of the Taxonomy. Article 11:3(b) of the Model Law provides that evaluation criteria can include margin of preference for the benefit of domestic suppliers or contractors or for domestic goods or any other preference. This seems to run counter to the non-discrimination principle of international trade and the WTO GPA. The GPA stipulates that countries should not treat suppliers from another country less favourably than national suppliers. However, the UNCITRAL Guide to Enactment clearly states that this should not occur to isolate domestic market from competition. Akin to Article 5 of the GPA, which permits offsets for developing countries, the Model considers such preferential measures as a transitional measure to offer easier market access to emergent suppliers or contractors, to facilitate opening the national economy, such as through capacity building, and should not be used as a form of protectionism. While preferential prices or other preferential programs in favour of small and medium-sized enterprises (SMEs) or other groups can help industrial policy objectives, and effectively increase SME participation in the GP market, they can also dampen competition, and increase the cost of public contracts (Arrowsmith and Anderson, 2011).

The Enactment Guide strongly recommends that regulations pertaining to margin of preference should provide a clear calculation method. Trade agreements can also allow for price preferences as a transitional measure. While offsets are prohibited in the Trans-Pacific Partnership (TPP), they can be used as transitional measures for developing countries (this echoes Article V of the GPA). For example, Viet Nam set an offset at 40 percent of the annual value of total covered procurement for the first 10 years, which will be reduced to 30 percent for the next 15 years.

Under Article 11 (3), the Model Law allows domestic preferences which ensure that countries balance the objectives of international participation in procurement proceedings and fostering local capacities, without resorting to purely domestic procurement. Here again, the Model Law sets forth conditions, which are the same as those in GPA Article 8. In the oil and gas sector, for instance, Indonesia has adopted measures to favour local goods, services, and technology, as well as Indonesian design and engineering capabilities so long as they are of comparable quality, price, and availability (CCSI, 2015). Local goods must be given preference if their prices are within 15 percent of the lowest tender within 7.5 percent for local services.

Table 9.8: Mapping with UNCITRAL

OECD Taxonomy		UNCITRAL Model Law
M1	Market access restrictions	Articles 8-10
M2	Domestic price/point preferences	Articles 8-11 Article 9:4;6 (Qualifications of suppliers and contractors) Article 11:3(b) (Rules concerning evaluation criteria and procedures)
M3	Offsets	Articles 8-11 and 30.5.e
M4	Collateral restriction/restrictive effects	Articles 8-9, 20
M5	Conduct of procurement	Article 7—63
M6	Qualification criteria	Article 9 (Qualifications of suppliers and contractors)
M7	Evaluation criteria	Article 11 (Evaluation criteria)
M8	Review / Complaint Mechanisms	Articles 22, sections 2 to 4, 25 and 64-69 (chapter VIII. Challenge proceedings)
M9	Transparency and Information	See e.g., articles 5-7, 18.2, 19.2, 23-26, 31, 33, 34.5, 35.1, 35.4, 36, 40, 53-57, 59.3, 60-61, 66.3, 67.5, 69
M10	Effectiveness of ethics and anti-corruption system	Article 21 (Exclusion of a supplier/contractor from the procurement on the grounds of inducements, or conflicts of interest); Article 26 (Code of Conduct) [other provisions throughout the Model Law are also relevant, e.g., articles 16, 19, 22.6.b, 24, 25, 28, 44, 56, 63, as well as all transparency, information and review/complaint provisions listed above]

UNCITRAL = United Nations Commission on International Trade Law.
Source: Authors' compilation, based on OECD Taxonomy and UNCITRAL Model Law.

While neither the GPA nor the Model Law addresses explicitly the issue of foreign investment, many ASEAN countries have measures that restrict foreign investment, which may also adversely impact cross-border procurement. For example, all countries studied (the Philippines, Viet Nam, Malaysia, and Indonesia) impose a cap on foreign ownership in the telecommunications sector. Indonesia provides an exemption for a maximum of 70 percent of ASEAN foreign investors. Malaysia in 2009 removed its general foreign equity ceiling of 70 percent; nevertheless, foreign equity restrictions remain in certain sectors. In addition, Malaysia favours investments that involve ethnic Malays; other areas that are subject to such *Bumiputera* reservations include banking and finance, water, *batik* production, agriculture, defense, energy, and telecommunications.

The implicit categories of the Taxonomy, namely M5 to M7, cover in general terms the different cycles of procurement from the conduct of procurement (M5), the qualification criteria for suppliers (M6), and the evaluation criteria to be complied with by the procuring entity (M7). These Taxonomy entries also correspond to many of the Articles in the Model Law.

The Model Law also provides for a template text for challenge proceedings (Articles 64 to 69), which is reflected in M8 of the Taxonomy. The Model Law allows for review or appeals of decisions made in challenge proceedings (Articles 66–67) through the courts. None of the countries studied provides for suspension of the tendering process in case of a challenge. While Article 65 of the Model Law prohibits the entry into force of the procurement contract during the proceedings, the Enactment Guide indicates that States may also want to consider suspending the contract.

Transparency is a key element in both the GPA and the Model Law. The Model Law includes transparency as one of its objectives and includes prompt and public availability of procurement documents, publication of contract awards, and specification of qualification requirements to ensure a more non-discriminatory procurement system and compliance with rules. E-procurement is also an important feature of these texts (and of the Taxonomy, [M92]), which can increase value for money by facilitating and centralising the processes and reducing corruption.

In setting out rules for transparency and ensuring fair and equitable treatment, anti-corruption can almost be considered an underpinning of the Model Law[22] (and the GPA). Many related articles of the Model Law correspond to the Taxonomy (M10), which also includes any measures that address corruption, conflict of interests, or any ethical matters.

6. Procurement Discipline in Trade Agreements of ASEAN and EAP

There are several benefits to including GP in trade agreements. First, it has domestic benefits since it can improve the efficiency of the procurement system by fostering the principles of non-discrimination and transparency, and hence promoting more optimal use of public funds. Second, a procurement system that complies with international procurement rules sends a positive signal that the country is open to international business and investment and this could attract foreign investment more broadly. Third, when trade agreements cover GP, the parties to the agreement are opening their procurement to one another under an umbrella of common principles and this fosters deeper economic integration amongst the parties to the agreement.

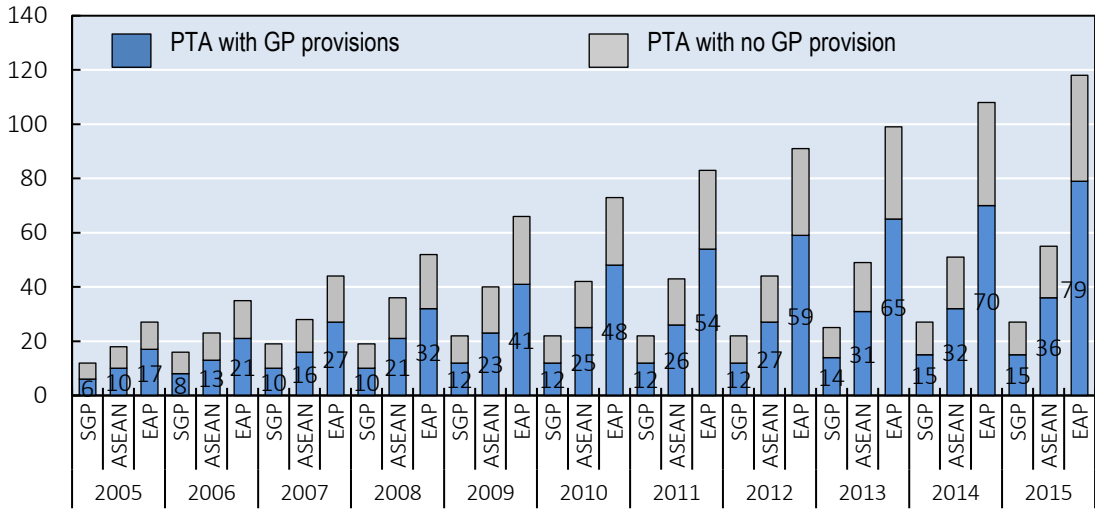
[22] These principles are also enshrined more broadly in the United Nations Convention against Corruption (2003), which also includes provisions on procurement.

6.1 Number of trade agreements

Market access is one of the main rationales for negotiating disciplines on GP in international trade agreements (Hoekman, 2015). Other rationales include preventing discriminatory procurement practices and agreeing transparent procurement rules amongst parties. These agreements are designed to guarantee foreign firms the right to tender for procurement contracts, and to level the playing field for domestic and foreign firms in those processes.

Preferential trade agreements (PTAs) are increasingly including provisions on procurement and have become the preferred path to extend procurement rules to non-GPA members (Hoekman, 2015). As Figure 9.7 displays, in 2005, there were seventeen international agreements covering GP in East Asia and Pacific (EAP), of which 10 included at least one ASEAN country (in six of those 10 agreements, the country was Singapore). By 2015, this had risen to 79 agreements in EAP, of which 36 included at least one ASEAN country as new agreements formed and existing agreements added members.

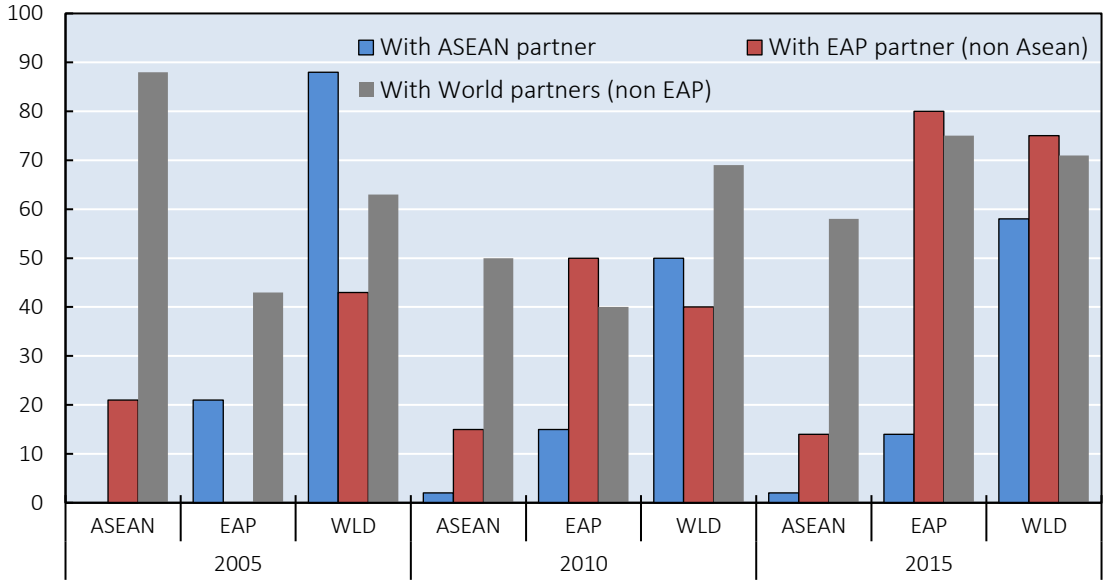
Figure 9.7: Share of GP Provision in Trade Agreements



GP = government procurement; PTA = Preferential trade agreements; SGP = Singapore; ASEAN = Association of Southeast Asian Nations; EAP = East Asia and Pacific.
Source: Authors' calculations, based on Design of Trade Agreement Database (DESTA).

However, most of the PTAs with GP disciplines signed by ASEAN countries are not with other ASEAN countries and very few are with neighbouring countries in the region. As shown in Figure 9.8, the share of bilateral trade agreements between ASEAN countries with a GP chapter was 2 percent in 2015, compared to 15 percent for ASEAN agreements with other partners in the region (East Asia and Pacific, EAP). Indeed, the growing presence of GP chapters in trade agreements observed for ASEAN countries in Figure 9.7 also includes agreements with extra regional partners.

Figure 9.8: Partners in GP Provisions



Source: Authors' calculations, based on World Trade Organization (WTO) PTA database.

In addition, a number of countries whether or not party to the GPA, have been exposed to GPA-style disciplines and market opening through participation in PTAs. Some of the most recent PTAs signed by countries in the region contain detailed chapters on GP. This trend may facilitate future GPA accessions as, in general, the procedures and disciplines on GP in these regional trade agreements (RTAs) are akin to those in the GPA. A few examples include the PTAs signed by Australia with the United States, Chile, and Singapore, and the RTA recently signed (but not yet in force) between the European Union and Viet Nam.

6.2 Depth of disciplines on GP in PTAs

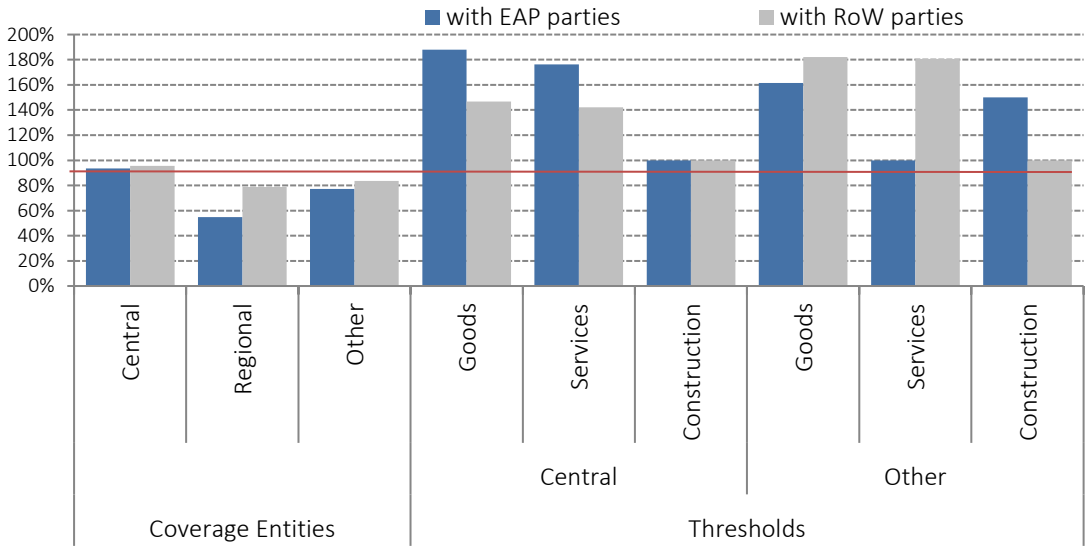
A closer look at the GP chapters in the free trade agreements signed by ASEAN countries reveals a somewhat limited scope without any substantive commitments in providing market access for trading partners' suppliers. Agreements in general feature best-endeavour commitments and encourage parties to collaborate, to establish working groups, or to exchange information on procurement processes. They also refer to the importance of applying transparent procedures. Appendix 3 provides further details on the depth of GP coverage in agreements where there are substantive commitments (i.e. beyond mere exchange of information, cooperation, etc.).

In the EAP region, the countries that have made significant commitments on public procurement are Australia, Taiwan, Hong Kong, Japan, the Republic of Korea, New Zealand and Singapore. Figure 9.9 provides an overview of the coverage those countries offered on average to other EAP partners versus the rest of the world relative to the best offer they have made on GP in any of their PTAs. All parties covered at least some central government and other entities.[23] However, the lack of statistics on procurement makes it impossible to assess the share of procurement markets covered by these commitments. Moreover, a weakness of most of those agreements is the low level of commitments for sub-central government entities. This gap in commitments significantly reduces the level of GP covered by the agreement; the OECD estimates that approximately 60 percent of procurement in a country is at the sub-central government level.

