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NON-TARIFF MEASURES TO TRADE: Economic and Policy Issues for Developing Countries

DEVELOPING COUNTRIES IN INTERNATIONAL TRADE STUDIES

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FOREWORD

Due to the proliferation of various non-tariff rules and regulations affecting international trade, trade policy is becoming increasingly complex and multifaceted. Understanding the uses and implications of these trade policy instruments is essential for the formulation and implementation of effective development strategies. This is particularly important for developing countries, as their market access depends to a great extent on compliance with trade regulatory measures that are beyond the scope of traditional tariffs and existing preferential schemes. Restrictive and distortionary effects of non-tariff measures may be systematically biased, although in many cases unintentionally, against developing countries and more so against low-income and least developed countries. Non-tariff measures are also becoming a key topic of negotiations not only in North-South, but also in South-South contexts. Therefore, it is crucial for developing countries to be fully aware of the effects of non-tariff measures, in regard to both market access and import competition. Unfortunately, the impacts of non-tariff measures on international trade, or more generally on social welfare, are not always well understood. In fact, the analysis related to non-tariff measures has not kept pace with their increasing complexity, resulting in a knowledge gap.

This publication by the UNCTAD secretariat is an effort to improve existing knowledge on relevant issues related to non-tariff measures, with particular attention to those more relevant for developing countries. A better understanding of non-tariff measures will help policymakers to formulate appropriate policy responses and direct the necessary technical and financial resources to where they are needed. It will also contribute to more balanced international trade agreements and improved multilateral dialogue on trade policy issues. I am confident that this study will assist UNCTAD member States to strengthen their capacity to conduct more efficient trade policies for development.

Supachai Panitchpakdi
Secretary-General of UNCTAD

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Guillermo Valles
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INTRODUCTION

The ability to gain reliable market access depends increasingly on compliance with trade regulatory measures that are beyond the realm of traditional trade policies. Although market access could still be improved by further liberalization for a number of products that so far have been largely exempt, traditional trade policies such as tariffs and quotas no longer have a significant impact on restricting market access. Tariffs on international trade are generally low, as they have been progressively liberalized, first under the auspices of the General Agreement on Tariffs and Trade (GATT)/World Trade Organization (WTO) and subsequently in the context of regional and bilateral preferential trade agreements. The decreasing importance of tariffs for market access also results from special and differential treatment schemes, such as the UNCTAD generalized tariff preferences, and the various preferential schemes granted to most needed countries. The fact that tariff liberalization alone has generally proven unsuccessful in providing genuine market access has drawn further attention to non-tariff measures (NTMs) as major determinants in restricting market access.

Non-tariff measures include a very diverse array of policies that countries apply to imported and exported goods. Some NTMs are manifestly employed as instruments of commercial policy (e.g. quotas, subsidies, trade defence measures and export restrictions), while others stem from non-trade policy objectives (e.g. technical measures). The latter often serve a legitimate purpose as they are put in place for valid concerns such as food safety and environmental protection. Although the underlying intent of NTMs is important for negotiations and policy response, it is not the only issue. Regardless of whether NTMs are imposed (or implemented) with protectionist intent or to address legitimate market failures, NTMs are thought to have important restrictive and distortionary effects on international trade.

One problem related to NTMs is that, despite their widespread use, their effect on international trade is still quite understudied. Reasons for the poor understanding of the implications of NTM for international trade reside in the complexities and variations of such policy instruments and the fact that NTMs often have diverse effects on international trade that cannot be easily generalized. Unlike tariffs, NTM data are not merely numbers and their effect on international trade is often subtle, indirect and often very case-specific. In addition, the difficulty in understanding the implications that NTMs have for international trade originates from paucity of information and lack of transparency. NTM notification mechanisms are generally incomplete and the fact that relevant information on NTMs generally originates from various regulatory agencies and is often buried in legal and regulatory documents, makes the gathering of relevant data difficult and costly. The scarce knowledge of the implications of NTMs for international trade is particularly troubling for policymakers, trade negotiators and development agencies, which need information and analysis so as to direct their efforts for maximum gain.

In an analysis of the implications of NTMs for international trade, there are several areas that require particular attention. One important area is the quantification of the costs that NTMs impose on international trade. Given their heterogeneity in intent, scope and implementation mechanisms, NTMs impose diverse costs (and benefits) on different actors. A better understanding of those costs and benefits would greatly contribute to both domestic and international policymaking processes. Another area requiring attention relates to the proliferation of NTMs. While forms of NTMs have been around for a long time,[1] the use of them to regulate trade has been rising, both in terms of countries adopting these measures and in their variety. A major concern is that the proliferation of increasingly complex trade rules could hide protectionist intents. In this regard, an area of interest is the identification of the possible, even unintentional, discriminatory effects of NTMs.

A key area of research is related to the implications that NTMs have for market access for developing countries. More specifically, there are two main issues of concern. One is that, although nominally non-discriminatory, the effect of NTMs can be discriminatory against a country's trading partners. This de facto

[1] For example, English laws in the seventeenth and eighteenth centuries required that all colonial trade be conducted on British ships manned by British sailors. Also, certain goods had to be shipped to Great Britain first before they could be sent to their final destination.

discrimination is generally disadvantageous to developing countries for various reasons. First, developing countries often have a more limited capability (or incur higher costs) for meeting the requirements dictated by NTMs. This is due to a less advanced production process technology, weak trade-related infrastructure and inadequate export services. Discrimination also results from an information problem. Many developing countries do not have the resources to analyse and understand the nature and implications of the NTMs that their exports face. Discrimination can also result from the more rigorous administrative procedures that are often applied to imports originating from developing countries, especially least developed countries. Another reason why NTMs are of particular relevance to developing countries is that they are frequently applied to product groups of particular export interest to these countries. Products that are subject to NTMs are often those where developing countries have a comparative advantage. All things considered, the overall restrictions on trade imposed by NTMs may be systematically biased, although unintentionally, against developing countries and more so against low-income and least developed countries.

This study contributes to a better understanding of the implications of NTMs for developing countries in two regards. First, it provides an analysis of the utilization, methods of quantification and impacts of NTMs. These issues are discussed in sections I, II and III. Secondly, the study also illustrates some aspects of NTMs and the policy responses Governments and the international community might deploy to address some of the issues related to NTMs. These issues are presented in sections IV, V and VI.

Section I presents an overview on the use and impact of NTMs. It illustrates the various categories of NTMs and how these are classified and then discusses their use, incidence and how they relate to traditional trade policies. It also presents some evidence of the impact of NTMs on international trade. In section I, several important points are made: first, as NTMs vary greatly in type, intent and scope, it illustrates how proper classification is of critical importance in order to better identify and distinguish the various forms of NTMs. The second point is that the use of NTMs is quite widespread and their overall use is increasing: countries appear to utilize an increasingly large array of NTMs to regulate their imports. Section I also highlights the fact that NTMs disproportionally affect agricultural products and some of the manufacturing sectors that are often of export interest to developing countries (e.g. textiles and apparel). A final argument discussed in section I relates to the correlation and importance of NTMs relative to tariffs. The analysis shows that NTMs are often utilized to reinforce the market restrictions imposed by tariffs. The analysis also provides evidence that NTMs are generally much more important than tariffs in restricting market access, especially with regard to low-income countries.

Section II presents a more technical discussion of the issues related to the analysis and quantification of the effects of NTMs. The quantification of the effects is first conceptualized in a simple supply-demand framework and then some specific empirical methodologies are discussed. Section II shows how NTMs affect the volume and patterns of international trade by quantitative means and/or by influencing the relative prices and costs of production. The quantitative methodologies discussed include inventory measures, price comparison, econometric estimation of quantity impacts and gravity equations, general equilibrium models and cost-benefit analysis. The discussion summarizes the advantages and disadvantages of the various quantitative tools and illustrates their appropriate use.

Section III provides a detailed review of the empirical literature on NTMs. This section is particularly useful for understanding how the quantitative methods analysed in section II are empirically implemented to analyse the effects of NTMs on international trade and economic welfare. The discussion in section III is not only methodological but provides an empirical assessment of the impact of different types of NTMs. The section focuses on a number of case studies, providing policy recommendations and quantitative analysis with regard to several sectors, countries and types of NTMs. It is organized by type of NTM and reviews a number of studies related to technical measures, import bans, pre-shipment inspections, rules of origin, export restrictions, State trading enterprises, anti-dumping and tariff rate quotas. The general message of section III is that NTMs can have quite diverse effects, depending not only on their type and scope but also on the economic framework in which they are applied. The literature reviewed in this section also emphasizes that the effects of NTMs are largely dependent not only on NTMs per se but also on implementation procedures and administration mechanisms.

Section IV discusses the importance of regulatory transparency for better assessing, and therefore addressing, the implications of NTMs for international trade. This section illustrates the lack of transparency as an important source of trade costs and a major and recurrent obstacle, both for policymakers negotiating trade agreements and for businesses seeking to trade internationally. Section IV identifies a number of ways to improve transparency and discusses the merits and shortcomings of ongoing initiatives aimed at improving the availability of, and access to, information related to NTMs. The discussion in this section suggests that it is generally easier to improve transparency in a multilateral or regional context because countries have more of an incentive to disclose information on their own regulatory framework in a context of reciprocity. The most effective ways to improve transparency are by enforcement rules on existing notification mechanisms (at WTO or at regional level) and by global initiatives aimed at collecting and organizing data on NTMs, such as the recent Transparency in Trade initiative launched jointly by UNCTAD, the African Development Bank (AfDB), the International Trade Centre (ITC) and the World Bank.