In terms of covered entities, on average commitments with other EAP parties were lower than the EAP countries mentioned above offered to the rest of the world (90 percent of the best offer in terms of entities covered for EAP parties versus 95 percent for rest of the world parties), with key differences in sub-national level commitments. The same is true for thresholds, where on average extra-regional partners seem to benefit more from better access than other EAP countries.

Overall GP provisions in trade agreements with extra-regional partners (United States, European Union, European Free Trade Association, Switzerland, Chile, Mexico and Peru) are deeper than those with regional partners, and that commitments by ASEAN countries, with the exception of Singapore, on GP in free trade agreements remain relatively modest. There is thus scope for further opening by both ASEAN countries and their regional partners on GP within the region.

Figure 9.9: Depth of GP provisions in PTAs of Selected Countries



GP = government procurement; PTA = preferential trade agreement.
Source: Authors' calculations, based on World Trade Organization (WTO) PTA database.

[23] Other entities refers to parastatal and similar entities.

6.3. Insight from Trans-Pacific Partnership (TPP) negotiations and Regional Comprehensive Economic Partnership (RCEP)

The 11 remaining countries of the TPP announced in November 2017 their commitment to conclude a Comprehensive and Progressive Trans-Pacific Partnership (CPTPP). The GP chapter of the CPTPP is the same as the original TPP and contains extensive similarities with the provisions of the GPA (see Anderson and Pelletier, 2016), which may facilitate eventual GPA accessions.

The GP chapter of the CPTPP provides useful insight into the extent of commitments by ASEAN countries. For instance, the TPP discussions indicate the flexibility ASEAN countries (Brunei Darussalam, Malaysia, and Viet Nam) negotiated: implementation delays were permitted through transitional measures, and were only available to those developing parties. Brunei Darussalam, Malaysia, and Viet Nam all commit to phase-downs of thresholds on central and other entities over a maximum of 25 years, and transitional measures allow delays in implementing provisions related information on intended procurement; information to be included post-award; domestic review; qualification of suppliers; time periods; dispute resolution; general principles related to off-sets; and whether a fee can be charged for tender information. These delays are mainly 3–5 years, although Malaysia can delay the general principles related to offsets for up to 12 years, and Viet Nam may charge for information until they have set up an electronic procurement portal.

By contrast, the RCEP free trade agreement between the 10 ASEAN Members and the 'plus six' group (Australia, China, India, Japan, Republic of Korea and New Zealand) does not include GP. However, of the 16 countries engaged in the RCEP six have undertaken procurement obligations in other non-Asian agreements, three are engaged in negotiations that will include coverage of procurement and China is in negotiations to join the GPA (as per its commitments when it joined the WTO).

7. Conclusion

This text has provided a first overview of ASEAN GP systems, drawing on the OECD Taxonomy to help gain a picture of countries' systems and to provide some initial insights into how this compares with international best practice, based on mapping of the OECD Taxonomy with the WTO GPA and the UNCITRAL Model Law.

The average size of the government procurement market for ASEAN countries is about 5 percent to 8 percent of GDP, which is below the OECD average (9 percent) or that of other regional partners. At approximatively USD 140 billion it nonetheless represents an immense potential GP market. The GP market increased significantly over 2008–2010 in response to the financial crisis and the relative size of GP in ASEAN countries is becoming closer to the average in developed regional partners.

While subject to important limitations, existing output based methodologies to capture empirically potential home bias in government procurement suggest that, over 2000–2011, there was no increase in home bias in ASEAN countries, in contrast to other countries in the region. Home bias also appears to be particularly strong in manufacturing. The exercise undertaken in this paper indicates that some ASEAN countries have scope to enhance their GP regimes and bring them closer to international good practice as embodied in the UNCITRAL Model Law and the GPA in terms of promoting greater transparency and openness in their procurement markets.

As ASEAN countries formed new trade agreements with GP provisions and their existing agreements added members, the number of trading relationships of ASEAN countries governed by agreements with GP disciplines has significantly increased. However most of these GP chapters are in agreements with countries beyond the region, and GP disciplines in ASEAN trade agreements tend to be very modest. There is scope to enhance GP disciplines with regional partners and amongst ASEAN countries.

The RCEP initiative could be an opportunity to advance on this issue. For its less developed members, the RCEP could provide transitional measures to facilitate the opening of their procurement markets, drawing upon the transitional measures in the revised GPA or the approach providing additional time to undertake procurement obligations, used in the P4 Agreement for Brunei Darussalam and envisaged for Malaysia and Viet Nam in a CPTPP.

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Appendix 1. OECD Taxonomy

Sub-Chapter		Group	Sub-Chapter		Group
	Explicit measures			**Implicit measures**	
M1	**Market access restrictions**		**M5**	**Conduct of procurement**	
	M11	To National supplier		M51	Design of procurement methods
	M12	To Sub national supplier		M52	Registration
	M13	Conditional access		M53	Shortlist / preselected list of bidders
	M131	To Joint ventures with national supplier		M54	Direct/Limited tendering
	M132	Commercial presence required		M55	Selective tendering
	M133	Access based on reciprocity		M56	Securities
	M14	Exclusion for national security or safety reasons			M561: tender securities
	M15	Thresholds			M562: performance securities
	M19	Other		M57	Time period
M2	**Domestic price preferences**			M59	Other
	M21	For National supplier			
	M22	For Sub national supplier	**M6**	**Qualification criteria**	
	M23	Conditional access		M61	Certification or license criteria
	M29	Other		M62	Set asides for specific groups (SMEs, minorities)
M3	**Offsets**			M63	Past performance requirements
	M31	Local content requirement for Inputs and data storage		M64	Prior experience requirements
	M32	Local content requirement for Services		M69	Other criteria
	M33	Local content requirement for Staff requirement			
	M34	Subcontract requirements			

			M7	**Evaluation criteria**	
	M39	Offsets (transfer of technology…)		M71	Technical contractual conditions
				M72	Financial requirements
M4	**Collateral restriction/restrictive effects**			M73	Offer-backs for specific groups (SMEs, minorities)
	M41	Tax on procurement from foreign entity		M79	Other restrictive criteria
	M42	Barriers to FDI	**M8**	**Review / complaint mechanisms**	
		M421: constraint on forming joint venture,		M81	Challenge of bidding process or award
		M422 constraint to merger		M82	Choice of complaint forum
		M423: absence of national treatment		M83	Time period
		M424 Closed sectors to FDI		M84	Fees
	M43	Restricted eligibility to subsidies and tax preferences		M85	Suspension of bidding process
	M44	Time period		M86	Sanction and remedies
	M49	Other		M89	Other
			M9	**Transparency and information**	
	M10	**Effectiveness of ethics and anti-corruption system**		M91	Publication in official gazette or accessible publication
				M92	Accessible e-procurement M921 online publication of tender M922 online tender process M923 online award process M924 e-communication M925 e-signature M926 Other online requirements
				M93	Notification
				M99	Other

OECD = Organisation for Economic Co-operation and Development; FDI = foreign direct investment; SMEs = small and medium-sized enterprises.
Source: Gourdon, Bastien, and Folliot–Lalliot (2017).

Appendix 2. Concordance of OECD taxonomy with secondary sources

Table A2.1. Concordance between BPP measures and GP Taxonomy

BPP Group	BPP Question	OECD TAX Code	OECD TAX Group
Pre-award Complaints before the First-tier Review Body	Cost of filing a complaint in US$	M84	Cost to fill a complaint
	Does the complaining party have a choice regarding the authority before which to file its complaint (e.g., the procuring entity itself, an independent administrative review body or a judicial court)?	M82	Choice of complaint forum
	Time to file a complaint (days)	M83	Time period to file a complaint
	During the pre-award stage, who has standing to file a complaint? (Actual and potential bidders; trade organisations; civil society organisations; others)	M81	Challenge of bidding process or award
	Does the filing of a complaint lead to the suspension of the procurement process?	M85	Suspension of bidding process
Pre-award Complaints before the Second-tier Review Body	Cost of filing a complaint in US$	M84	Cost to fill a complaint
	Is the procurement process suspended during the appeal proceedings (i.e. while the second-tier review body is reviewing the complaint and until it issues a decision)?	M85	Suspension of bidding process
Needs Assessment, Call for Tender, and Bid Preparation	Is open tendering the default method of procurement?	M54	Direct/Limited tendering
	Is there one or several procurement portal(s) (i.e. an official website(s) specifically and exclusively dedicated to public procurement)?	M92	Accessible e-procurement
	What materials are publicly accessible online? (procurement plans, laws and regulations, notices of calls for tender, tender documents, and award notices)	M92	Accessible e-procurement
	Elements included in the tender notice and/or tender documents: Technical and financial qualifications that bidders must meet, Grounds for exclusion of bidders, Amount of bid security, Form(s) of bid security, Criteria against which bids will be evaluated, Method used to assess bids, Main terms and conditions of the contract, Payment	M93	Notification complete
	Are tender documents accessible for free?	M91	Publication in official gazette or accessible publication
	Do bidders have the opportunity to ask a question for clarification to the procuring entity (either through regular channels of communication or during a clarification meeting with bidders organised by the procuring entity)?	M58	Other in conduct of procurement
Bid Submission	Are bidders required to register on a government registry of suppliers?	M52	Registration
	Are foreign firms eligible to submit bids in response to calls for tender?	M11	Market access restriction to national supplier
	With the exception of few sectors such as defense	M14	Exclusion for non-economic rational reason
	Only for procurements above a certain threshold	M15	Thresholds
	Only for certain contracts. partnerships, or mergers	M132	Commercial presence required
	Is there a minimum period of time (calendar days) that the procuring entity must grant bidders for them to submit their bids?*	M57	Time period
	How can bidders submit bids? (In person, Via regular mail, Via an electronic procurement platform)	M92	Accessible e-procurement
	Are bids guaranteed?	M561	Tender securities

	If bidders are required to post bid security, how is the amount determined? (Minimum required, Maximum percentage, At discretion of procuring entity)	M561	Tender securities
	What forms of bid security can the procuring entity request of bidders? (Cash deposit, Bank guarantee, Insurance guarantee)	M561	Tender securities
	Do suppliers have the choice regarding the form of bid security?	M561	Tender securities
	If bidders are required to post a bid security instrument, is there a timeframe (calendar days) for the procuring entity to return said instrument?	M561	Tender securities
	Is there a separate entity to oversee the procuring entity's decision to cash/collect the bid security instrument?	M561	Tender securities
Bid Opening, Evaluation, and Award	Are bids opened electronically?	M92	Accessible e-procurement
	If bids are never opened electronically, who is allowed to attend the bid opening session? (Bidders, Bid opening session is public)	M91	Publication in official gazette or accessible publication
	If bids are always or sometimes opened electronically, the minutes of the opening session are: (Published online, sent electronically to all bidders)	M92	Accessible e-procurement
	At the stage of bid evaluation, does the legal framework include any preferential treatment system for domestic firms?	M21	Local content requirement for For national supplier
Content and Management of the Procurement Contract	Can the supplier (i.e. the winning bidder) sign the procurement contract through an online platform?	M92	Accessible e-procurement
Performance Guarantee	In the case of procurement of works, is the supplier required to provide performance guarantee that will ensure a source of compensation in case of failure to perform its contract obligations?	M562	Performance securities
	Does the legal framework provides the method to determine the amount of performance guarantee that can be requested from the supplier?	M562	Performance securities
	If yes, is the amount of the performance guarantee fixed or is it a percentage of the contract value?	M562	Performance securities
	Does the supplier have the choice regarding the form of the performance guarantee?	M562	Performance securities
	What forms of performance guarantee can the purchasing entity request from bidders? (Certified check, Performance bond, Insurance guarantee, Letter of credit, Cash, bank guarantee)	M562	Performance securities
	Is there a timeframe (calendar days) for the purchasing entity to return the performance guarantee?	M562	Performance securities
	Are there circumstances related to the contract performance under which the purchasing entity can cash/collect the performance guarantee?	M562	Performance securities
	Is there a separate entity to oversee the purchasing entity's decision to withhold the performance guarantee?	M562	Performance securities
Payment of Suppliers	Does the supplier have the possibility, through an online platform (an e-procurement platform or an online payment system), to request a payment online?	M92	Accessible e-procurement
Incentives for Particular Groups	Are there any incentives to increase participation of small and medium-sized enterprises' (SMEs) or minority-owned businesses in public procurement?	M62	Set asides for specific groups (SMEs, minorities)

BPP = Benchmarking Public Procurement; GP = government procurement; OECD = Organisation for Economic Co-operation and Development; SMEs = small and medium-sized enterprises.
Source: Authors.

Table A2.2. Concordance between STRI measures and GP Taxonomy

STRI code	STRI measure	OECD TAX Code	OECD TAX Group
3_2_1	Explicit preferences for local suppliers	M21	Local content requirement for Domestic price/point preference for national supplier
3_2_2	Procurement regulation explicitly prohibits discrimination of foreign suppliers	M11	Market access restriction to national supplier
3_2_25	Thresholds above which international tender is mandated	M15	Thresholds
3_2_3	The procurement process affects the conditions of competition in favour of local firms	M5	Conduct of procurement
3_2_33	Technical specifications affect the conditions of competition in favour of local providers	M71	Technical contractual conditions
3_2_4	Discriminatory qualification processes and procedures	M6	Qualification criteria
3_2_5	Contract award on the basis of non-objective/discriminatory criteria	M7	Evaluation criteria
3_2_6	Procurement laws, regulations and procedures are transparent	M9	Transparency and information
3_2_7	Foreign suppliers are provided the opportunity to challenge the consistency of the conduct of procurement with the laws and regulations.	M81	Challenge of bidding process or award

GTA = Global Trade Alert.

Source: Authors.

Table A2.3. Concordance between GTA measures and GP Taxonomy

GTA categories	Label of Measures in GTA	OECD TAX Code	OECD TAX Group
Public procurement access	Buy Local policy	M11	National companies
	Buy National policy	M11	National companies
	Exclusive preference to local firms in public procurement	M11	National companies
	Restricted public procurement	M11	National companies
	Restrictions on market access for foreign producers	M11	National companies
	Exclusion of foreign made and joint-venture made products from Government procurement list	M131	Joint ventures with national company
Public procurement localisation	Buy National requirements	M31/32/33	Local content requirement for Input/service/staff
	Buy Local requirements	M31/32/33	Local content requirement for Input/service/staff
	Introduced ban on certain types of foreign goods from participation in public procurement	M31	Local content requirement for National inputs and data storage
Public procurement preference margin	Preference margins in the public procurement for local business	M21	National companies
	Local price preference in government procurement	M21	National companies
Public procurement, nes	Compensation for product purchase from National company	M43	Restricted eligibility to subsidy and tax preferences
	Subsidies to buy local	M43	Restricted eligibility to subsidy and tax preferences
	Imposition of a tax on foreign procurement of goods and services	M41	Tax on procurement from foreign entity
	Accreditation of suppliers of certain products.	M61	Certification or license criteria
	More restrictive public procurement rules for tenders	M5	Tendering process

Source: Authors.

Table A2.4. Concordance between PMR measures and GP Taxonomy

PMR-level indicator	Question text PMR	OECD TAX Code	OECD TAX Group
Barriers to FDI	Is foreign ownership constrained by allowing only joint ventures in at least one sector?	M421	M421: constraint on forming joint venture
	Is foreign ownership constrained by restricting mergers and acquisitions in at least one sector?	M422	M422: constraint to merger
	Are foreign suppliers subject to regulations that do not recognise national treatment principles?	M423	M423: absence of national treatment
Barriers to trade facilitation	Are regulations systematically published or otherwise communicated to the public in a manner accessible (e.g. in a foreign language) at the international level?	M49	Other Transparency measures in investment and Trade
	If yes, are there inquiry points for information on the operation and enforcement of regulations?	M49	Other Transparency measures in investment and Trade
	Are there any specific provisions which require or encourage regulators to use internationally harmonised standards and certification procedures?	M6	Qualification criteria
Differential treatment of foreign suppliers	Is the number of foreign professionals permitted to practice restricted by economic needs tests?	M11	To national supplier
	Are there restrictions on government offshoring of computer services?	M11	To national supplier
	Are foreign suppliers treated less favourably regarding taxes and eligibility to subsidies?	M43	Restricted eligibility to subsidies and tax preferences
	When appeal procedures are available in domestic regulatory systems, are they open to affected or interested foreign parties as well?	M81	Challenge of bidding process or award
	When business practices are perceived to restrict competition in a given market, can foreign firms have redress through the following channels: Competition agencies, Trade policy bodies, The regulatory authorities involved or Private rights of action ?	M82	Choice of complaint forum

PMR = Product Market Regulation; GP = government procurement.
Source: Authors.

Appendix 3. Coverage of Entities for GP chapter in RTAs

Agreements	Party	Year	Central Government Entities	Sub-central government entities		Other Entities
				Regional	Local	
Australia - Chile	Australia	2009	75 entities in 18 portfolios	6 states+ 2 territories (= all regions)	not covered	30 entities
Chile - Japan	Japan	2007	GPA94= (by reference)	GPA94= (by reference)	GPA94= (by reference)	GPA 94 (by reference) - entities which have been privatised (railway, tobacco, telecommunication companies etc.) or have been dissolved or transferred
Costa Rica - Singapore	Singapore	2013	23 entities	Singapore does not have any sub-central government	Singapore does not have any sub-central government	21 entities (transport, enterprises, port, media, tourism, etc.)
EU - Rep. of Korea	Rep. of Korea	2011	GPA94= (by reference)	GPA94= (by reference)	GPA94= (by reference)	GPA94= (by reference) Entities having activities in the fields of airports and urban transport are not covered
EFTA - Rep. of Korea	Rep. of Korea	2006	GPA94= (by reference)	GPA94= (by reference)	GPA94= (by reference)	GPA94= (by reference) Korea Rail Network Authority and Korea Railroad Corporation are not covered vis-à-vis Norway and Switzerland
EFTA - Singapore	Singapore	2003	GPA94= (by reference)	GPA94= (by reference)	GPA94= (by reference)	GPA94= (by reference)
Hong Kong - New Zealand	Hong Kong	2011	59 entities (=GPA2012 - 4 entities (Chief Executive Office etc.))	n.a.	n.a.	not covered
Hong Kong - New Zealand	New Zealand	2011	30 entities	not covered	not covered	not covered
Japan - Mexico	Japan	2005	GPA 94=	not covered	not covered	
Japan - Peru	Japan	2012	GPA 94 = (as of 2010)	GPA 94 = (as of 2010)	GPA 94 = (as of 2010)	GPA2012 - entities which have been privatised (railway, tobacco, telecommunication companies etc.) or have been dissolved or transferred = Japan-Chile and Japan-Mexico EPAs
Japan - Singapore	Japan	2002	GPA 94=	n.a.	n.a.	GPA94 - entities which have been privatised
Japan - Singapore	Singapore	2002	GPA 94=	n.a.	n.a.	GPA94 - entities which have been privatised
Japan - Switzerland	Japan	2009	GPA2012= (by reference)	GPA2012= (by reference)	GPA2012= (by reference)	GPA2012= (by reference)
Rep. of Korea - Australia	Rep. of Korea	2014	45 entities	16 entities	not covered	17 entities
Rep. of Korea - Australia	Australia	2014	70 entities	6 states+ 2 territories	not covered	18 entities
Rep. of Korea - Chile	Rep. of Korea	2014	43 entities (considered as GPA 2012=)	GPA 94=	GPA 94=	18 entities + all other entities having activities in airport maritime and inland port (= GPA 94 - Korea Railroad Cooperation + Kookmin Bank + airports/ports)
Rep. of Korea - New Zealand	Rep. of Korea	2015	45 entities	not covered	not covered	not covered

Rep. of Korea - New Zealand	New Zealand	2015	31 entities	not covered	not covered	not covered
Rep. of Korea - Singapore	Rep. of Korea	2006	43 entities with subordinate entities (considered as GPA 2012 =)	GPA 94=	GPA 94=	19 entities (= GPA 94 + Korea General Chemical Corporation - Korea Railroad cooperation
Rep. of Korea - Singapore	Singapore	2006	23 entities (GPA=)	n.a.	n.a.	GPA=
Rep. of Korea - US	Rep. of Korea	2012	51 entities (=GPA94 + 9 entities (according to USTR website))	n.a.	n.a.	n.a.
New Zealand - Singapore	New Zealand	2001	"government bodies"	on the best endeavors basis	on the best endeavors basis	on the best endeavors basis
New Zealand - Singapore	Singapore	2001	"government bodies"	on the best endeavors basis	on the best endeavors basis	on the best endeavors basis
New Zealand - Taiwan	New Zealand	2013	24 entities	not covered	not covered	not covered
New Zealand - Taiwan	Taiwan	2013	32 entities	Taiwan Provincial Government (3 entities)	Taipei City government (39 entities), Kaohsiung City Government (68 entities)	62 entities (University, Hospital, transportation, etc)
Panama - Singapore	Singapore	2006	23 entities	Singapore does not have any sub-central government	Singapore does not have any sub-central government	24 entities (University, Hospital, transportation, etc)
Peru - Rep. of Korea	Rep. of Korea	2011	41 entities (=GPA2012 - National Human Right Commision of Korea)	GPA94=	GPA94=	GPA94=
Peru - Singapore	Singapore	2009	23 entities	Non applicable (Singapore does not have any sub-central government)	Non applicable (Singapore does not have any sub-central government)	22 entities (Research institute, transport, port, media etc)
Singapore - Australia	Australia	2003	78 entities (21 departments + 57 agencies covered by the Financial Management and Accountability Act	not covered	not covered	not covered
Singapore - Australia	Singapore	2003	23 entities (GPA=)	n.a.	n.a.	24 entities (statutory boards) (GPA=)
Singapore - Taiwan	Singapore	2014	23 entities	Non applicable (Singapore does not have any sub-central government)	Non applicable (Singapore does not have any sub-central government)	24 entities (Research institution, transport, national university, etc)
Singapore - Taiwan	Taiwan	2014	32 entities	Taiwan Provincial Government (3 entities)	4 city government (New Taipei city government, Taichung city government, Tainan city government, Taoyuan county government)	62 entities (National University, Hospital, transportation etc)
TPSEP	New Zealand	2006	37 entities	not covered	not covered	not covered

TPSEP	Singapore	2006	23 entities (GPA=)	n.a.	n.a.	not covered
US - Australia	Australia	2005	77 entities (all federal departments and all other agencies covered by the Financial Management and Accountability Act 1997. (according to the Australian government website.))	6 states+ 2 territories (=all regions)	not covered	32 enterprises (=Australia-Chile RTA + 2 entities (Australian Safety and Compensation Council, the National Institute of Clinical Studies Ltd.))
US - Singapore	United States	2004	GPA 94= (by reference)	GPA 94= (by reference)	GPA 94= (by reference)	GPA 94= (by reference)
US - Singapore	Singapore	2004	GPA 94= (by reference)	n.a.	n.a.	GPA 94= (by reference)

GP = government procurement; RTAs = regional trade agreements; EU = European Union; TPSEP = Trans-Pacific Economic Partnership.

Source: Gourdon and Messent (2017).

Appendix 4. Thresholds for GP chapter in RTAs

Agreements	Party	Year	Central Government			Sub-central Government			Other Entities		
			Goods	Services	Construction	Goods	Services	Construction	Goods	Services	Construction
Australia - Chile	Australia	2009	45000	45000	5000000	355000	355000	5000000	224000	224000	5000000
Chile - Japan	Japan	2007	100000	100000	45000	200000	200000	1500000	100000	100000	45000
Costa Rica - Singapore	Singapore	2013	130000	130000	5000000	n.a.	n.a.	n.a.	4000000	4000000	5000000
EFTA - Rep. of Korea	Rep. of Korea	2006	130000	130000	5000000	B: 400000	B: 400000	1500000	400000	400000	15000000
EFTA - Singapore	Singapore	2003	130000	130000	5000000	n.a.	n.a.	n.a.	400000	400000	5000000
EU - Rep. of Korea	Rep. of Korea	2011	130000	130000	5000000	200000	200000	1500000	450000	n.a.	15000000
Hong Kong - New Zealand	Hong Kong	2011	130000	130000	5000000	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Hong Kong - New Zealand	New Zealand	2011	130000	130000	5000000	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Japan - Mexico	Japan	2005	130000	130000	45000	n.a.	n.a.	n.a.	130000	130000	450000
Japan - Peru	Japan	2012	130000	130000	45000	200000	200000	1500000	130000	130000	450000
Japan - Singapore	Japan	2002	100000	100000	n.a.*	n.a.*	n.a.*	n.a.*	100000	100000	n.a.*
Japan - Singapore	Singapore	2002	100000	100000	n.a.*	n.a.	n.a.	n.a.	100000	100000	n.a.*
Japan - Switzerland	Japan	2009	100000	100000	45000	200000	200000	1500000	130000	130000	450000
Rep. of Korea - Chile	Rep. of Korea	2004	50000	50000	50000	200000	200000	15000000	450000	n.a.	15000000
Rep. of Korea - Singapore	Rep. of Korea	2006	100000	100000	5000000	200000	200000	15000000	400000	n.a.	15000000
Rep. of Korea - Singapore	Singapore	2006	100000	100000	5000000	n.a.	n.a.	n.a.	400000	400000	5000000
New Zealand - Singapore	New Zealand	2001	50000	50000	50000	50000	50000	50000	50000	50000	50000
New Zealand - Singapore	Singapore	2001	50000	50000	50000	50000	50000	50000	50000	50000	50000
New Zealand - Taiwan	New Zealand	2013	130000	130000	5000000	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
New Zealand - Taiwan	Taiwan	2013	130000	130000	5000000	200000	200000	5000000	4000000	4000000	5000000
Panama - Singapore	Singapore	2006	130000	130000	5000000	n.a.	n.a.	n.a.	400000	400000	5000000
Peru - Rep. of Korea	Rep. of Korea	2011	95000	95000	5000000	200000	200000	5000000	400000	400000	15000000
Peru - Singapore	Singapore	2009	130000	130000	5000000	n.a.	n.a.	n.a.	400000	400000	5000000
Singapore - Australia	Australia	2003	0	0	0	n.a.	n.a.	n.a.	0	0	0
Singapore - Australia	Singapore	2003	0	0	0	n.a.	n.a.	n.a.	0	0	0
Singapore - Taiwan	Singapore	2014	100000	100000	5000000	n.a.	n.a.	n.a.	400000	100000	5000000
Singapore - Taiwan	Taiwan	2014	100000	100000	5000000	200000	200000	5000000	400000	400000	5000000
Rep. of Korea - US	Rep. of Korea	2012	68000	68000	5000000	n.a.*	n.a.*	n.a.*	n.a.*	n.a.*	n.a.*
TPSEP	New Zealand	2006	50000	50000	5000000	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
TPSEP	Singapore	2006	50000	50000	5000000	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
US - Australia	Australia	2005	45000	45000	5000000	355000	355000	5000000	A: 224000	A: 224000	5000000
US - Singapore	Singapore	2004	45000	45000	5000000	n.a.	n.a.	n.a.	400000	400000	5000000

GP = government procurement; RTAs = regional trade agreements; EFTA = European Free Trade Association; TPSEP = Trans-Pacific Economic Partnership; US = United States.

Source: Gourdon and Messent (2017).

CHAPTER 10

Trade Measures of Environment in ASEAN*

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1. Introduction

Environmentalists hold that the trade-induced depletion of natural resources and the pollution-haven effects of dirty industries migrating to low-stringency regulatory countries amply demonstrate that trade and the preservation of the environment are at odds. Trade economists recognise that the world trade regime must be made compatible with environmental objectives, but hold at the same time that an open world trading system with low barriers to trade in Environmental Goods (EGs) and Environmental Services (ESs) is needed to create a triple win: for the preservation of environment, for trade, and for developing countries. For lower-income countries, benefits would accrue through lower costs for environmental technologies and technological transfer. For higher-income developing countries, benefits would accrue through more secure access to the large Organisation for Economic Co-operation and Development (OECD) markets.[1]

Environmental issues entered trade negotiations as the text of the Preamble to the Agreement establishing the World Trade Organization (WTO) in 1994, which stated that the WTO would have as an objective to promote sustainable development and the protection of the environment (WTO, 1994). Environmental issues were then introduced formally in the launch of the Doha Round in 2001. Pursuant to Article 31, WTO members were asked to negotiate on the reduction, or, as appropriate, the elimination of tariff and non-tariff Barriers (NTBs) on Environmental Goods (EGs) and Environmental Services (ESs).

Multilateral negotiations under the Doha Round have gone nowhere and the plurilateral negotiations under the Environmental Goods Agreement (EGA) involving 17 WTO members launched in 2014 are also stuck. The lack of progress is on a much-reduced agenda only considering the reduction of tariffs on EGs (negotiations on ESs and NTBs were taken off the agenda). To paraphrase the title of Esty's (1994) book, 'Greening the GATT' – and his warnings of the difficulties ahead – dealing with the trade-environment-climate nexus has proved enormously difficult and it has been widely recognised that the regimes are on a collision course (Brainard and Sorkin, 2009).

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[1] The technological transfer mechanism is an important pillar of the Paris Agreement. Coninck and Bhasin (2015) review the difficulties in implementing the UNFCCC Technology Mechanism to promote technology development and transfer to developing countries, a condition imposed by developing countries at the 2011 United Nations Climate Change Conference (COP17) in Durban to continue negotiations on climate change.

Yet urgency is with us: preserving our environment is the centrepiece in the Sustainable Development Goals (SDG) menu, now the focal point for the planetary engagement to promote global welfare. The environment features directly in Goal 15 'Life on land' with nine targets and in Goal 13 on climate change and adaptation, which is brief on means to reduce Green House Gases (GHGs) because of the ongoing negotiations that lead to the Paris Agreement in December 2015.[2] The main link between the SDGs and trade policy is in Goal 17, which stresses the importance of a universal rules-based, open, non-discriminatory and equitable multilateral system under the WTO.