Section V presents an overview of the existing regulatory frameworks for NTMs, especially in regard to sanitary and phytosanitary (SPS) standards and technical barriers to trade (TBTs). It illustrates WTO disciplines in these areas and presents an overview of NTM disciplines within regional and bilateral agreements. Section V highlights some of the issues related to standard harmonization and mutual recognition. One important message is that the harmonization of technical regulations in the context of North-South agreements is not free of risks regarding their compatibility with the broader aim of multilateral liberalization. Harmonization provisions within North-South free trade agreements (FTAs) often contribute to market segmentation in the form of hub-and-spoke trade patterns with the result that incentives for South-South regional integration are lessened. This suggests that harmonization issues in North-South FTAs should be viewed by developing countries in a strategic manner.

In section VI the process of reforming and harmonizing NTMs from the government perspective is discussed. The point is made that “efficient regulations” should be the ultimate objective of NTM reform, as an efficient regulatory system is essential for increasing competitiveness. Section VI reviews the various approaches for improving the nature of existing NTMs and through which new ones are introduced. In this regard, it presents a regulatory impact assessment procedure and a practical step-by-step approach to streamlining NTMs. It also discusses the political economy behind NTM reforms. One important message from this section is that any implementation, reform or administration of NTMs should precisely target the market failures they are trying to correct in order to minimize the distortion costs imposed on the economy and trade.

As a whole, this study brings two main messages to trade analysts and policymakers in regard to NTMs. The first is that, given their importance but the still limited understanding of them, further research and analysis are required. The second is that a multilateral policymaking process, although difficult, is critical to minimizing their distortionary and discriminatory effects.

I

DEFINITION AND INCIDENCE OF NON-TARIFF MEASURES

This section provides an overview on the use and impact of NTMs. It first illustrates the various categories of NTMs and how are these classified. It then discusses their use, incidence and how they relate to traditional trade policies. The analysis in this section also provides some evidence of the impact of NTMs on international trade.

A. Definition and classification

Broadly defined, NTMs include all policy-related trade costs incurred from production to final consumer, with the exclusion of tariffs. For practical purposes, NTMs are categorized depending on their scope and/or design and are broadly distinguished in technical measures (SPS measures, TBTs and pre-shipment inspections) and non-technical measures. These are further distinguished in hard measures (e.g. price and quantity control measures), threat measures (e.g. anti-dumping and safeguards) and other measures such as trade-related finance and investment measures. In practice, NTMs are measures that have the potential to substantially distort international trade, whether their trade effects are protectionist or not. For example, measures such as quality standards, although generally imposed without protectionist intent, may be of particular concern to poor countries whose producers are often ill-equipped to comply with them.

The paucity of data on trade policy measures has been the main problem behind the study of the effect of NTMs. The fact that they are increasingly used to regulate international trade makes the need to update data even more compelling. The reason behind the scarcity of databases on them is largely related to the difficulty of collecting the data and assembling consistent databases. Unlike tariffs, NTM data are not merely numbers; the relevant information is often hidden in legal and regulatory documents. Moreover, these documents are generally not centralized but often reside in different regulatory agencies. All these issues make the collection of NTM data a very resource-intensive task. The first attempt to collect and categorize NTMs was conducted by UNCTAD in the late 1990s and the data is available in the UNCTAD Trade Analysis and Information System database (TRAINS – accessible via WITS).[2] However, the TRAINS NTM database has not been consistently updated over the last 10 years. To fill this gap and in response to the increased interest of both researchers and policymakers, UNCTAD and the World Bank in collaboration with ITC and AfDB, have initiated a new effort on NTM data – the Transparency in Trade initiative – which is a multi-year joint programme, particularly focusing on the objectives of improving the

[2] http://wits.worldbank.org/wits.

coverage and classification of NTMs and on updating, consolidating and freely disseminating NTM data. As of 2011, this joint effort has produced an updated NTM classification as well as detailed new data for about 30 countries. A large part of the analysis in this section is based on this data.

The definition of NTMs encompasses all measures altering the conditions of international trade, including policies and regulations that restrict trade and those that facilitate it. NTMs are often incorrectly referred to as non-tariff barriers (NTBs). The difference is that NTMs comprise a wider set of measures than NTBs, which are now generally intended only as discriminatory non-tariff measures imposed by Governments to favour domestic over foreign suppliers. The cause of this confusion is because in the past most NTMs were largely in the form of quotas or voluntary export restraints. These measures are restrictive by design which explains why the word "barrier" was used. In present times, policy interventions take many more forms and therefore it is preferable to refer to them as "measures" instead of "barriers" to underline that the measure may not be necessarily welfare or trade reducing.[3] For practical purpose, the commonly used definition of NTMs is as follows:

> "Non-tariff measures (NTMs) are policy measures, other than ordinary customs tariffs, that can potentially have an economic effect on international trade in goods, changing quantities traded, or prices or both". (UNCTAD, 2010)

This definition is broad and to a large extent uninformative, as it was in the case of NTBs, which were defined as policies that are not tariffs. To better identify NTMs and distinguish between the various forms of them, a detailed classification is therefore of critical importance. To facilitate data collection and analysis, the multitude of NTMs are often aggregated in various groups: hard measures (e.g. price and quantity control measures), threat measures (e.g. anti-dumping and safeguards), SPS standards TBTs and other categories such as export measures, trade-related investment measures, distribution restrictions, restrictions on post-sales services, subsidies, measures related to intellectual property rights and rules of origin. Each of these groups consists of various and often very different forms of NTMs. The UNCTAD classification takes this into account and develops a tree/branch structure where measures are categorized into "chapters" depending on their scope and/or design with each comprising measures with similar purposes.[4] Then each chapter is further differentiated into several subgroups to allow a finer classification of the regulations affecting trade. The NTM classification encompasses 16 chapters (A to P) and each individual chapter is divided into groupings with a depth of up to three levels (one, two and three digits). Although a few chapters reach the three-digit level of disaggregation, most of them stop at two digits. The chapters of the NTM classification are set out in figure 1.

All chapters reflect the requirements of the importing country for its imports, with the exception of measures imposed on exports (chapter P). A brief description of the various chapters is presented in box 1.

[3] For example, NTMs such as standards and regulations may expand trade by facilitating production and exchange of information, reducing transaction costs, guaranteeing quality and achieving the provision of public goods. Where trade in some products would have been difficult without clear standards, with them, trade could be created between two countries.

[4] The classification has greatly benefited from inputs from the World Bank, ITC, Organisation for Economic Co-operation and Development (OECD) and WTO.

Box 1. Brief description of the chapters in the classification of non-tariff measures

Chapter A on sanitary and phytosanitary measures refers to measures affecting areas such as restriction for substances and measures for preventing dissemination of disease. 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 protecting the environment, standards on technical specifications and quality requirements.

Chapter C classifies the measures related to pre-shipment inspections and other customs formalities.

Chapter D groups contingent measures implemented to counteract particular adverse effects of imports in the market of the importing country, including measures aimed at "unfair" foreign trade practices, contingent upon the fulfilment of certain procedural and substantive requirements.

Chapter E on licensing, quotas and other quantity control measures groups the measures that are intended to limit the quantity traded, such as quotas. It also covers licences and import prohibitions that are not SPS- or TBT-related.

Chapter F groups price control measures 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 on finance measures refers to measures restricting the payments of imports, for example when the access and cost of foreign exchange is regulated. It also includes measures imposing restrictions on the terms of payment.

Chapter H refers to measures affecting competition. These measures grant exclusive or special preferences or privileges to one or more limited groups of economic operators. They refer mainly to monopolistic measures, such as State trading, sole importing agencies, or compulsory national insurance or transport.

Chapter I on trade related investment measures groups the measures that restrict investment by requiring local content, or requesting that investment should be related to exports in order to balance imports.

Chapter J on distribution restrictions refers to restrictive measures related to the internal distribution of imported products.