The lack of progress at the multilateral/plurilateral levels raises the question of what has happened at the national and regional levels. This chapter takes stock of government-issued trade measures that deal with environmental objectives focussing on the Southeast Asian Countries which is combined in the Association of Southeast Asian Nations (ASEAN).[3] If the objective is to focus on NTM measures applied to EGs, it is also necessary to cover tariffs and ESs for several reasons. First, to date, the negotiation agenda on trade measures for EGs and ESs have dealt exclusively with reduction in tariff barriers. Second, it is those negotiations that have lead (through a drawn out negotiation process) to the current lists of EGs. Third, EGs entering environment-related activities usually embody ESs. Last, the welfare interpretation of tariff measures is more clear-cut than for NTM measures where TBTs play an important role in identifying EGs.

This exercise is interesting for ASEAN countries individually to see where they stand and also at the regional level where the 'ASEAN way' bottom-up approach to consensus building might help make progress on this divisive agenda. However, this exercise faces the difficulty of identifying environment-related activities where many environmental projects (especially in developing countries) involve trade in EGs alongside trade in ESs. For example, moving towards renewable forms of energy may involve purchasing a wind turbine along with engineering and monitoring services to insure its functioning. This means that dealing with the trade policy commitments necessary to help meet environmental objectives calls for examining measures that affect trade in both goods and in services. This is why in discussions of trade in environmental goods, it is becoming customary to refer to the market for Environmental Goods and Services – EGS (Sauvage, 2014).

[2] Goal 13 is 'Take urgent action to combat climate change and its impacts' and Goal 15 is 'Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss'.

[3] Private-sector standards and regulations are not covered here. Monteiro (2016) maps the range of environment-related provisions in RTAs notified to the WTO. His Figure 1 documents the sharp rise in environmental-related issues since the early 2000s such as environmental governance that go beyond the current WTO negotiation mandate that only deal with Article XX exceptions (and preamble). George (2014) documents trends in environment-related provisions in recent RTAs.

The chapter is exploratory, looking for differences in patterns of trade policy measures across broad categories of goods, distinguishing EGs from non-EGs. Section 2 provides a background on the difficulties encountered in reaching an agreement on boundaries that distinguish EGs and ESs from other goods and other services. Section 3 presents tariffs and NTMs for different lists of EGs and indicators of commitments in ESs for individual ASEAN members and for comparators. Section 4 reports on estimates of the effects of NTMs on the intensity of bilateral trade. Section 5 concludes with a discussion of prospects for making progress at the ASEAN level.

2. Challenges in Identifying Environmental Goods and Services: A Fool's Errand?

Identifying EGs and ESs to which to apply environmentally favourable trade policies has proved elusive. [4] First, there is a legal void in EGs and ESs reflecting power relations in the world trading system. There are no provisions in the WTO legal system related specifically to EGs and ESs except for the application of the most-favoured nation clause and a general interdiction of quantitative restrictions so there is no agreed upon definition of what is an 'environmental good' or an 'environmental service'. In effect, WTO members are free to carry out any environmental policy they wish so long as these policies do not undo the market access they have granted under the General Agreement on Tariffs and Trade (GATT). The result is a 'negative contract' with respect to the environment. Making the trading system compatible with the environmental objectives of the SDGs would call for a 'positive contract' in which countries would agree to trade rules that are favourable to the environment.[5] Moreover, negotiations on removing barriers to trade in goods take place in the GATT and negotiations for Services take place in the General Agreement on Trade in Services (GATS). Second, are the inherent technical difficulties in defining EGs and ESs described below.

2.1. Selecting Environmental Goods

During the Doha Round countries were invited to suggest approaches to reduce protection in 'Environmental Goods' and to suggest approaches that help define a 'universe' of 'Environmental Goods' subject to tariff reductions. Three broad approaches were proposed. The 'request and offer' approach where countries exchange market access bilaterally which is then extended to others on a most-favoured nation basis was proposed by Brazil. Some developing countries perceived this approach as a shield from a formula-based approach. However, tariffs were not sufficiently high amongst the major producers of EGs for reductions to generate significant gains for both sides. The 'integrated project' approach proposed by Argentina and India would select specific projects, which would solve the multiple end-use

[4] The title is inspired by Moore's (2011) discussion of the difficulties in obtaining the necessary convergence in interests to apply border adjustment taxes to prevent carbon leakage between countries pursuing GHG emission reductions at different speeds.

[5] Mavroidis and Melo (2015) discuss needed changes and the legal obstacles that these changes would face under the present rules as e.g. for fuel subsidies and labelling.

problem identified on the left-hand side of Figure 10.1a. No international agreement would then be necessary, but the enhanced market access would be temporary, leaving exporters of EGs under uncertainty.

Finally, under the 'list approach', WTO members would negotiate on a list of products that would receive total or partial tariff reduction. Thirteen countries participated leading to seven lists of HS-6 level products after consolidation of submissions by nine members into a combined list. From ASEAN, Singapore proposed a list of six products and Thailand was the only developing country submitting a list of 17 products. [6] These submissions were collected under an umbrella list that combined 411 unique product submissions (the so-called 'WTO list'). On the WTO list, not a single product appeared on all six lists, and more than two-thirds of the products appeared only on one list. For a 'core' list of 26 products proposed by Australia, Colombia, Hong Kong and Norway, submitters – who were asked to choose their selection from a list of 6 EG categories (Air pollution control; renewable energy; environmental energy; carbon capture and storage; water management/water treatment; other) – displayed little agreement (see Balineau and Melo, 2013: Table 10.1). Yet, the Davos announcement launching the EGA negotiations on a reduction in tariffs also started from a list of 54 goods over which APEC members had agreed to reduce tariffs to 5 percent or less by end 2015. In 2017, 17 countries were participating in the EGA negotiations with no agreement yet on a list of goods, in spite of very little on the negotiation table because of the low level of tariffs amongst most participants.

Figure 10.1a summarises the technical difficulties faced in defining EGs. On the left hand side are Goods for Environmental Management (GEM) that have multiple end-uses. GEM products are mostly industrial, often involved in end-of-pipe activities like waste water treatment and solid-waste management, both of which have strong complementarities with ESs. High-income countries have a comparative advantage in these products. Amendments in the Harmonized System (HS) classification along with product classification based on efficiency Standards would help identification.

[6] Perhaps this submission was elicited by the then chairman, Manuel A.J. Teehankee, of the Committee on Trade and the Environment in Special Session (CTESS), where the deliberations were taking place.

On the right-hand side are the Environmentally Preferable Products (EPPs). These include agricultural and natural resource-based goods in which developing countries have a comparative advantage. Identification of 'environmentally friendly' products is difficult (e.g. attribute disclosure through labelling and third-party certification, life cycle analysis that may call for distinctions according to Processes and Production Methods and likely to be challenged (e.g. interpretation of 'like products' at the WTO). Here government mandated regulatory standards for trade in endangered species and sensitive products, and Voluntary Sustainability Standards for traded commodities like palm oil, timber, and soy are helpful identifiers. Of these identifiers, regulatory standards are reported in the Multi-Agency Support Team (MAST) database but not the proliferation of privately generated VSS. These standards that are important for many EPPs are not covered here. [7] Identification and design of corrective measures are particularly difficult for EPPs as the role of trade in preserving natural resources is controversial, especially in the weak governance environment typical in resource abundant countries (Fischer, 2010). Exploring the NTMs that have been taken to protect the biological diversity in ASEAN, and how it compares with measures elsewhere is important, but beyond the scope of this exploratory investigation.

In sum, mercantilist behaviour pervaded the negotiations on the submission of EG lists in the Doha and EGA negotiations. Products in the submitters' lists included those with high Revealed Comparative Advantage index values and systematically excluded products with tariff peaks.[8] Developing countries did not submit lists, preferring other approaches. This is apparent in the comparison of frequency of sanitary and phytosanitary (SPS) measures in the EG lists compared with those for all products in Table 10.1 (further down): whereas SPS measures (Chapter A of MAST) occupy 41 percent of NTMS for all HS-6 goods, they cover less than 1 percent on all EG lists. One has to conclude that that the EG lists do not represent the perception of EGs by developing countries, a major caveat to keep in mind when interpreting the comparisons below.

[7] Andrew (2017) discusses in detail the limitations that trade puts in implementing SDG 15 and the two approaches (regulatory and Voluntary) to deal with trade in natural resources. He noted that the OECD has catalogued 514 Environmental labelling and information schemes. Fischer and Lyon (2015) discuss the competition over labelling between industry and NGOs (fierce for logging activities) concluding that, amongst the several possible outcomes, a convergence across schemes is quite likely.

[8] Balineau and Melo (2013) show that this selection process was not random (i.e. EG lists submitted had a greater share of products with an RCA>1 and fewer products with tariff peaks than if they had been selected randomly).

Figure 10.1a: Identifying Environmental Good (EGs)

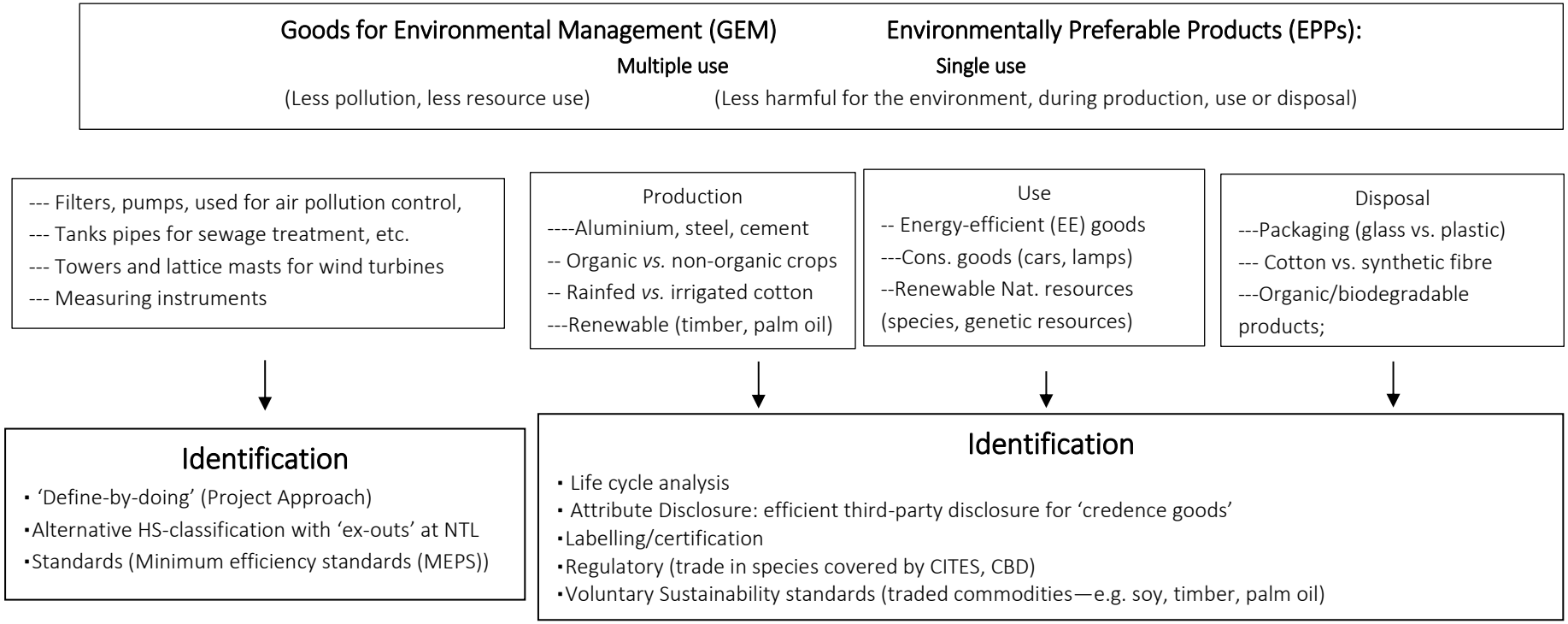
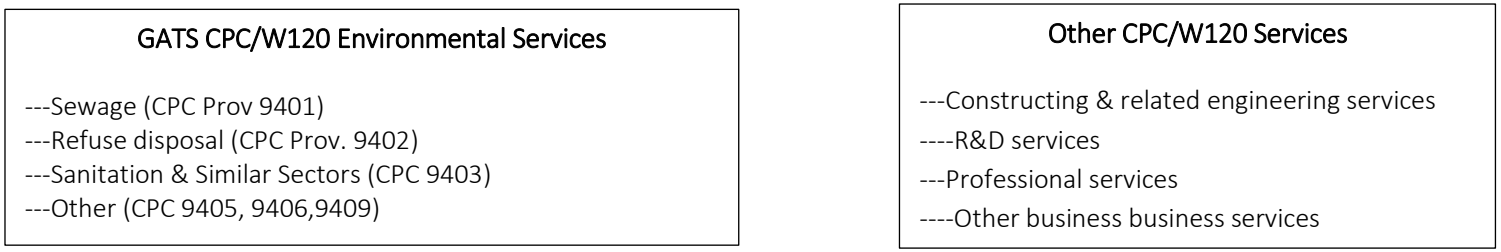


Figure 10.1b: Identifying Environmental Services (ESs)

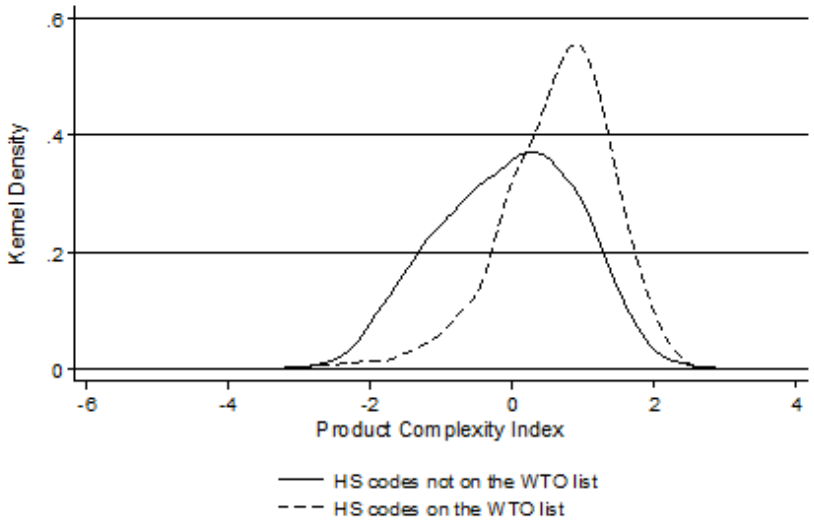


Source: Authors' compilation, based on Balineau and Melo (2011) and Steenblik and Geloso Grosso (2011).