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

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

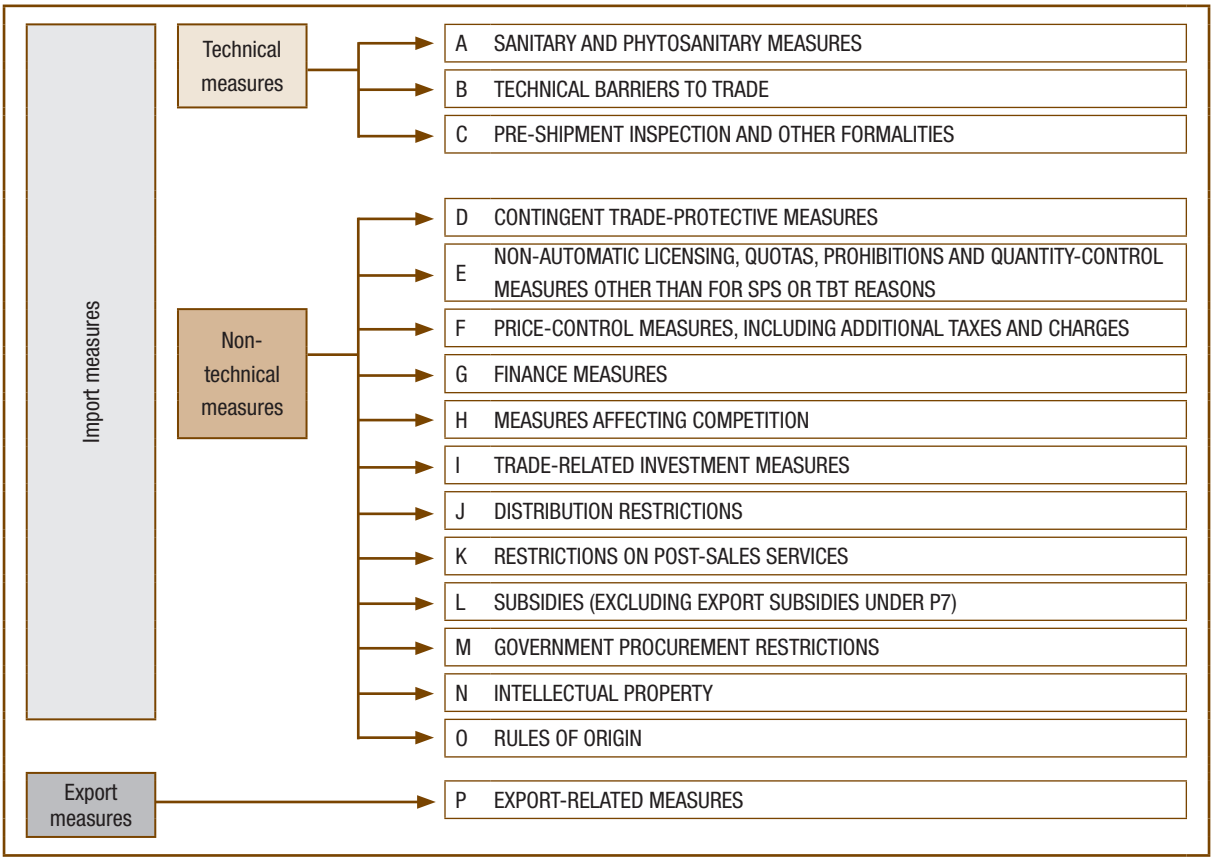
Chapter M on government procurement restriction measures refers to the restrictions bidders may find when trying to sell their products to a foreign Government.

Chapter N groups restrictions related to intellectual property measures and intellectual property rights.

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

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

Figure 1. Classification of non-tariff measures (chapters)



Source: UNCTAD secretariat.

B. The incidence of non-tariff measures[5]

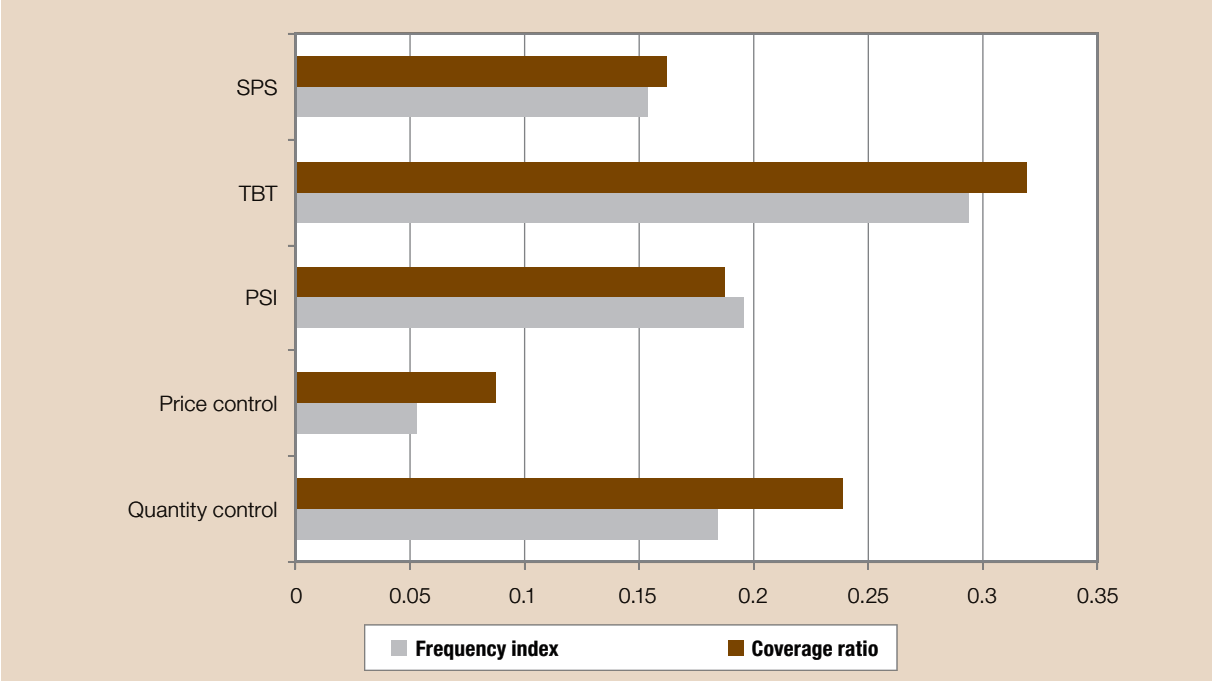
There are various approaches for identifying the importance of NTMs and assessing their effects on international trade. Methodologies include simple inventory measures, computation of price gaps and the estimation of ad valorem equivalents. The simpler approach is based on two indices: the frequency index and the coverage ratio. The frequency index accounts only for the presence or absence of an NTM and summarizes the percentage of products to which one or more NTMs are applied. The coverage ratio is the percentage of trade subject to NTMs for the importing country and provides a measure of the importance of NTMs on overall imports.

Figure 2 illustrates the distribution of NTMs across five main chapters. For each chapter both the frequency indices and coverage ratios are reported. These statistics are simple averages across countries and thus have to be interpreted as representative of the use of NTMs for the average country, not for world trade as a whole.

According to the newly collected data, TBTs are by far the most commonly used regulatory measures, with the average country imposing them on about 30 per cent of products and trade. Countries impose SPS measures on average on about 15 per cent of trade. The high incidence of SPS measures and TBTs raises concerns for the exports of developing countries. These measures impose quality and safety

[5] In this section the analysis is based on the newly collected NTM data from 30 developing countries plus the European Union and Japan. The data follows the Harmonized System (HS) classification at the six-digit level covering more than 5,000 different products.

Figure 2. Frequency index and coverage ratios by chapter (all countries, unweighted)



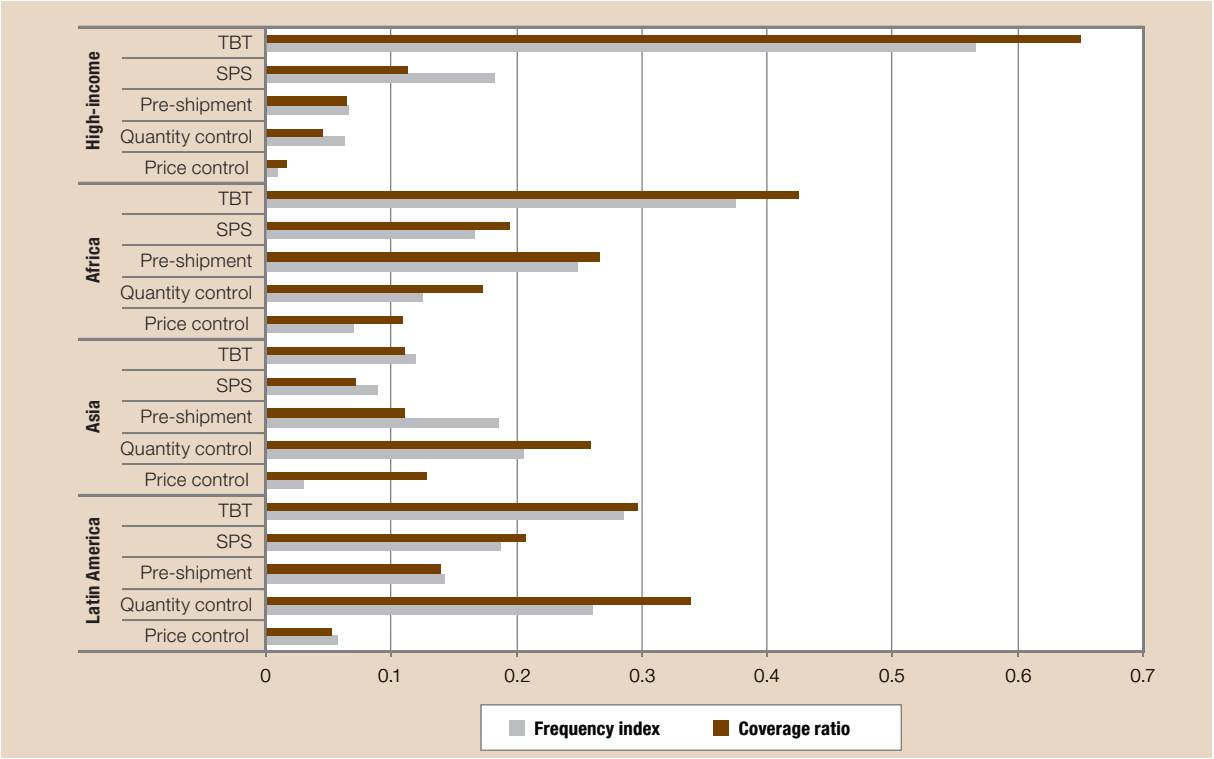
Source: UNCTAD secretariat.

standards which often exceed multilaterally accepted norms. Although these measures are not protectionist in nature, they often result in diverting trade from developing countries, where the production process and certification bodies are frequently inadequate. Moreover, the cost of compliance is often higher in low-income countries as infrastructure and export services are more expensive or need to be outsourced abroad. In practice, SPS measures and TBTs may erode the competitive advantage that developing countries have in terms of labour costs and preferential access.

Among non-technical measures, pre-shipment inspections affect, on average, almost 20 per cent of trade and products. Although pre-shipment inspections (PSIs) are often necessary to provide some assurance on the quality/quantity of the shipment and thus may promote international trade, they add to the cost of trading. These additional costs may reduce the competitiveness of countries, thus distorting trade. Price control measures (8 per cent of trade and only 5 per cent of products) constitute one of the least used forms of NTMs. They affect only a small share of goods and are largely related to anti-dumping and countervailing duties, as well as some form of administrative pricing for staple foods, energy and other sensitive sectors. Finally, the average country imposes quantity controls on about 18 per cent of products and 23 per cent of trade. Only a small percentage of these measures still take the form of quotas and export restrictions, since most of these quantitative restrictions are illegal under WTO rules. Some of them, such as quotas, prohibitions and export restraints are in place, but are largely limited to a number of sensitive products; in other cases, they take the form of non-automatic licensing used as a tool to administer the importation of goods where SPS- and TBT-related issues are of particular importance.

The incidence of different forms of NTMs varies across geographic areas. Figure 3 illustrates the use of NTMs by grouping the countries in the sample into three broad developing regions and a high-income group. Although SPS measures and TBTs are the most used forms of NTMs regardless of the region, many countries especially in Asia and Latin America still implement a large number of quantitative restrictions (largely in the form of licensing). African countries appear to regulate their imports relatively more than many other developing countries, especially in relation to PSIs. The reason behind this relatively large number of PSIs is that they are often implemented to fight corruption, to facilitate and accelerate custom procedures and ultimately to help in the correct evaluation of imports

Figure 3. Frequency index and coverage ratios by chapter (by region)



Source: UNCTAD secretariat.

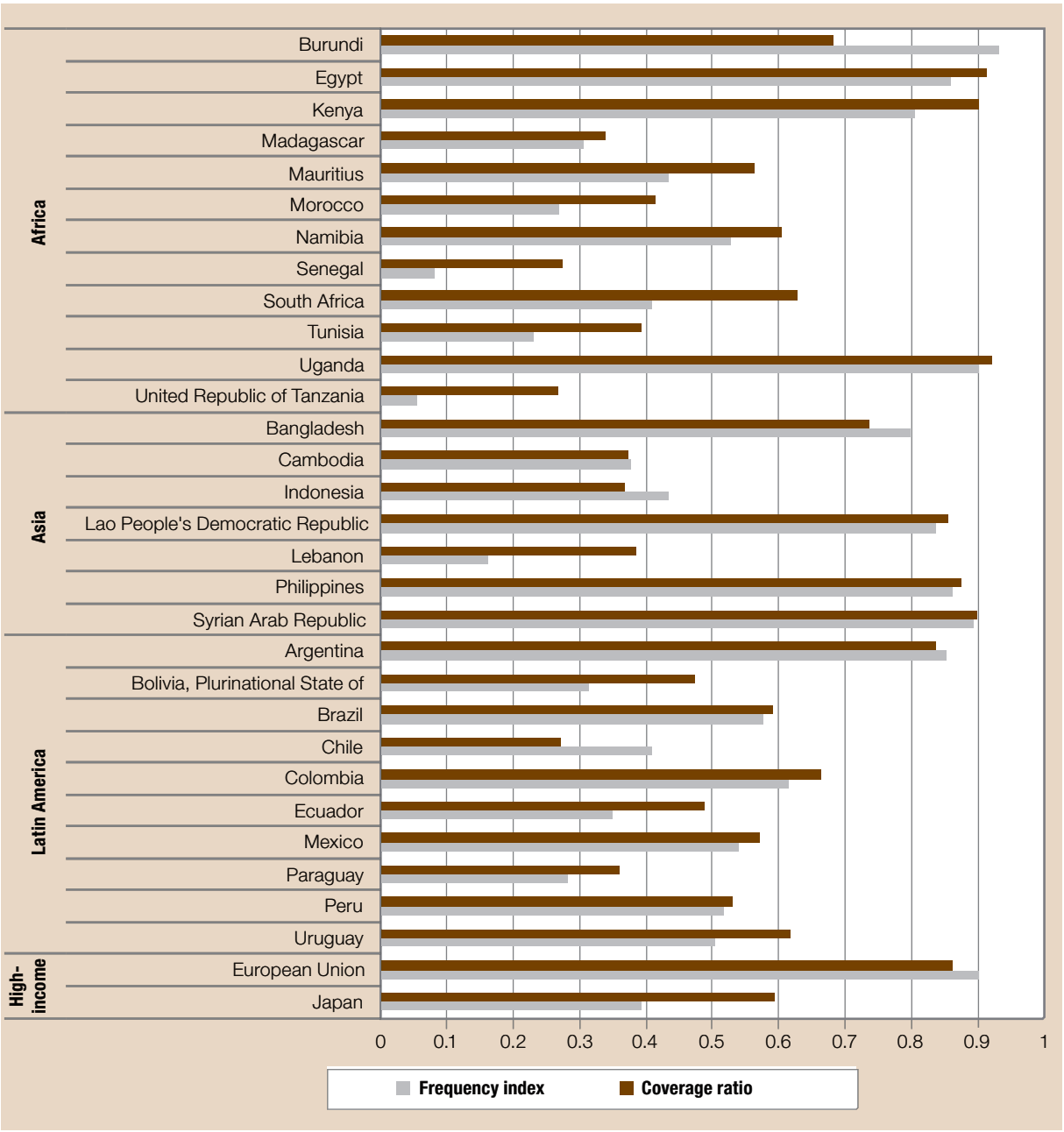
and their proper taxation. The heavy use of SPS measures and TBTs by African countries may result from an effort to harmonize regulations with their main trading partner, the European Union.

The use of NTMs varies considerably, not only across regions but more so between countries. Figure 4 summarizes the data in terms of a frequency index and the coverage ratio for each country for all NTMs as a whole. On average, countries apply some form of NTM for slightly less than half of about 5,000 products included in the HS six-digit classification. This figure varies greatly by country. For example, within Africa, the United Republic of Tanzania and Senegal use NTMs substantially less than Egypt, Kenya or Uganda. In Latin America, use of NTMs by Argentina is double that of Chile or Paraguay. In Asia, Bangladesh, the Syrian Arab Republic and the Philippines, utilize NTMs much more than Cambodia or Indonesia. Although this large variance may be due to some extent to different primary data collection methods, this is likely to explain only part of the differenc, as a large variance is also found for Latin American countries whose data is collected by the same agency: the Associación Latinoamericana de Integración (ALADI).

An important issue relates to the difference between frequency indices and coverage ratios. In general, these two measures follow similar trends; however coverage ratios are often higher than frequency indices. Figure 5 illustrates the correlation between the two measures. Most countries lie behind the 45 per cent line indicating that NTMs are used relatively more in products that are most traded. This suggests that, in general, NTMs are imposed for regulatory purposes (e.g. for consumer protection) rather than as a protectionist tool. Higher coverage ratios may also be partly explained by import composition, at least for low-income countries. These countries often import relatively large volumes of agricultural products, which are generally more subject to import regulations.

The incidence of the use of NTMs depends on both the percentage of products (or imports) affected by NTMs and the number of NTMs affecting each product. Frequency and coverage ratios illustrated above do not take into account whether more than one type of NTM is applied to the same product. In practice, a large number of products have more than one regulatory measure applied to them. For example, a product could be subject to a sanitary standard as well

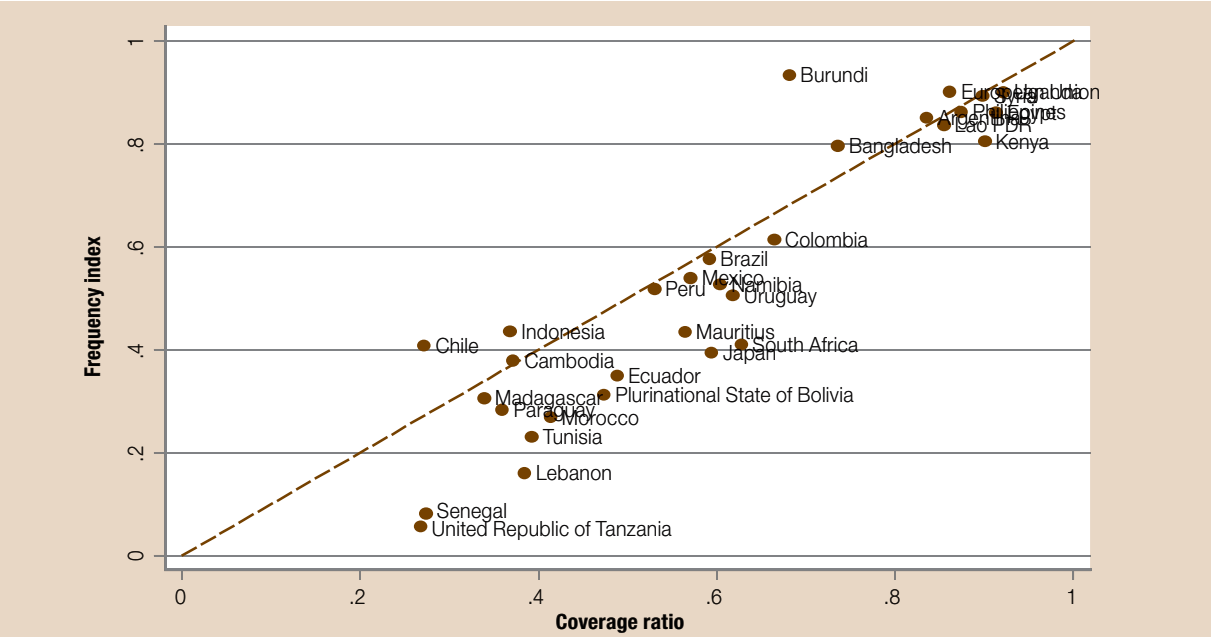
Figure 4. Frequency index and coverage ratios by chapter (by country)