2.2 Recognising the Scope of Services for Environment-related Activities

Figure 10.1b lists Services deemed the most important for trade in EGs with those classified as ESs on the left-hand side and a selection of other important Services relevant for environment-related projects on the right-hand side.[10] The classification is exclusive (i.e. single-purpose) so that no category in this list of sectors can appear twice, i.e. as another Service. As shown on the left-hand side of Figure 10.1b, only four sub-categories have been classified as ESs. As discussed by Steenblik and Geloso Grosso (2011) and others, this classification is outdated, exclusive, and too narrow as it concentrated on end-of-pipe public services focussing on waste management and pollution control. Crucially, the classification fails to recognise the increasing 'servicification' of manufacturing, that is, it fails to take into account that many operators integrate the supply of ESs with imports of EGs so that the customer would not demand the good without the accompanying services. The right-hand side of Figure 10.1b displays some other Services deemed crucial in the execution of environmental projects (section 3.3 reports an ordinal index of environmental services liberalisation based on the two lists in Figure 10.1b).

Figure 10.2: Environmental Goods have Higher Complexity



HS = Harmonized System; WTO = World trade Organization.
Notes: Environmental products are from the WTO combined list (411 products). Kernel density is a non-parametric method for smoothing probably density functions.
Source: Authors' calculations, based on the data obtained from Atlas of Economic complexity available at http://atlas.media.mit.edu/en/

[10] Drawn up in 1990 for GATS negotiations of the Uruguay Round, the list resulted in 155 sectors. This list is used in the current negotiations for a Trade in Service Agreement (TiSA) aiming to open up markets and improve rules governing trade in services.

EGs and ESs are complements and, for many multiple-use products, technologically sophisticated. This is confirmed by several measures of technological complexity including the continuous economic complexity measure developed by Hidalgo and Hausmann (2009), which allows comparisons of goods in different classifications. The normalised density function for this indicator is shown in Figure 10.2 for EGs and non-EGs using the WTO list (products are classified from least to most complex).[11] The distribution for EGs is to the right, an indication that the selection process resulting in the EG lists led to a selection of goods that are more complex. This result, which also holds for the other EG lists, reflects three aspects. First, EGs are mostly intermediate goods in the production process. Second, EGs embody a high degree of 'servicification'. And, perhaps most importantly, the EG lists do not include EGs with relatively little transformation like EPPs in which developing countries have a comparative advantage.

2.3 Case Study on Identifying EGs and ESs to Promote Energy efficiency

Energy efficiency (EE), long considered the 'low-hanging fruit' in mitigation efforts dealing with climate change, illustrates well the identification difficulties discussed here. On the EG side, EE gains can be achieved by TBTs – minimum energy performance standards (MEPS), comparative labels – and complementary trade liberalisation. On the ES side, gains can be obtained by engineering and EE audits that lead to an improvement in the functioning of the 'energy system' (more efficient motors and drives could save 10 percent of global energy consumption). [12]

[11] The starting point is that a country's production potential resides in its non-tradable 'capabilities' (regulations, property rights, infrastructure) based on product characteristics. The identifying assumption is that a country's capabilities can be approximated by an outcome-based measure captured by the network of a country's exports. A country produces economically complex products if the bundle is only exported by a few countries that export a large number of these products. Klotz et al. (2016) critique this outcome-based measure. At the same time, they also showed that this continuous measure is closely associated with other discrete product categories of technological complexity devised by the OECD, WTO, UNCTAD, and the BEC.

[12] According to the Intergovernmental Panel on Climate Change (IPPC), improvements in energy efficiency are estimated to account for 38 percent of the CO2 emissions reductions necessary to reach the +20 C target set at the Paris Agreement.

In his discussion of difficulties facing the identification of EGs for tariff and NTM liberalisation, Sugathan (2015) mentions that one must include both energy-efficient and energy-saving related goods that he classifies in five groups, the easiest (tier 1) being those, like light-emitting diodes (LEDs, HS- 854140) that are already identified in the HS-6 code. Next come those that can be categorised as 'ex-outs' like solar water heaters (HS- 841919), then those that have multiple end-use like monitoring and control equipment such as switchboard and control panels (HS-8543710-20).[13] The most problematic EGs to classify (tier 5 products) are the energy efficient products that are not physically distinguishable as relevant to EE, but which perform in a more energy-efficient manner than identical products with the same end use. Such products would be identifiable only on the basis of labeling or if accompanied by (preferably third-party) certification declaring that they conform to a specific MEPS.

WTO members may lower their applied tariffs on any products that meet a certain MEPS. However, such minimum thresholds could vary from country to country. One option that could be considered is to bind import tariffs at zero for the highest efficiency classes of products whenever they emerge and for which international standards exist by creating a special 'ex-out' category under the relevant HS6-digit product sub-heading. Good candidates in this regard are energy efficient motors for which efficiency classes have already been drawn up by the International Electrotechnical Commission. [14]

Many countries apply MEPS based on these IEC standards. The advantage of keeping import tariffs at zero for the highest efficiency motors (regardless of the tariff levels for less efficient motors) is that it would lower the market price and encourage diffusion of a technology that can have a direct impact on energy consumption and thereby GHG emission levels in the manufacturing sector. Another option for Tier 5 products would be to apply zero duty for energy efficient products as long as the product meets the domestic MEPS of the importing country, even if it does not meet the requirements of an international standard or if a commonly accepted international standard does not exist. However, because of the overall low level of applied tariffs in EGs (see below), the scope for efficiency gains are likely to be low even after contemplating a move from applied to bound tariff rates.

3. Trade-related Measures for EGs and ESs in ASEAN: A Comparative Perspective

We start with a brief description of the tariff landscape, as tariffs are simplest to interpret and have been the subject of negotiations, then move on to NTMs and proxy measures for ESs. The same graphical presentation is used to compare tariff measures and indicators of NTMs.

[13] Spare parts relevant for the efficient functioning of EE goods even though they may have other uses than EE contexts would also fall under that group. Planned amendments to the HS (to be implemented in 2017) include the creation of separate HS-6 digit sub-headings for (a) LED lamps and (b) hybrid, plug-in hybrid and all-electric vehicles.

[14] An ISO-classified product category is recognised by the GATT (see Mavroidis and Melo 2015).

In each figure, for each country (or each country grouping), the average for the selected EG category is represented on the vertical axis against the corresponding average for the non-EG group on the horizontal axis. This choice of labelling means that all points below (above) the 45° line means that the country's trade policy measure is, on average, lower (higher) for EGs than for non-EGs. These measures are reported for each ASEAN member (where available), the average for the ASEAN group and for the EGA group. Averages are also reported for the three World Bank country groupings to which ASEAN members belong: Lower Middle Income countries (LMICs), Upper Middle Income countries (UMICs) and ASEAN. At times comparisons are carried out with two restricted 'core' lists drawn the OECD's Combined List of 248 Environmental Goods (CLEG). For these two restricted lists (Core CLEG of 11 products and core CLEG+ of 40 products), OECD staff have been able to ascertain that 2/3 (for the Core CLEG) and 1/3 (for the Core CLEG+) of all trade in these products is related to the environment (Sauvage 2014, Annex 1 gives the list of all OECD lists and the corresponding HS-8 code).

3.1 A Comparison of Applied Tariffs for EGs across countries groups of countries

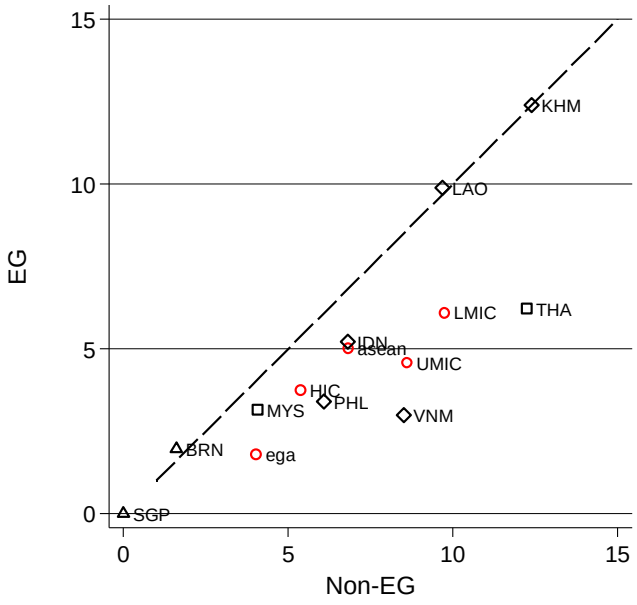
Figure 10.3 compares average tariff rates for EGs and non-EGs for the WTO list (the corresponding values for the WTO and for the core CLEG+ lists are given in Table 10.1). On average, ASEAN members apply a tariff of about 5 percent for EGs and about 7 percent for non-EGs. On average, EGs are less taxed than non-environmental goods. Amongst ASEAN members, with the exception of Cambodia, Brunei Darussalam, and Lao PDR that are on the 45° line, all ASEAN countries lay below the 45° line. The figure also displays three patterns. First, the ranking of average tariff by income category group follows the per capita income ranking – lowest for HICs, highest for LMICs – and for each group the average tariff on EGs is lower than for non-EGs. Since the share of intermediates in EGs is higher than in non-EGs, one would expect that the desire to protect final goods in an industrialisation strategy and the counter-lobbying activities of downstream sectors would account for the lower average protection of EGs relative to non-EGs. It could also be because countries take the environment seriously but this is unlikely from an examination of the pattern tariff changes across these two categories of goods over the last 20 years.[15] Second, the greater disparity in tariff rates for LMIC and UMIC groups (relative to the High-Income Group (HIC) group) carries over to the comparisons for the EG and non-EG averages.[16] Third, there is little difference in patterns between the two lists.

[15] Balineau and Melo (2013) do not detect any differences in rates of (applied) tariff reductions between EGs and non-EGs groups over the period 1997–2011 across countries.

[16] For the LMIC group the average tariff for EGs is (6 percent) and for non-EGs (9.5 percent).

Also, as expected, trade-weighted average values are closer to the origin (see Figure 10.A1 in Appendix). Not controlling for other determinants of import volumes, import volumes for more highly taxed products are lower so that using a trade-weighted average lowers the weight on high tariff products, resulting in lower averages. Overall, the move toward the origin is stronger for the non-EGs than for the EGs, suggesting a higher price elasticity for non-EGs. This is consistent with the evidence highlighted above about the complexity of the EG and the general observation that many EGs are intermediates which are less responsive to price. A higher proportion of countries and aggregates are now above the 45° line. On a trade-weighted basis, the Philippines, Cambodia, and Lao PDR have higher tariffs on EGs than on non-EG.[17] Finally, should the ASEAN contemplate removing tariffs on EGs, they would want to choose a list more representative of EGs in ASEAN than the WTO list. If the WTO list (or the OECD core CLEG list) were to be chosen as a starting point for negotiations, the average tariff would be about twice as high for the ASEAN group as for the EGA group. Greater gains might be expected from a successful negotiation. Also, one would expect greater frictions during the negotiations.

Figure 10.3: Applied Tariffs: EGs vs. non-EGs
(WTO list 411 products)



EG = Environmental Goods; WTO = World Trade Organization.
Note: Averages for groups are simple averages: LICs: Low-income group GNI p.c. (in 2015 $ atlas method <$1,025: LMIC (lower-middle income): 1,026 < GNI p.c. < 4,035; UMIC: 4,036 < GNI p.c. < 12,475; HIC GNI p.c. >12,475: EGA: Diamond (◊) LMIC (□) for UMIC and (Δ) for HIC.
Source: Author's calculations, based on COMTRADE and WTO data.

[17] For countries with tariffs defined at the national tariff line level (HS-8 level or more), one should take into account aggregation to the HS6 level. For example, on average the 14 initial members of the EGA negotiations have 118 tariff lines on the EG list at the HS-6 level. (See Melo and Vijil, 2014).

3.2 The Landscape of Non-Tariff Measures

The selection process for EGs indicates goods that are technologically complex, an additional justification for information-revealing NTMs. If so, one might expect more NTMs for EGs than non-EGs. The same comparisons between EGs and non-EGs are now carried out mainly focussing on the principal MAST Chapter A (SPS), Chapter B (TBT) and Chapter P (export measures) using three indices:

The frequency index, F, gives the number of transactions covered by NTMs. It is defined as follows:

$$F_{ig} = \frac{\sum_{j=0}^{G} NTM_{ij} M_{ij}}{\sum_{j=0}^{G} M_{ij}} \tag{10.1}$$

where g indexes products groups (EG and non-EG), i indexes countries and G is the total number of goods in the category. NTM_{ij} is a dummy taking one when any NTM is applied to imports of good j. M_{ij} is a dummy indicating that product j is imported by country i.

The coverage index, C, gives the share of imports covered by NTMs:

$$C_{ig} = \frac{\sum_{j=0}^{G} NTM_{ij} V_{ij}}{\sum_{j=0}^{G} V_{ij}} \tag{10.2}$$

where V_{ij} is the value of imports of good j in country i. All other indices and variables remain the same as for the frequency index.

The pervasiveness index, P, measures the prevalence of NTMs by replacing the dummy variable in the frequency index by a count variable of NTMs affecting each HS-6 product:

$$P_{ig} = \frac{\sum_{j=0}^{G} \#NTM_{ij} M_{ij}}{\sum_{j=0}^{G} M_{ij}} \tag{10.3}$$

where $\#NTM_{ij}$ is the number of NTMs affecting product j in country i. All other indices and variables remain the same as above. Both frequency and coverage indices are constrained between 0 and 1, but not the pervasiveness index. A higher pervasiveness index value indicates that the country in question resorts more intensively to the use of that category of NTM.

Differences (or non-convergence) in regulatory frameworks for EGs is also important in assessing prospects for reform. Information on regulatory divergence is of particular relevance as, more than the regulation itself, it is often the diversity of regulations across jurisdictions that act as a barrier to trade.

Calculating standardised numbers of product- type NTMs combinations applied identically by any two countries provides a measure of regulatory divergence. Cadot et al. (2015) propose a measure of regulatory distance, RD, between country i and j is computed as:

$$RD_{ij} = \frac{1}{N}\sum_{k}\sum_{z}\left|NTM_{ik}^{z} - NTM_{jk}^{z}\right| \qquad (10.4)$$

As before, NTM_{ik}^{z} takes the value 1 when the country imposes a NTM of type z on product k, and zero otherwise; and N denotes the number of observations where at least one of the two countries applies the NTM on a good on the EG list. In practical terms, regulatory distance indicates the percentage of NTMs-product combinations that are not equal across two countries. Because RD is normalised by the grand-total of product–NTM combinations (813 in our sample), the bilateral index values lie between zero and one.[18] The lower the value of the index, the more similar is the regulatory framework of two countries. In Figure 10.7 below, regulatory convergence is defined as $1 - RD$, so a higher value indicates a more similar regulatory structure.

Most products traded today are covered by one NTM measure or another. ASEAN is no exception as only four members do not have a full coverage ratio.[19] Table 10.1 gives the count and distribution of NTMs by MAST category at the ASEAN level for all goods and for three lists of EGs. Four patterns stand out. Over all products, SPS, TBT, and export measures account for 86 percent of the count. Second, whichever EG list is elected, the count on SPS measures is negligible, particularly so for the two OECD lists a reflection of the non-participation of developing countries in the submission of products for inclusion on EG lists. Third, the share of export measures (P) is higher for the WTO list than for the OECD lists. Fourth, there is very little difference in the MAST shares between the two OECD lists.

[18] The index ranges from 0.002 between Côte d'Ivoire and Senegal and 0.563 between China and the US for the WO list of EG.

[19] Ing et al. (2016: Table 2.1) show that NTM coverage ratios (i.e. traded products covered by one NTM or another) in ASEAN are less than 100 percent (simple average in parentheses) in 2015 for the following members: Brunei Darussalam (65 percent), Indonesia (75 percent), Malaysia (71 percent) and Myanmar (42 percent).

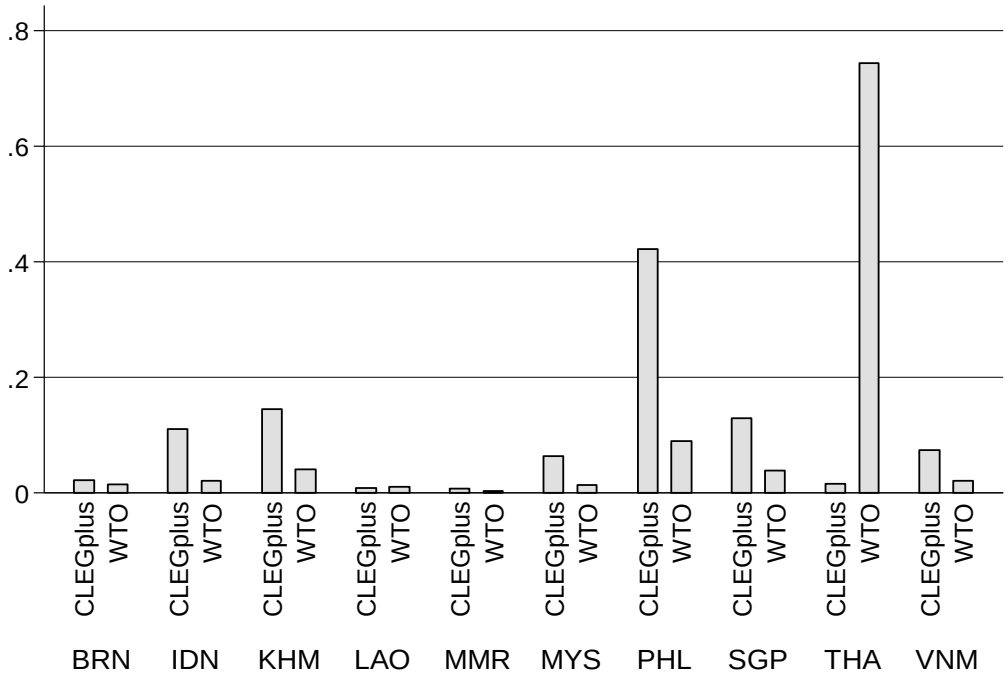
Table 10.1 : NTMs by type in ASEAN: All Products and EGs

	All products		WTO list		CLEG+ list		CLEG list	
Chapter	Count	%	Count	%	Count	%	Count	%
A	651,126	41.80	358	0.73	2	0.07	1	0.11
B	489,781	31.44	29,107	59.28	687	24.78	317	33.65
C	70,393	4.51	868	1.77	83	2.99	28	2.97
D	479	0.03	1	0.00	1	0.04	0	0
E	23,528	1.51	989	2.01	80	2.89	22	2.34
F	63,495	4.07	3,740	7.62	396	14.29	119	12.63
G	5,957	0.38	406	0.83	43	1.55	11	1.17
H	58,876	3.77	3,938	8.02	444	16.02	122	12.95
J	77	0.01	3	0.01	0	0	0	0
P	193,964	12.45	9,693	19.74	1,036	37.37	322	34.18
All	**1,557,676**	**100**	**49,103**	**100**	**2,722**	**100**	**942**	**100**

ASEAN = Association of Southeast Asian Nations; WTO = World Trade Organization; CLEG+ = Extended Core Combined List of Environmental Goods; CLEG = Core Combined List of Environmental Goods.
Notes: See text for definition of product lists. Count is for all measures at the HS6- level (5300+ products).
Source: Authors' calculations, based on ERIA–UNCTAD NTM database http://asean-itip.org

Figure 10.4 shows that the distribution of measures across countries is very sensitive to the choice of list. For the WTO list, the TBT measures are concentrated in Thailand while with the CLEG+ list the measures are more heavily concentrated on the Philippines. Because of these distributional differences in NTMs across lists, section 4 regressions are carried out with two lists: WTO and CLEG+. Except for the observation that SPS measures are under-represented across EG lists, no clear differences emerge between EGs and non-EGs when taking a count approach to comparing the distribution of measures.

Figure 10.4: Share of TBT (B) Measures in CLEG+ and WTO Lists



TBT = technical barriers to trade; CLEGplus = Extended Core Combined List of Environmental Goods; WTO = World Trade Organization.
Source: Authors' calculations, based on ERIA–UNCTAD NTM database http://asean-itip.org

Figure 10.5 compares the frequency (F), Coverage (C), and Pervasiveness (P) indices for NTMs presented in equations (10.1)–(10.3) for all the categories in the MAST classification except for export measures (P). As in Figure 10.3, index values for EGs (non-EGs) are reported on the vertical (horizontal) axis. Several patterns stand out. First, there is no EG specificity. With few exceptions, all values are bunched around the 45° line suggesting no specificity for EGs. Second, averages over the ASEAN and EGA negotiations groups are close, especially for the Frequency and coverage indices. As expected, the averages by income group show the highest frequency and coverage values for the HIC group though, somewhat surprisingly, the UMIC average is lower than the LMIC. Because of the relatively small sample size, one cannot exclude that these simple average values are dominated by outliers.

Figure 10.5: The Landscape of NTMs: Indices EGs. vs. non-EGs

Figure 10.5a: Frequency indices

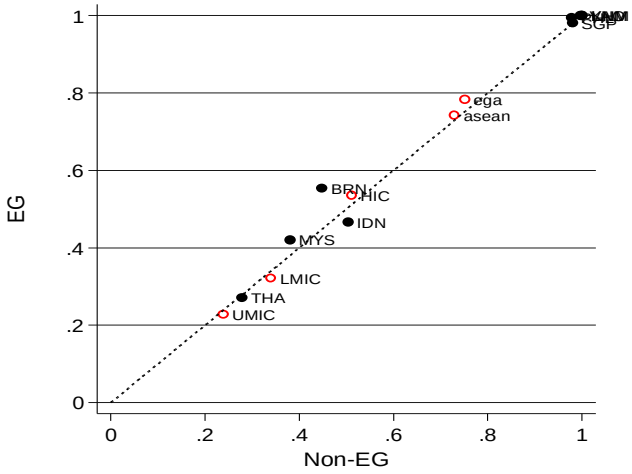


Figure 10.5b: Coverage indices

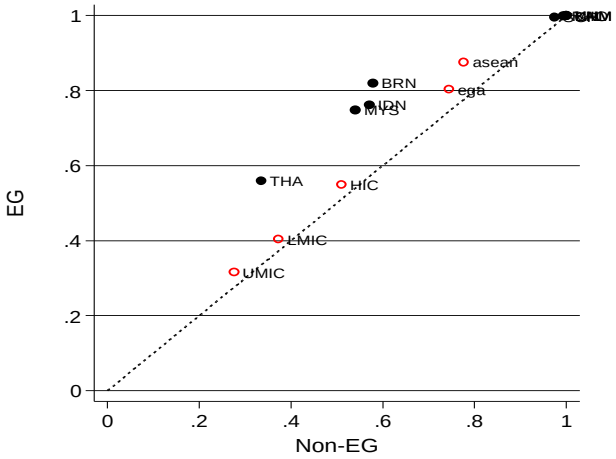
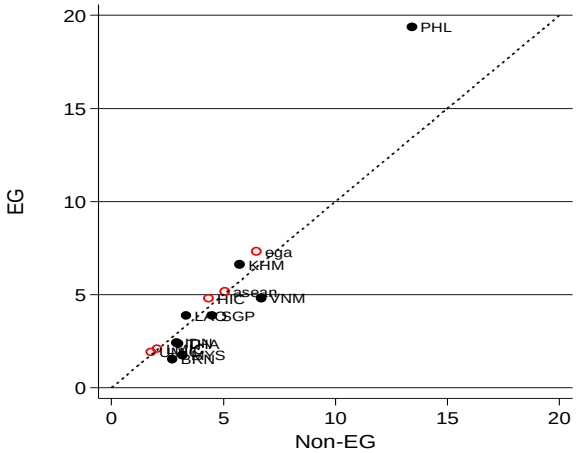


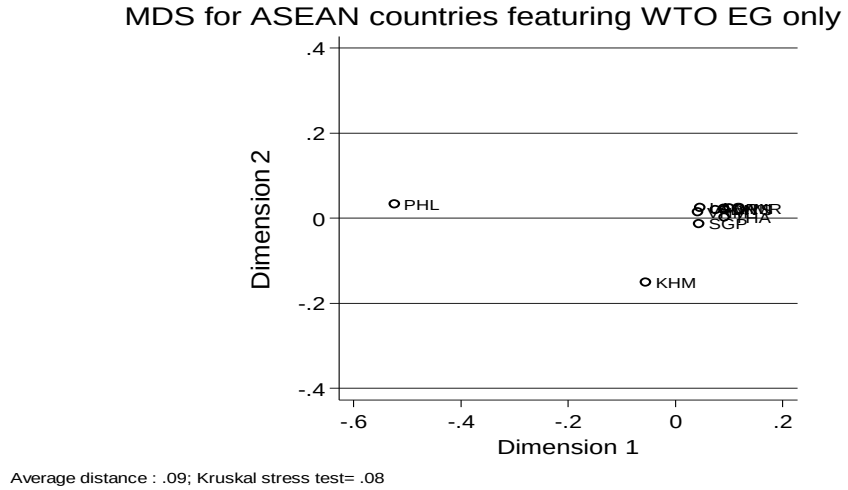
Figure 10.5c: Pervasiveness indices



NTM = non-tariff measure; EG = Environmental Goods.
Notes: Average values for indices for all HS-6 products calculated over all MAST classification Chapters: WTO list.
Source: Authors' calculations, based on ERIA–UNCTAD NTM database http://asean-itip.org

Looking at patterns across ASEAN members, coverage ratios for EGs are higher than for non-EGs for Malaysia and Brunei Darussalam, perhaps an indication that NTMs are directed towards preserving the environment. The Philippines is clearly an outlier on the Pervasiveness scale and the 100 percent coverage ratios for six countries noted earlier is confirmed in the bunching of P and C values at unity.[20] Overall no clear country pattern of the intensity of regulation emerges from this first look at the data.

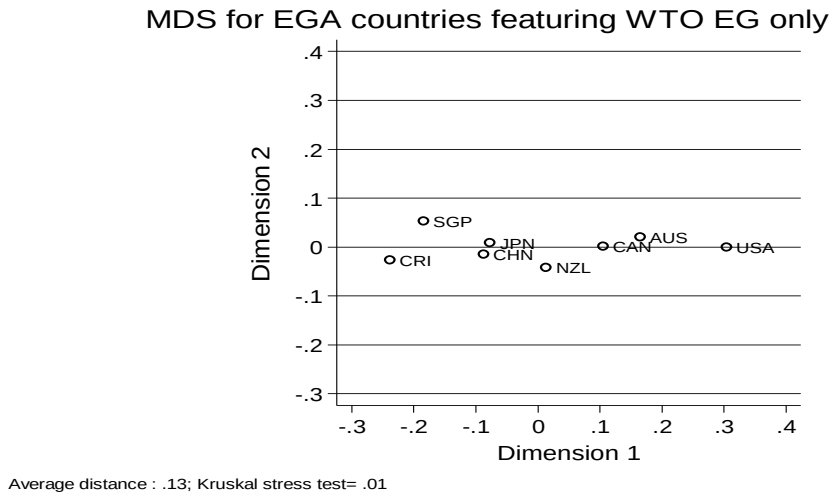
Figure 10.6a: Regulatory Distance in EGs for NTM on EGs ASEAN Group



EG(s) = Environmental Good(s); NTM = non-tariff measures; ASEAN = Association of Southeast Asian Nations; MDS = Multidimensional Scaling; WTO = World trade Organization.
Source: Authors' calculations, based on ERIA–UNCTAD NTM database http://asean-itip.org

[20] The Philippines uses the 8-digit ASEAN Harmonized Tariff Nomenclature with 9,820 tariff lines, all affected by NTMs. De Dios (2016, Table 9.1) reports that 37 agencies issue NTMs.

Figure 10.6b: Regulatory Distance in EGs for NTMs on EGs EGA group



EG(s) = Environmental Good(s); NTM = non-tariff measure; ASEAN = Association of Southeast Asian Nations; MDS = Multidimensional Scaling; WTO = World Trade Organization.
Notes: Distance calculated for goods on the WTO list.
Source: Authors' calculations, based on ERIA–UNCTAD NTM database http://asean-itip.org

Trade and regulatory policies can be complementary, but achieving this complementarity can be difficult as policy choices are torn between the desire to reap economies of scale (wished by multinationals) and the endless appetite for greater product diversity (wished by consumers), which is possible thanks to the widespread technical progress of recent years. This tension is reflected in a trade-off between a push for regulatory harmonisation and a move towards mutual equivalence (or towards the weaker form of mutual recognition). Figures 10.6 and 10.7 plot rough measures of regulatory similarity for EGs across ASEAN and between individual ASEAN members and the United States (US) and the European Union (EU), two key partners for ASEAN members. These measures can be informative of the likely costs of harmonisation and diversity in consumer preferences.

Figure 10.6 uses multidimensional scaling (MDS) to reduce the dimensionality of regulatory distance in equation (10.4) across trading partners to a two-dimension plane[21] to estimate the regulatory distance of NTMs for EGs on the WTO list. Figure 10.6a reports those for ASEAN and Figure 10.6b those for the EGA. As discussed in Cadot et al. (2015) and Knebel and Peters (2017), a greater distance between two points suggests a more disparate regulatory landscape across countries for the selected products. In Figure 10.6a, the cluster shows that, with the exception of Cambodia and the Philippines, which lay far from the centre of mass of countries, ASEAN forms a relatively homogeneous group. In the spirit of Cadot et al., this plot can be used to flag 'problem areas' for further scrutiny.