Source: UNCTAD secretariat.

as a technical measure on quality and finally to some licensing. Arguably, the greater the number of NTMs applied to the same product, the more regulated the commerce of that product is, especially if measures are from different chapters of the classification. The rationale is that measures within the same chapter are similar in nature and thus often impose a relatively lower burden than measures from different chapters. To better illustrate the pervasiveness of NTMs, figure 6 reports the number of NTMs from different chapters affecting each HS six-digit product.

Figure 5. Correlation between frequency indices and coverage ratios



Source: UNCTAD secretariat.

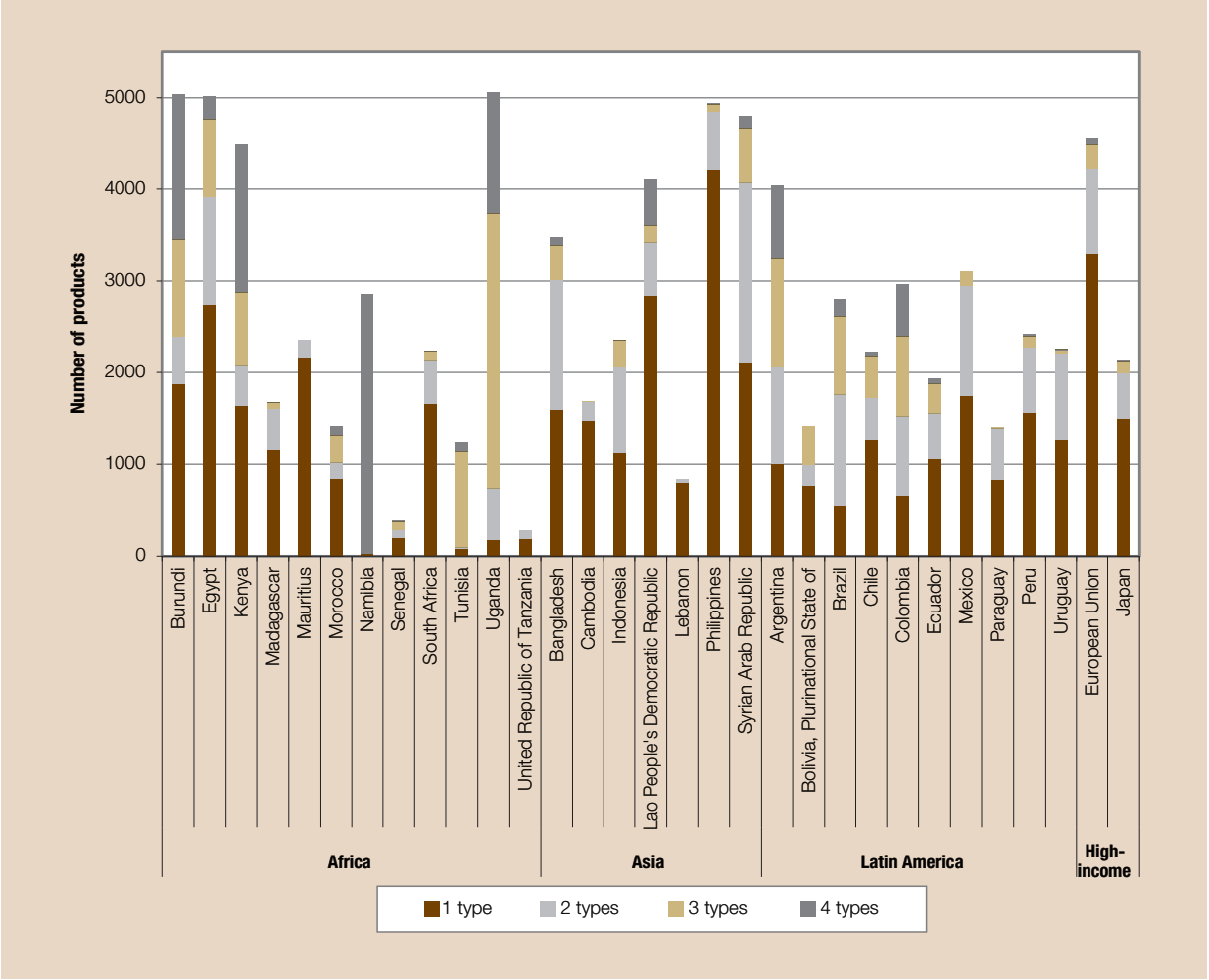
Although a large share of products affected by NTMs are subject to NTMs from only one chapter, a substantial number of products are affected by multiple different types of NTMs. For example, among about 4,500 products on which the European Union imposes NTMs, about 3,200 are subject to NTMs from only one chapter, about 1,100 are affected by NTMs from two different chapters and about 250 by NTMs from three or more chapters. Although the European Union frequency index and coverage ratio are similar to that of Argentina, European Union imports can be considered relatively less regulated, as the majority of imports from Argentina are affected by NTMs from two or more chapters.

It is often the case that countries apply a large number of NTMs within each chapter. For example, one specific good may be subject to geographical restriction, labelling, fumigation and some conformity assessments, which all fall under the SPS chapter (A). Although some of these measures may impose few additional costs, some others are quite distinct. A large number of measures within a chapter could imply an even stricter regulatory framework. Thus, it is important to provide some information on the actual number of NTMs applied to single products. This information is given by simply calculating the average number of NTMs applied to each HS six-digit product. Table 1 reports for each country the average number of NTMs applied to the products facing at least one NTM at the various levels of aggregation of NTM classification.

With very few exceptions, products are rarely affected by only one type of NTM, because several regulatory measures are often applied in parallel. The average number of NTMs affecting products facing at least one NTM is 1.82 at the chapter level, 2.77 at the one-digit level and 3.61 when all possible NTMs are considered.[6] These figures vary considerably across countries. For example, while Mauritius imposes about one NTM measure at the one-digit and chapter level for each of its 2,354 HS six-digit products covered by NTMs, Japan imposes an average of almost five one-digit categories of NTMs, mainly from the same chapter, on its 2,131 HS six-digit products subject to NTMs. This suggests that Japan, although imposing NTMs on a similar number of products as Mauritius, regulates its imports substantially more. Similarly, Tunisian import restrictions are applied on 1,244 products. These products face an average of 3 NTMs from different chapters and an average of 11 distinct types of NTMs.

[6] These are averages only for products affected by at least one type of NTM.

Figure 6. Number of NTMs from different chapters affecting HS six-digit products



Source: UNCTAD secretariat.

On the other hand, although Egypt applies at least one NTM for most of the HS six-digit lines, only about an average of two NTMs are applied for each line. Although these statistics provide valuable information, such large differences at the most disaggregated level should not be considered as definitive proof of overregulated import regimes. These differences could also be due to data availability and collection procedures. In particular, differences may be related to whether the document setting out the regulation is detailed enough to distinguish between several types of similar NTMs, in which case NTMs are generally classified only under broader codes. Differences at the one-digit level often reflect more real differences in the use of regulatory measures for imports and thus can provide a better assessment of the regulatory regime. For example, both Mexico and Brazil impose some form of NTM for about 3,000 products. However, while Mexico applies only 1.5 one-digit NTM on each of these products, Brazil applies about three NTMs. Arguably, Brazilian imports can be considered on average more regulated than those of Mexico.

The use of NTMs varies greatly across economic sectors, both for technical and economic reasons. While some products, such as agriculture, footwear, wood and motor vehicles, are highly regulated because of consumer and environmental protection and technical standards, some other goods, such as minerals, are by their nature relatively less subject to laws and regulation. Table 2 reports frequency indices of five broad categories of NTMs for 20 economic sectors.

Table 1. Use of multiple types of NTMs within single products

Country name	Number of products where at least one NTM is applied	Average over number of NTMs for each product		
		Chapter-level NTMs	one-digit level NTMs	All types of NTMs (three digits)
Argentina	4 035	2.47	3.00	3.16
Bangladesh	3 476	1.71	1.85	1.94
Bolivia (Plurinational State of)	1 408	1.75	1.91	1.99
Brazil	2 808	2.25	3.07	3.15
Burundi	5 040	2.47	5.34	7.17
Cambodia	1 687	1.14	1.46	1.86
Chile	2 224	1.68	1.83	1.87
Colombia	2 962	2.46	2.99	3.12
Ecuador	1 935	1.68	2.21	2.27
Egypt	5 014	1.72	2.09	2.34
European Union	4 550	1.36	3.80	5.18
Indonesia	2 353	1.65	2.05	2.84
Japan	2 132	1.37	4.88	8.39
Kenya	4 491	2.55	5.74	9.02
Lao People's Democratic Republic	4 100	1.63	2.58	3.68
Lebanon	829	1.04	1.29	1.46
Madagascar	1 673	1.35	1.63	1.64
Mauritius	2 354	1.08	1.08	1.45
Mexico	3 105	1.49	1.59	1.64
Morocco	1 417	1.77	3.11	4.13
Namibia	2 857	4.14	9.02	9.41
Paraguay	1 399	1.41	1.69	1.70
Peru	2 427	1.43	1.71	1.93
Philippines	4 934	1.17	1.22	1.27
Senegal	388	1.83	2.09	2.76
South Africa	2 233	1.30	1.93	2.04
Syrian Arab Republic	4 803	1.75	2.07	2.40
Tunisia	1 244	2.95	6.00	11.38
Uganda	5 062	3.08	3.12	4.09
United Republic of Tanzania	288	1.33	1.73	1.83
Uruguay	2 261	1.47	1.75	1.85
Average (simple)	2 758	1.82	2.77	3.61

Source: UNCTAD secretariat.

Table 2. Frequency indices of five categories of NTMs across economic sectors

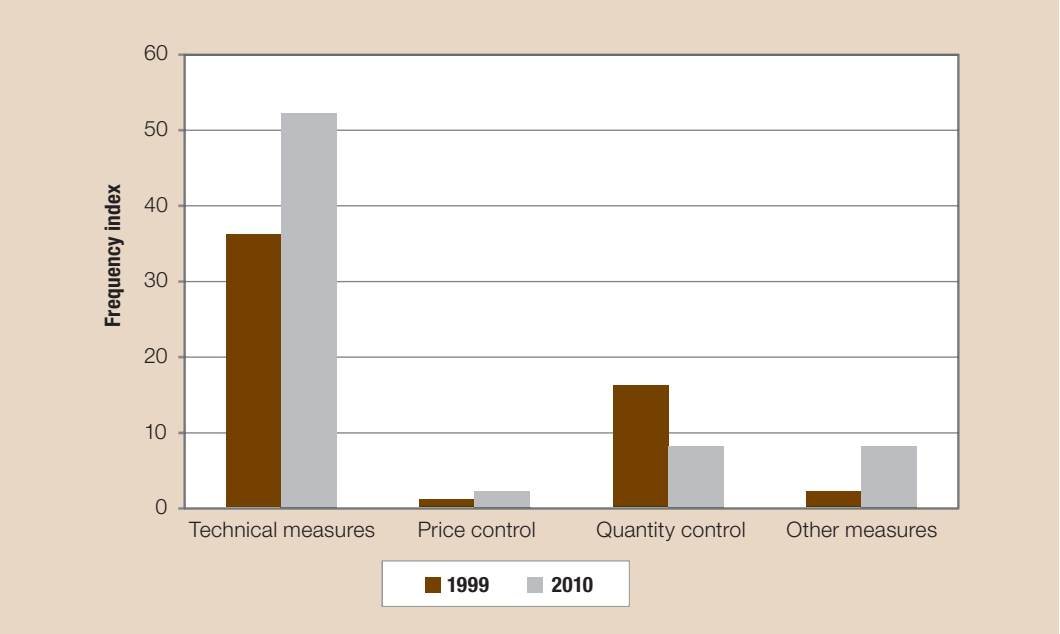
Sector	A: SPS	B: TBT	C: Pre-shipment	D: Price control	E: Quantity control
Live animals	71.3	36.2	21.3	5.7	33.4
Vegetable products	69.2	31.7	24.0	3.6	27.1
Fats and oil	51.1	26.8	12.9	8.0	20.7
Processed food	57.0	41.7	17.7	3.6	20.3
Mineral products	9.8	25.5	8.1	0.6	10.9
Chemical products	11.3	35.8	6.8	1.7	19.6
Rubber and plastics	1.2	24.1	5.7	0.8	6.3
Raw hide and skins	12.8	23.7	9.9	0.0	12.9
Wood	26.2	30.2	12.4	0.8	15.2
Paper	1.7	18.4	8.2	0.6	11.4
Textile	1.8	34.3	15.6	4.7	16.3
Footwear	0.7	38.8	16.7	3.3	17.9
Stone and cement	3.1	19.0	9.7	1.1	6.3
Base metals	1.6	21.0	9.6	1.2	12.2
Machinery and electrical equipment	1.1	20.8	8.2	0.8	13.1
Motor vehicles	0.3	26.2	8.4	0.7	22.5
Optical and medical instruments	0.4	20.0	7.9	0.2	8.1
Miscellaneous goods	1.6	23.0	7.2	4.1	7.2

Source: UNCTAD secretariat.

The use of SPS measures is largely limited to agricultural sectors and products of animal origin, as their control is essential for ensuring the health and well-being of consumers and the protection of the environment. As a result, more than 60 per cent of food-related products are found to be affected by at least one form of SPS measure. TBTs on the other hand can be applied to a much wider set of products and indeed are found to be more uniformly applied across economic sectors with peaks in textiles, footwear, processed food and chemicals. Measures involving pre-shipment requirements are widely distributed across economic sectors but affect a smaller number of products. Pre-shipment inspections are found to be more relevant for agricultural products, wooden products, textiles and footwear. Price-control measures such as administrative pricing, anti-dumping and countervailing duties are trade-defensive policies that by their nature are applied only to very specific products and thus result in low frequency indices. Like pre-shipment requirements, price control measures are more concentrated in agricultural products, textiles and footwear. Finally, quantity control measures are applied more or less uniformly across economic sectors with peaks in agricultural goods, particularly animal products, motor vehicles and chemical products. These are sectors where particularly sensitive products are often regulated by non-automatic licences, quotas and sometimes outright prohibitions. The distribution of NTMs across sectors, especially with regard to SPS measures and TBTs, is due more to the technical properties of products than to economic policy and therefore does not vary substantially across countries. Other measures have a more heterogeneous distribution as the choice among different measures for the regulatory intent may be different across countries, depending on various factors such as institutional capacity, implementation costs and efficiency.

One important issue related to NTMs is their proliferation. Although there is no sufficient time series data to exactly calculate the increase in the use of NTMs, there appears to be a consensus that the use of regulatory measures has greatly increased in the last 10 years. The change in the use of NTMs between 1999 and 2010, based on the available data, is reported in figure 7. As a caveat, this figure is based on only a few comparable NTM data across time, most of which originate from Latin American countries. For most other countries, the collection procedures may have substantially changed and thus the earlier data

Figure 7. Frequency index by broad type of NTM (1999 and 2010)



Source: UNCTAD secretariat.

may not have been as complete as the data recently collected.[7] Figure 7 shows that with the exception of quantity control measures, the use of NTMs has increased. In particular, in the categories where the number of products covered by NTMs has increased, most relate to technical measures (SPS measures and TBTs). As of 2010, about half the products in our sample of countries are affected by one or more types of SPS measure and/or TBT. Price control measures were barely used, while the use of quantity control measures has declined, possibly caused by the progressive tariffication of quotas. Finally, the use of other types of NTMs, such as pre-shipment inspection and trade defence (or contingency protection) measures, appears to have substantially increased.

C. Non-tariff measures and traditional forms of trade policy

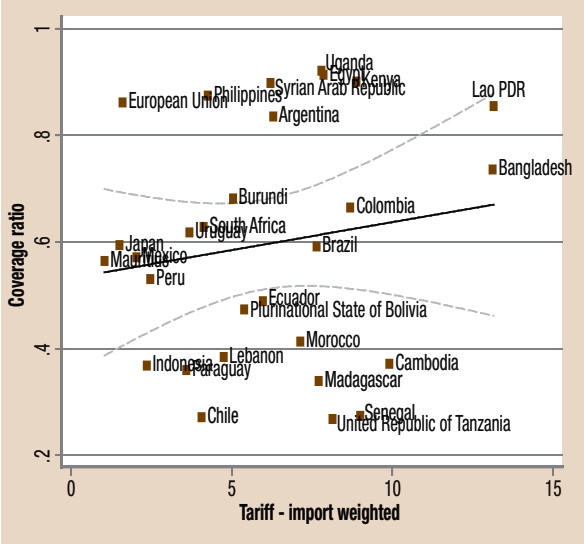
The use of multiple instruments of trade policy to regulate imports involves not only NTMs but also traditional forms of trade policy. This section explores whether NTMs are used as complements to, or substitutes for, traditional trade policy, namely tariffs. The relationship between NTMs and tariffs can be assessed across countries or across products. In relation to countries, the analysis investigates whether countries applying restrictive traditional trade policies (high tariffs) are also those where NTMs are more frequently used so as to better protect their domestic industry from foreign competitors. If this is the case, it would result in a positive relationship between the use of NTMs and the level of tariffs, as products may be protected not only by a large number of NTMs but also by high tariffs. Although a large number of NTMs may result from the nature of the product, when these are accompanied by a high tariff it may indicate the intent to use NTMs to complement tariffs to further insulate domestic industries from foreign competition.