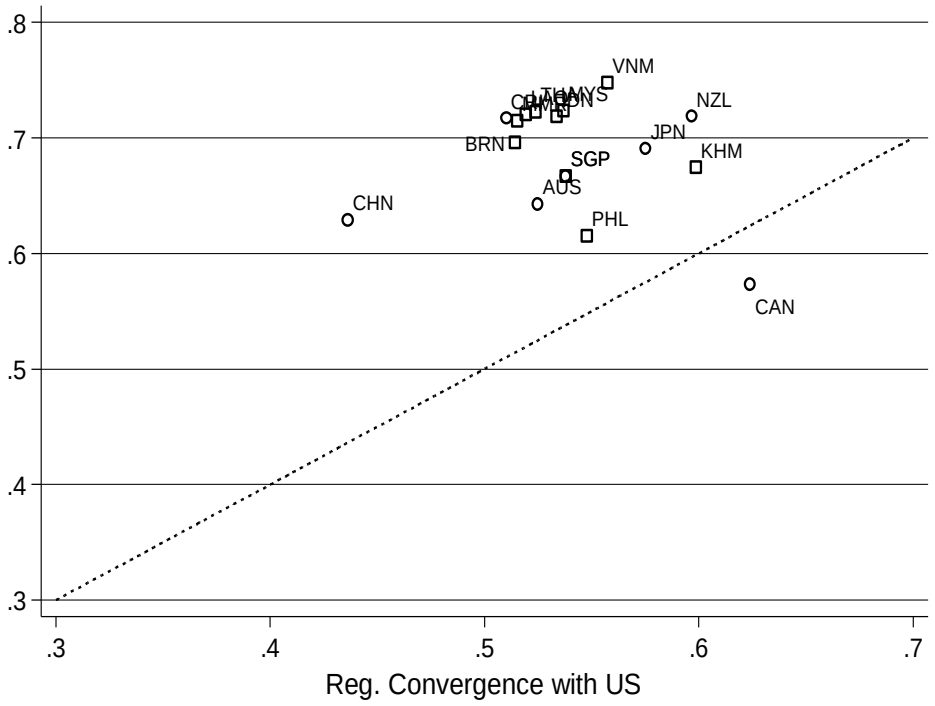
[21] With N countries bilateral comparisons would require an (N-1) plane. The formula for the two-dimensional plane and the formula for the Krusall index are given in the appendix of Cadot et al. (2015).

Then the figure suggests that the Philippines and Cambodia are likely to have a different regulatory structure as its pervasiveness index, markedly higher in the case of EGs on the WTO list, suggests a wider use of NTM than the rest of ASEAN on those products (or perhaps this indicates data quality issues in the reporting of NTMs).[22]

Figure 10.6b displays the same information for countries engaged in the EGA negotiations. We see that there is less regulatory convergence between EGA members than between ASEAN members as the average regulatory distance for EGs amongst ASEAN is 0.09 while it is 0.13 amongst EGA members.[23] On the assumption that the quality of data is approximately the same for EGA and ASEAN, ASEAN members may have less difficulty to engage reforms of environmental measures at the regional level.

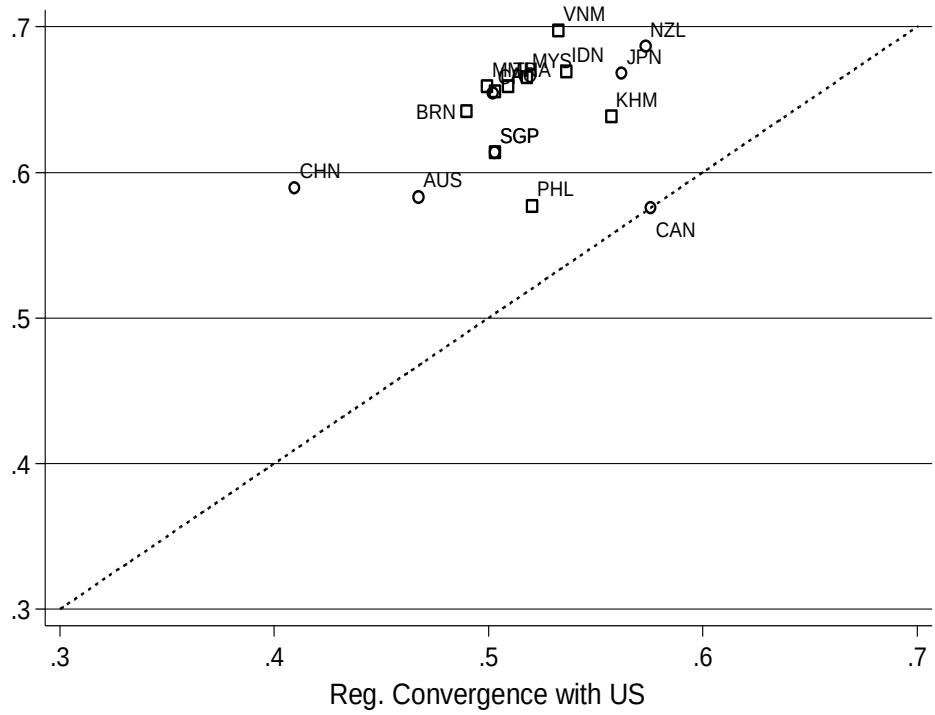
Figure 10.7: Regulatory Convergence relative to European Union (EU) and United States (US)

Figure 10.7a: WTO List



[22] Sotharith et al. (2016: 63) mention that official websites are only in Khmer language and are often outdated. De Dios (2016: Table 9.1) notes a long list of shortcomings in the inventory of the Philippines's NTMs (incomplete, validity), making it difficult to use these indices for comparisons across countries.
[23] The same pattern holds with the core and core CLEG+ list.

Figure 10.7b: CLEG+ List



WTO : World Trade Organisation's list (411 products). CLEG+ : Extended Core Combined List of Environmental Goods (40 products)
Note: □ : Environmental Goods Agreement (EGA) participants; o : Association of Southeast Asian Nations (ASEAN) members.
A higher value indicates a closer regulatory environment.
Source: Authors' calculations, based on ERIA–UNCTAD NTM database http://asean-itip.org

Figure 10.7 displays regulatory convergence relative to the EU and the US for the WTO and CLEG+ lists of environmental goods. Except for Canada, all countries are closer to the EU than to the US. This pattern appears for both EGA and ASEAN and for both EG lists under scrutiny. This may indicate that the EU uses a wider range of NTM than the US, which may reflect the political economy of the choice of regulations in both environments. In the US, compromises are only made at the national level while in the EU compromises must be reached across all states. This may result in a larger number of regulations in the EU.

3.3 Indicators of Barriers to Trade in Environmental Services

Indicators of the restrictiveness of environmental regulations and of barriers to trade in ESs are highly desirable because of the complementarity of trade in EGs and ESs (who would purchase sewage or air-cleaning services absent an environmental regulation?).[24]

But the necessary information to cover the broad range of EGs is often not available and, when proxies are available, hard to interpret. First, most services are of a 'change effecting' nature as they change the conditions of the consuming units (e.g. remediation and clean-up of soil and water) and the policy barriers (mostly regulations) are opaque, behind the border as most services do not pass through customs for registration. Third, trade data are only available for few categories of services (up to 12 categories) and few countries (mostly OECD) to infer trade costs in services from observed trade patterns.[25]

These indicators of trade costs do not capture the level of detail in the Environmental Services listed in Figure 10.1b nor do they distinguish between Services intensive for trade in EGs from those intensive for trade in non-EGs. For EGs, the complementarities are mostly mode 3 commercial presence (establishing a subsidiary to provide environmental consulting and services locally) and mode 4 temporary presence of natural persons (experts in a particular environmental domain travel abroad for training or repair).[26]

Restrictions on the ability of firms to invest and operate in country as a foreign entity hinges on a wide range of restrictions (e.g. foreign equity limits, restrictions on legal form, complex visa procedures for work permits) that do not directly target ESs but that may be very costly for trade in EGs because of the complementarities between ESs and EGs.[27] Sauvage and Timiliotis (2017, pp.10–11) provide several examples of restrictions including some in ASEAN members. For the Philippines, the constitution limits foreign participation to 40 percent and Singapore reaffirmed its right during the TPP negotiations to adopt or maintain any measure affecting waste water management.

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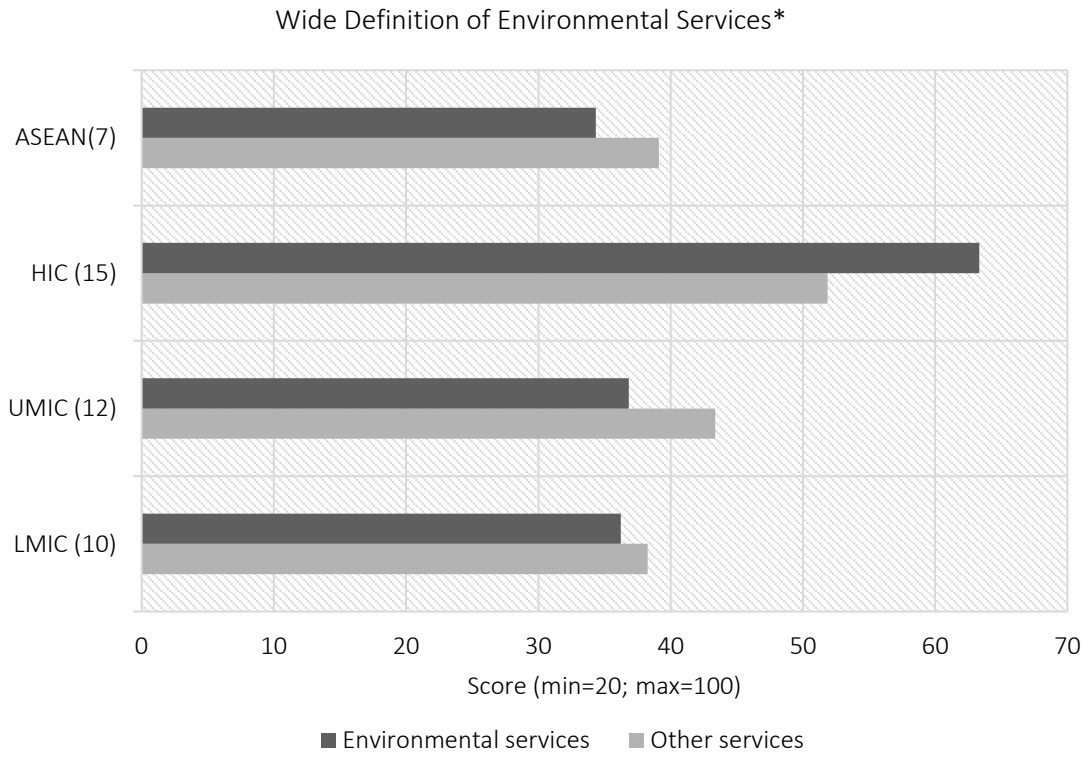
[24] Sauvage (2014) shows a strong positive relation between a country's share of world export share of EGs in the power sector and air pollution control with a composite indicator of the overall restrictiveness of environmental policies and negative impact of tariffs on imports of EGs (controlling for regulatory stringency). These results are confirmed in case studies of municipal solid waste management and waste water treatment. Drawing on a list of 248 EGs of the OECD (the 'CLEG' list), Sauvage and Timiiliotis (2017) further assess a positive correlation of Revealed Comparative Advantage indices (RCAs) for this EG list with the OECD Services Trade Restrictiveness Index (STRI) for environmental policies available for 56 countries.

[25] Miroudot et al. (2013) and Anderson et al. (2015) calibrate a gravity model to trade in these broad categories of services. Both estimate that barriers to trade in services are a multiple of those derived for trade in goods using the same approach and that they have fallen unevenly over the last 15 years.

[26] The gravity estimates of trade costs mentioned above rely on balance of payments data that cover mode 1 (cross-border) and mode 2 (consumption abroad) services. The OECD STRI composite index capturing restriction to trade in Services is comprehensive, covering 22 services sectors for 44 countries but does not apply to core ESs (see Sauvage and Timiliotis, 2017, technical appendix).

[27] Local-content requirements have been increasingly used as a pre-condition for accessing financial support in feed-in tariff programmes in at least 21 countries since 2009, leading to several WTO disputes (see Prag, 2017, Box 10.3)

Figure 10.8: GATS Score Commitments for Environmental Services and other (Environmental-related) Services



Notes: Number of countries in parenthesis. Scores based on the qualitative Environmental Services Liberalization (ESL) index in Melo and Vijil (2014, Annex 2). A higher score means greater market access, closer to national Treatment. The ESL index is inspired from Miroudot et al. (2010). See Melo and Vijil (2014, Annexes 1 and 2) for the derivation and choice of weights.
* The wide definition includes both those sectors identified on the left-hand and right-hand sides of Figure 10.1a. Similar patterns emerge with the narrow definition of ESs.
ASEAN sample includes Brunei Darussalam, Indonesia, Malaysia, Singapore, Thailand, Viet Nam and the Philippines
Source: Authors' calculations, based on Melo and Vijil (2016, Figure 1).

In the case of Indonesia, Presidential Regulation No. 39 places a 55 percent limit on the share of equity that can be detained in companies providing certain services in consulting and engineering with managers being locally licensed professionals. In Viet Nam, sewage services are often provided by public monopolies or are delegated to private operators with exclusive rights.

Some of these restrictions can be captured by an ordinal index coding these regulations that were reflected in commitments for market access and for national treatment that countries made at the GATS. The result is the Environmental Service Liberalization (ESL) index reported in Figure 10.8. ESL values compare the average commitment scores on ESs with those on non-ESs categories.[28]

Like bound tariffs, the values of these indexes are an inaccurate indicator of applied Services policies as countries often go beyond commitments at the GATS when formulating their regulation in Services activities. Three patterns stand out. First, scores are very close for both categories of ESs, an indication that commitments varied little across a broad range of Services (to save space, only the wide definition scores are reported). Second, as in the case of goods, GATS commitments have been the greatest for the HICs, the only group that made relatively greater commitments for ESs than for other Services. Finally, as a group, ASEAN has a very similar score with those for the LMIC and UMIC groups.

This review comparing trade measures for EGs and non-EGs reveal few clear patterns beyond the generally lower average applied tariffs for EGs than non-EGs for reasons noted above. ASEAN countries, like the corresponding averages for their respective income categories, display similar patterns for EGs and non-EGs. Similar remarks apply to comparisons indicators of barriers to trade in services.

4. Probing Environmental Goods Specificities in Trade Patterns

Increasing trade in EGs was – and continues to be – the objective of the negotiations described in the introduction. The political process and the technical difficulties in defining EGs cast doubts on the informational content of the lists. On the other hand, the comparisons of trade measures, NTMs and tariffs on the lists revealed few robust differences between EGs and non-EGs and across countries. The question then, is whether one can hope to detect any effect of these trade instruments on trade patterns. Estimates below address this issue.

4.1 Models and sample

We use a gravity model to check whether the impact of NTM is different for environmental goods. We estimate the following models:

$$\ln(imports_{odtp}) = NTM_{odtp} + \gamma_{otp} + \gamma_{dtp} + \gamma_{odp} + \mu_{odtp} \quad (10.5)$$

$$\ln(imports_{odtp}) = NTM_{odtp} + NTM_{odtp} * list_p + \gamma_{otp} + \gamma_{dtp} + \gamma_{odp} + \mu_{odtp} \quad (10.6)$$

[28] The ESL is constructed from an observation rule applied to the commitments made under the GATS by Services sectors, sub-sectors and mode of supply. Commitments are either 'full' (no limitation), 'partial' (some limitations), or 'unbound' (no commitment) with partial commitments further differentiated and classified into various limitations related to market access and national treatment. Melo and Vijil (2014: Appendices 1 and 2) describe the typology and weights used in the ESL index, which is based on Miroudot et al. (2010).

$$\ln(imports_{odtp}) = NTM_{odtp} + NTM_{odtp} * ASEAN_d + \gamma_{otp} + \gamma_{dtp} + \gamma_{odp} + \mu_{odtp} \quad (10.7)$$

where o indexes origin country, d destination country, t year, and p products at the 6-digit HS level. All three specifications have three sets of fixed effects: γ_{otp}, controls for omitted variables that influence product p in origin country, o, in time t like export taxes; γ_{dtp}, controls for omitted variables that influence product p in destination country, d, in time t like most-favoured nation; and γ_{odp} controls for time-invariant omitted variables that affect bilateral trade (distance, common language, bilateral tariffs, etc.). This set of dummy variables is necessary to obtain theory-consistent estimates.[29] Three dummy variables allow us to isolate any NTM or ASEAN specificity in the trade flows, having controlled on time-invariant bilateral product-specific omitted variables time-varying omitted variables in origin and destination countries. NTM_{odtp} a dummy indicating the presence of an NTM on the import of product p from origin country, o to destination country, d. Variable $list_p$ is a dummy indicating that product p is on one of two EG lists: The WTO list of 411 products and core CLEG+ list of 40 products for which the OECD has verified that at least 1/3 of trade is for environmental purposes. $ASEAN_d$ indicates that the destination country is a member of ASEAN. μ_{odtp} is an error term. The terms $NTM_{odtp} * list_p$, $NTM_{odtp} * ASEAN_d$ and represent interactions between the dummies presented above.