The relationship between NTMs and tariffs across countries is illustrated in figure 8 where NTMs are defined by their coverage ratio.

Although figure 8 shows a high degree of dispersion, it also shows a clear positive correlation between tariffs and NTMs. The countries which apply more restrictive traditional trade policies are also those where imports are more affected by NTMs.

[7] As there is a 1999 data limitation, figure 7 aggregates SPS measures and TBTs under the technical measures category.

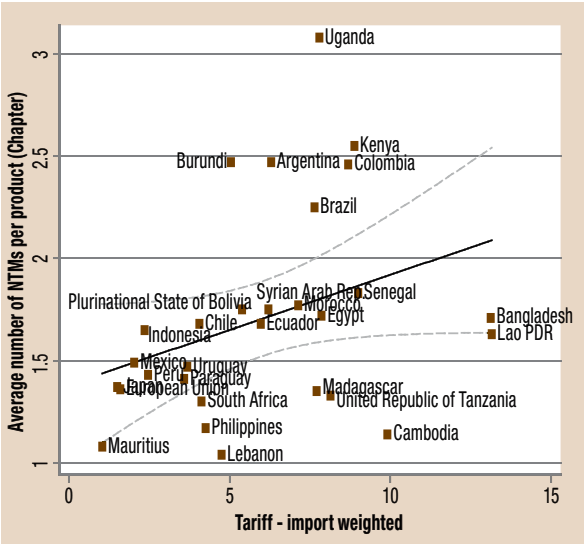
Figure 8. Coverage ratios of tariffs and NTMs



Source: UNCTAD secretariat.

Similar conclusions are drawn by the correlation of tariffs and the number of products affected by NTMs. Figure 9 shows the correlation between the average number of NTMs at the chapter level and the tariff. The figure shows a stronger positive relationship indicating that countries where tariffs are higher also apply a larger number of NTMs per product.

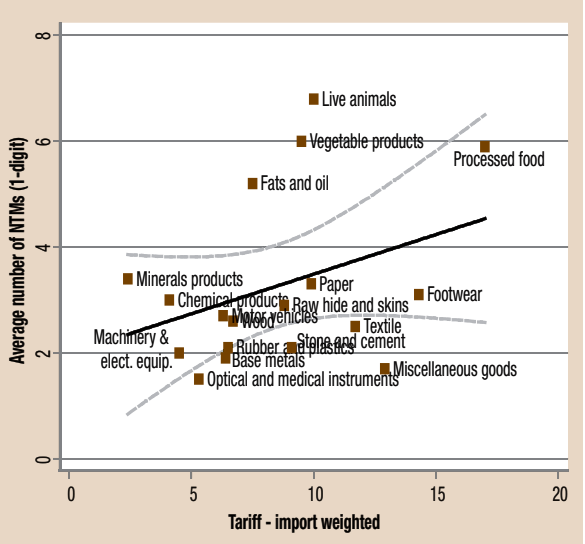
Figure 9. Correlation of NTM pervasiveness with tariffs (by country)



Source: UNCTAD secretariat.

Taken together, these results indicate that a protectionist tariff policy is often paired with more regulated NTM regimes. To better explore whether NTMs are used in addition to tariffs to protect specific sectors, one needs to assess their relationship at the product level. Figure 10 illustrates the relationship between NTMs and tariffs across economic sectors. In this case the correlation is also positive, suggesting that most regulated economic sectors are also those where tariffs are higher.

Figure 10. Correlation of NTM pervasiveness with tariffs (by product)



Source: UNCTAD secretariat.

More generally, the analysis above suggests the presence of a correlation between the use of NTMs and traditional forms of trade policy. Countries that apply higher most favoured nation tariffs are also those that have a larger number of products and a larger extent of imports affected by NTMs. This may indicate that NTMs have been used, at least to some degree, to reinforce tariffs in order to continue protecting key economic sectors in spite of tariff liberalization taking place.

D. Importance of non-tariff measures in restricting trade

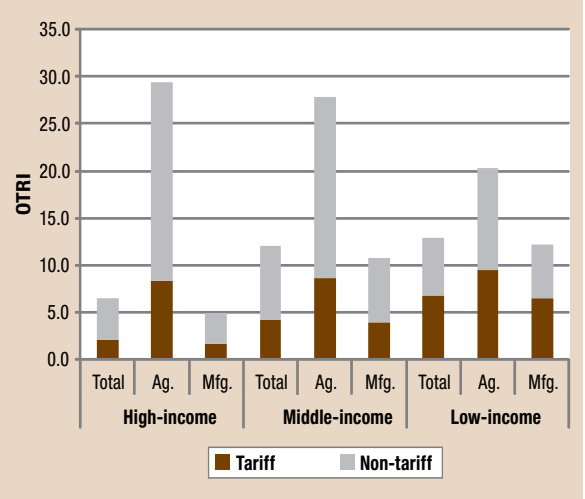
The importance of NTMs is due not only to their incidence but also to their actual impact on international trade. The measurement of the effect of NTMs on trade is a complex task which requires specific quantitative tools and availability of data. Section II discusses in more detail some of the technical issues related to the quantification of NTMs. Section III presents some empirical studies quantifying the importance of different types of NTMs and reports on some indicators of the restrictiveness of NTMs so as to illustrate the overall importance of NTMs in international trade.

Some of the most widely used indicators to measure the effect of NTMs on trade are those developed by Kee, Nicita and Olarreaga (2009) and implemented by the World Bank in its global monitoring reports. The indicators referred to are the overall trade restrictiveness index (OTRI) and market access OTRI (MA-OTRI). These indicators provide the overall level of restrictiveness of the trade policies imposed (OTRI) or faced (MA-OTRI) by a country and are based on the estimation of ad valorem equivalents of NTMs. Trade policies specifically treated by these indicators are ad valorem tariffs, specific duties and some NTMs, such as price control measures, quantitative restrictions, anti-competitive measures and technical regulations. Other measures, such as rules of origin and export-related measures, are not included. Although these indicators cannot disentangle the impact of each specific type of NTM, they can separate the effect on overall restrictiveness due to traditional trade policies (tariffs and specific duties) from that caused by NTMs. It is also important to note that because many NTMs are not protectionist in intent (or effect), these indicators reflect net restrictiveness; they are not measures of the level of protection that Governments seek for a domestic industry. A drawback of those indicators is that their NTM component is based on obsolete data collected more than 10 years ago.[8] Since the use of NTMs has increased in the last 10 years, these indicators probably underrepresent the actual impact of NTMs on trade. On the other hand, in the statistics presented below, tariff data is updated to 2010 using the UNCTAD TRAINS database.

[8] The development and use of these indicators provided an additional incentive for the new data collection effort presented in section IV.

Figure 11 reports the OTRI for high-, middle- and low-income countries. The contribution to overall restrictiveness of traditional trade policies and non-tariff measures is reported for every bar. Figure 11 also distinguishes between the broad economic sectors of agriculture and manufacturing.

Figure 11. Overall level of restrictiveness imposed on imports (OTRI)



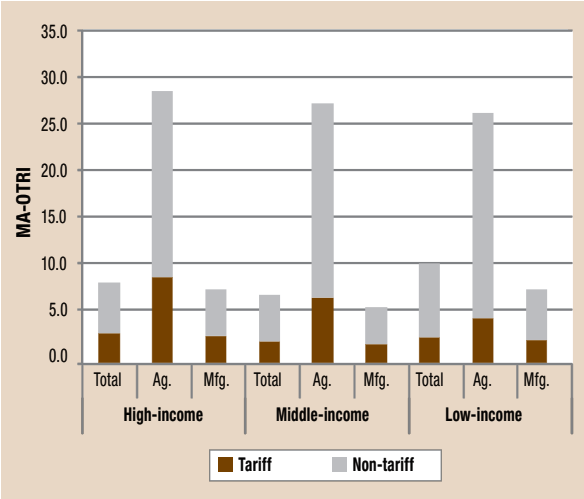
Source: UNCTAD secretariat.

According to this indicator, NTMs greatly contribute to restricting international trade. Their contribution to overall trade restrictiveness is generally much higher than that of tariffs. In the case of high-income countries, NTMs adds about 4 percentage points to the average tariff of about 2 per cent. In general, NTMs are relatively more restrictive in high- and middle-income countries than in low-income countries. This is partly due to the fact that the trade policies of low-income countries still largely rely on tariff restrictions, as NTM administration is more costly and complex.

Large differences in the restrictiveness of NTMs are observed between agricultural and manufacturing products, with NTMs substantially adding to the level of restrictiveness of the agricultural sector, especially in high- and middle-income countries. For these countries, the effect of trade policies on the agricultural sector is estimated to represent on average almost 30 per cent of the value, with about 20 percentage points due to NTMs. In regard to manufacturing, the impact of NTMs does not seem that large, especially in restricting access to high-income markets. NTMs appear to be more important in restricting manufacturing imports entering middle- and low-income markets.

With regard to market access, the restrictiveness of trade policies varies across trading partners. This variance is due both to the discriminatory use of trade policies (e.g. trade preferences) and to the composition of trade (e.g. countries whose main exports are agricultural products face more restrictive market conditions than countries exporting mainly manufactured goods, because agricultural market access is generally more restrictive). Figure 12 reports on the level of restrictiveness faced by exports. Countries are grouped on the basis of their income.

Figure 12. Overall level of restrictiveness faced by exports (MA-OTRI)



Source: UNCTAD secretariat.