To be able to fully interpret the coefficients on these interactions, we would need to introduce in equations (10.5)–(10.7) the relevant dummies $list_p$ and $ASEAN_d$ without interaction. However, this is not possible because those dummies are collinear with the fixed effects required by the gravity specification. Our model is nevertheless sufficient for our purpose which is to highlight a possible significant difference between the impact of NTMs on EGs and on ASEAN countries from the corresponding impacts on non-EGs and non-ASEAN countries.

Estimation is over the entire NTM database. Two sets of estimates were carried out: yearly over the period 2010–2014 and every three years over the period 2004–2014 (3- or 5-year intervals are recommended for panel estimates of gravity models (Baier and Bergstand, 2007). Even though the NTM database which only refers to public sector NTMs gives the date of entry of new estimates, there is little information on the removal of existing NTMs so it is not possible to go beyond exploring a snapshot of NTMs at a specific date. In any case, both samples returned quasi-identical set of estimates so we only report results from the 2010–2014 sample in Table 10.2.

[29] See Baldwin and Taglioni (2006) or Head and Mayer (2015).

4.2 Results

Table 10.2 reports the results from estimating equations (10.5-10.7). Column (1) introduces only the NTM dummy (results from estimating equation 10.5). Columns (2) and (3) add the interaction between NTMs and goods on the WTO list and core CLEG+ lists (results correspond to equation 10.6). Column (4) introduces the interaction between NTM and ASEAN countries (results correspond to equation 10.7). Two results stand out: on average, NTMs restrict bilateral trade but not differently for EGs than for non-EGs or for ASEAN countries as a group. The coefficient on the NTM dummy is statistically significant across all 4 regressions in Table 10.2 and is estimated to decrease bilateral imports by about 21 percent ($=e^{0.24}$ -1) on average when at least one NTM is imposed on the relation. However, this is an 'average treatment effect' so it aggregates trade-enhancing NTMs (e.g subsidies or information revealing labels that do not raise costs much) along with trade-deflecting NTMs (e.g. geographic prohibition or cost-raising conformity assessments).

Table 10.2: Bilateral Trade OLS Estimates

VARIABLES	(1) log(Imports)	(2) log(Imports)	(3) log(Imports)	(4) log(Imports)
NTM	-0.238***	-0.240***	-0.240***	-0.208***
	(0.0459)	(0.0473)	(0.0462)	(0.0596)
NTM & WTO		0.0265		
		(0.192)		
NTM & CLEG+			0.152	
			(0.409)	
NTM & ASEAN				-0.131
				(0.137)
Observations	19,681,751	19,681,751	19,681,751	19,202,942
R-squared	0.894	0.894	0.894	0.895
Importer-time-product FE :	yes	yes	yes	yes
Exporter-time-product FE :	yes	yes	yes	yes
Importer-exporter-product FE :	yes	yes	yes	yes

OLS = ordinary least squares; NTM = non-tariff measure; WTO = World Trade Organization; CLEG+ = Extended Core Combined List of Environmental Goods (40 products); ASEAN = Association of Southeast Asian Nations; FE = Fixed effect.
Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1.
Source: Authors' calculations, based on ERIA–UNCTAD NTM database http://asean-itip.org

Column (2) reports results with the WTO list dummy to see if the NTMs on the WTO list have a different impact on the volume of trade. The coefficient on NTM & WTO interaction is not significant, so we can reject the hypothesis that NTM produce different effects on average when applied to environmental goods on the WTO list. Column (3) reports the results with the much smaller CLEG+ OECD list. Column (3) also shows that the impact of NTMs on the 40 products of the CLEG+ is not statistically different. Column (4) introduces the results of ASEAN & NTM interaction which, again turns to be statistically insignificant. The magnitude of the coefficient on NTMs is slightly reduced from -0.238 to -0.208 but the sample is also slightly different as about 400,000 singleton observations were dropped from the sample. Finally,

robustness checks were carried out. Restricting the sample to MAST Chapter B (TBT) measures only, the most prevalent NTM category on EG lists yields similar results albeit with a stronger negative effect (see Table 10.A2).

5. Concluding Remarks

Taking better care of our environment was an important mandate at the launch of the Doha Round in 2001 and since 2015 is now the centrepiece in the SDGs menu. Yet, in spite of very modest ambitions – reducing the already low tariffs on Environmental Goods (EGs) – little progress has been achieved. Developing countries did not participate in the Doha Round submissions of EGs lists so that the retained lists did not represent their interests. Negotiations on reducing barriers to trade in complementary ESs have been off the agenda even though, as aptly put by Sauvage and Timiliotis (2017), environmental services are to environmental equipment what software is to hardware for computer users. So far, there is no indication that countries are adopting regulations that make the preservation of the environment cheaper. An example is the widespread use of local content requirements in Renewable Energy markets.

Recognising that the EG lists do not represent the diversity of interests amongst ASEAN members, this paper's preliminary incursion on how ASEAN countries have unilaterally addressed this agenda suggests the following observations. On average, as a group, ASEAN members apply a tariff of 5 percent on EGs, which is lower than the 7 percent average for non-EGs. With the exception of Cambodia, Lao PDR, and the Philippines, ASEAN countries apply a lower average tariff on the EG list than on the non-EG list. Similar comparisons for indices of NTM prevalence illustrate the strong bias in all EG lists where SPS measures are virtually nil, a reflection that the political process leading to the various EG lists only included EGs in which high-income countries have a comparative advantage. Environmentally Preferable Products (EPPs) including mostly agricultural goods in which many ASEAN members have a comparative advantage do not figure in any of the EG lists discussed at the multilateral (and plurilateral) negotiations at the WTO. For the EG lists, frequency, coverage and pervasiveness indices are quite similar at the country level amongst members with no clear distinct pattern emerging relative to corresponding values in comparator groups. Interestingly, measures of the regulatory distance amongst ASEAN members are less than amongst the group of the 17 countries engaged in plurilateral EGA negotiations to reach zero-tariff trade in EGs.

Although there is little to exchange on the EGA negotiation table, there is hope that the results could be multilateralised at the WTO if 'critical mass' is reached (goods on the negotiation list should cover around 90 percent of world trade). Similar negotiations to eliminate tariffs on EGs for a more representative list of EGs of ASEAN membership could be envisaged though reaching critical mass would be unlikely whatever the selected EG list. ASEAN members may then prefer to negotiate outside the WTO. While dealing with tariff reductions would bring limited gain in terms of protection of the environment if Environmental Services are not also included, it might serve as a catalyst for initiatives further on. First, the effective number of participants would be only nine countries (Singapore has no tariffs), which would make it easier to agree on a list of EGs that would accommodate all negotiating parties. Second, the bottom-up 'ASEAN way' at regional cooperation has been active in environmental issues, with ministerial meetings on the environment held every 3 years. The organisational framework for managing environmental matters has been relatively successful for some regional public goods like biodiversity conservation, though not on transboundary pollution from burning biomass (Koh and Robinson, 2004) and sustainable logging (Angelsen, 2015).

A Mutual Recognition Agreement on Conformity Assessment for NTMs has been proposed as a deliverable for the EGA negotiations (Sugathan, 2016). Prospects are more favourable for ASEAN where regulatory distance appears to be less than for the EGA alongside a history of successful cooperation amongst members. Mutual equivalence, a weaker form of mutual recognition, where countries negotiate on whether their norms and regulations are 'different, but equivalent' helps build trust by giving greater leeway for countries (an existing equivalence agreement can be revoked by a country if it finds its partner's new regulation is not equivalent). The approach would be suitable for tackling the still widely different NTM measures across ASEAN members. As argued by Messerlin (2017), this approach does not generate the costs that harmonisation imposes. A national regulatory supervisory body à la Ing et al. (2016) could be proposed for this task, the objective of which would be to strike a balance between the desire for diversity associated with economies of scope and the desire for harmonisation associated with economies of scale.

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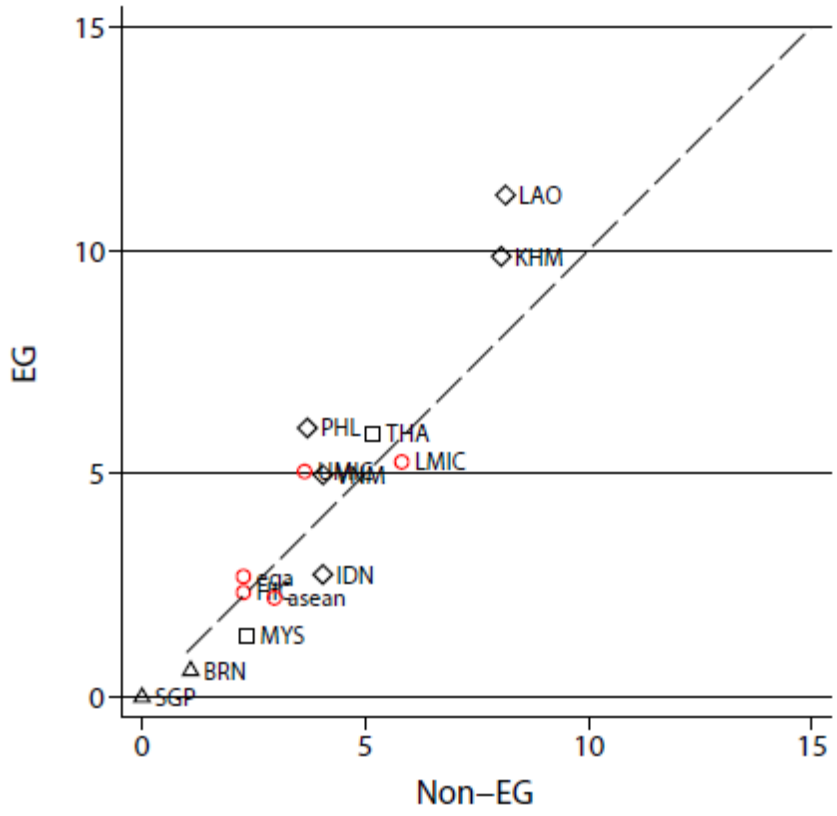
Appendix

Figure 10.A1 Applied Tariffs: EGs vs. non-EGs (trade weighted averages)

WTO list (411 products)



Notes: EGs= Environmental Goods; Averages for groups are simple averages: LICs: Low-income group GNI p.c. (in 2015 $ atlas method < $1,025: LMIC (lower-middle income): 1,026 < GNI p.c. < 4,035; UMIC: 4,036 < GNI p.c. < 12,475; HIC GNI p.c. > 12,475: EGA: Diamond (◊) LMIC (□) for UMIC and (Δ) for HIC
Source: Author's calculations, based on COMTRADE and WTO data.

Table 10.A1 : Average Tariff: EGs versus non-EGs

	Trade Weighted Rate	Simple Average
ASEAN		
CLEG+		
Not in list :	1,83	2,83
In list:	2,72	3,23
WTO		
Not in list :	3,20	3,45
In list:	2,23	3,72
EGA		
CLEG+		
Not in list :	3,52	4,18
In list:	1,23	1,40
WTO		
Not in list :	4,56	5,01
In list:	2,70	1,87
High Income Countries (HIC)		
CLEG+		
Not in list :	3,11	4,25
In list:	1,30	2,00
WTO		
Not in list :	5,16	5,19
In list:	2,35	2,44
Low Income Countries (LIC)		
CLEG+		
Not in list :	1,90	2,96
In list:	8,12	7,05
WTO		
Not in list :	3,13	3,58
In list:	7,19	8,48
Middle Income Countries (MIC)		
CLEG+		
Not in list :	1,34	2,48
In list:	3,05	3,95
WTO		
Not in list :	2,38	3,02
In list:	5,12	4,81

EGs= Environmental Goods; ASEAN = Association of Southeast Asian Nations; CLEG+ = Extended Core Combined List of Environmental Goods; WTO = World Trade Organization's list; EGA =Environmental Goods Agreement.

Source: Authors' calculations, based on COMTRADE and ERIA–UNCTAD NTM databases.

Table 10.A2: Bilateral Trade OLS Estimates

VARIABLES	(1) log(Imports)	(2) log(Imports)	(3) log(Imports)	(4) log(Imports)
TBT	-0.667***	-0.634**	-0.646***	-0.838*
	(0.242)	(0.252)	(0.245)	(0.487)
TBT & WTO		-0.650		
		(0.729)		
TBT & CLEG+			-1.498	
			(0.922)	
TBT & ASEAN				0.186
				(0.552)
Observations	19,681,751	19,681,751	19,681,751	19,202,942
R-squared	0.894	0.894	0.894	0.895
Importer-time-product FE :	yes	yes	yes	yes
Exporter-time-product FE :	yes	yes	yes	yes
Importer-exporter-product FE :	yes	yes	yes	yes

OLS = ordinary least squares; TBT =technical barriers to trade; WTO =World Trade Organization's list; CLEG+ = Extended Core Combined List of Environmental Goods ; ASEAN = Association of Southeast Asian Nations; FE =Fixed effects.

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1.

Source: Authors' calculations, based on COMTRADE and ERIA–UNCTAD NTM databases.

Regional Integration and Non-Tariff Measures in ASEAN

Though tariffs have been reduced, the number of non-tariff measures (NTMs) continues to increase, and is often blamed in part for the lack of integration in ASEAN. Unlike tariffs which could be eliminated entirely, a world without NTMs would be hard to imagine as they can play an important role in ensuring the quality of goods. As countries become wealthier, demand for better quality and greater safety of products is inevitable. However, not all NTMs are benign; some of them can complicate business rather than achieving their main goals. To improve the trade environment and make NTMs work for the common good, ASEAN should break with the 'trade negotiation' approach and strive instead for regional transparency, further cooperation in conformity assessment procedures, and dynamic disciplines.

This book explores relevant issues related to NTMs and their relation to regional integration issues in ASEAN countries. It discusses contemporary issues related to NTMs in the region, including recent world trends, regulatory convergence, government procurement, and environmental issues. The studies in this book employ relevant impact analysis methodologies for NTMs, from ad-valorem equivalent (AVE) to CGE modeling.

The data on NTMs for then ten ASEAN countries are available at : www.asean.i-tip.org

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