Similarly to the case of imports, the overall level of restrictiveness faced by exports is largely influenced by NTMs. On average, the contribution of NTMs to restricting access to markets is more than double that of tariffs. In extreme cases, NTMs are overwhelmingly more important than tariffs in restricting access to markets. For instance, while the agricultural exports of low-income countries face an average tariff of about 5 per cent, largely because of various preferential schemes, once the effect of NTMs is taken into account the overall level of restrictiveness is much higher at about 27 per cent. All things considered, NTMs account for a much larger reduction in trade than traditional forms of trade policies such as tariffs. They are especially restrictive for the market access of low-income developing countries, since those countries are exporters of agricultural products, which are relatively much more affected by NTMs than other products.

II

QUANTIFICATION OF THE EFFECTS OF NON-TARIFF MEASURES

The most important aspect of the analysis of NTMs is not related to their use but to their impact. Ultimately, trade analysts and policymakers are mainly interested in better understanding the effects that NTMs have, in particular on international trade and more generally on welfare. The quantification of the effect of NTMs is often complex. Although some types of NTMs have effects that are relatively easy to quantify, for large number of NTMs the effects on international trade are often subtle, indirect and very case-specific. For example, the effects of price control measures are relatively simple to measure, especially anti-dumping and safeguards. Similarly, the effects of quantity control instruments have been extensively examined in the analysis of quotas, tariff rate quotas and their administration. On the other hand, the analysis of the effects of technical measures is more complex as they have more diverse effects depending on their type, scope and administration mechanisms. Similarly, finance, anti-competitive and investment measures have mainly indirect effects on trade and their actual impact on trade is more difficult to assess.

In general terms, the analytical work on the quantification of the effects of NTMs on trade and welfare follows two main approaches serving different purposes. Part of the analytical work aims to investigate the overall effect of NTMs. These studies aim to inform policymakers and analysts as to the overall restrictiveness of NTMs for a country (or group of countries) for broad groups of NTMs. These studies can be useful in identifying countries where NTMs are relatively more restrictive, which types of NTMs have the largest impact on trade and which products are relatively more impacted by NTMs. Ultimately, this type of information is relevant, as it better directs trade negotiators to the most relevant issues related to NTMs. On the other hand, part of the analytical work focuses on very specific policies, products and markets. This analysis often provides a case study on the effect of a specific NTM on a single product in a single country. This type of study aims to provide detailed and more precise effects, but the results are restricted to particular cases that cannot be generalized or provide overall policy guidance.

Regardless of the approach, there are a number of quantitative tools that apply to the quantification of NTMs (see Ferrantino (2006)). The empirical approaches to estimating or calculating the effects of NTMs vary from simple inventory measures to arithmetic calculation of price gaps and to more sophisticated quantitative tools such as partial equilibrium econometric models and computable general equilibrium models. Case studies also apply cost-benefit analysis to better assess the welfare implications of specific NTMs applied to specific products.

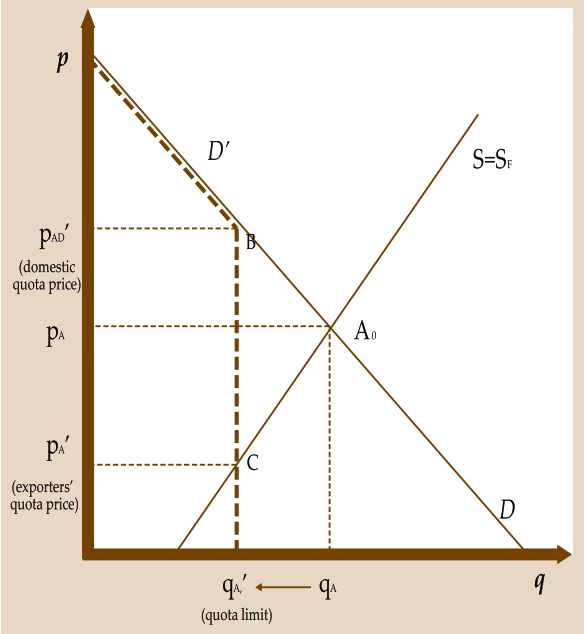
This section illustrates some of the issues related to the quantification of the economic effect of NTMs from a technical perspective. To do so, the quantification of the effect of NTMs is presented in a simple supply-demand framework and then some specific empirical methodologies are discussed. Case studies illustrating the application of these methods are presented in section III.

A. The basic framework

Unlike tariffs, NTMs are not straightforwardly quantifiable, not necessarily easy to model and the information which would allow a quantitative analysis of NTMs is often hard to collect. The approach to measuring the price and quantity effects of NTMs is based on the standard supply-demand diagram for imports. Independently of the nature of the NTM in question, this approach allows the cost/price-raising, trade-restricting effect at the border (the "trade-cost effect") to be qualified and therefore allows the quantification of the ad valorem equivalent of NTMs.

In the basic theoretical framework it is relatively easy to illustrate how any measure could be made equivalent to an ad valorem tariff. The most discussed equivalence is that between a quota and a tariff. Intuitively, a quota, like a tariff, introduces a wedge between the price received by foreign producers facing the quota and the price paid by domestic consumers for these imports. This is illustrated in figure 13, which focuses on a case where the total supply of a specific good is of foreign origin ($S=S_F$).

Figure 13. Application of a quota on imports



The analysis of a quota looks very similar to that for a tariff. The quota limits the level of imports to qA'. As a consequence the domestic price of imports rises to pA,D' which is above the world price pA. In the classic case of a large country, the world price of the imported good falls to pA'. This is as if the demand curve becomes the dashed line labelled D' with a kink at qA'. It might be the case that the quota is set above the level of free trade imports, implying that it is not binding. In that case the quota has no effect. Otherwise, the quota gives rise to "rents" because of the price wedge it creates. These rents may be captured either by the Government of the importing country if import licences/rights are auctioned; domestic residents if they are given import licences/rights with no financial counterpart; or foreigners if they have the import licences/rights with no financial counterpart. The way the quota is administered will eventually affect welfare analysis but not new equilibrium properties.

A similar analysis applies to NTMs such as voluntary export restraints, variable levies on imports, government procurement regulations, or any other measure whose main objective is to deliberately limit imports of a specific good through the imposition of a wedge between the world price and the price charged to domestic consumers.[9]

A complication to the above framework is that NTMs could generate categories of economic effects which are not prima facie a trade-cost effect (Beghin, 2006) even though they translate into a similar impact on traded prices and quantities. This is essentially true for measures such as TBTs and SPSs, or any measure with a technical regulatory content. The rationale or political intent for this kind of measure is not necessarily the protection of local/domestic industries. These categories of NTMs often have other stated social or administrative objectives designed to regulate the domestic market. Meeting these objectives also leads to a shift in the supply curve and/or the demand curve (Roberts, Josling and Orden, 1999), as in the case of classical NTMs such as quotas. The difference resides in the fact that the change in prices due to the measure does not generate any private or public rent.

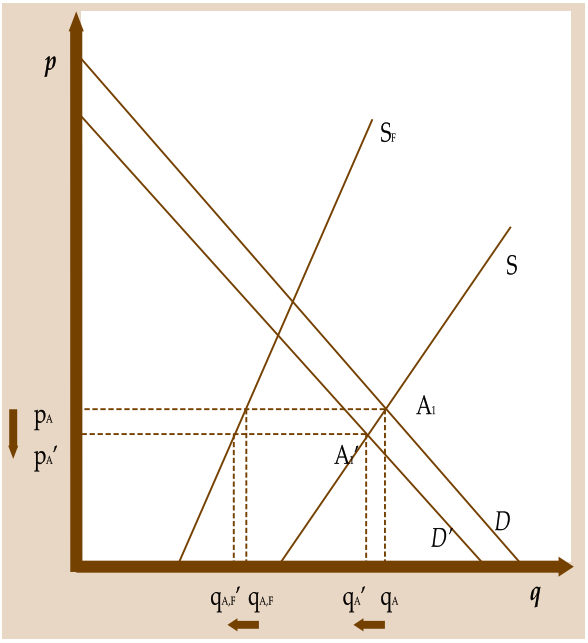
Prices change as a consequence of variations in the cost of production and/or changes in consumption behaviour. More precisely, supply-shifting effects occur when regulations are used to tackle externalities affecting the international trade in goods, such as preventing the sale of products hazardous for health or creating standards to increase compatibility and interoperability. Such regulations can specify the production process (i.e. use of a certain technology),

[9] See for instance Baldwin (1991) and Deardorff and Stern (1997) for a detailed analysis.

or product attributes (i.e. the maximum content of given components) required for conformity. Demand-shift effects are required for certain types of market failures, for instance by making it compulsory to provide certain information to consumers, thus affecting their behaviour. Supply-shift effects are of particular relevance to technical regulations and SPS measures. Demand-shift effects can be identified for any sort of technical regulation.

Ganslandt and Markusen (2001) explain how standards and technical regulations can have both trade-impeding effects by raising the costs of exporters and similar demand-enhancing effects by certifying quality and safety to consumers. However, in order to illustrate the impact of NTMs such as TBTs and SPS measures on prices and quantity traded, we adopt the theoretical framework used in Disdier and Marette (2010). The framework is based on a set of simplifying assumptions but without loss of generality in its main analytical features. The analysis focuses on a specific goods market and excludes any general equilibrium mechanisms. The market good in question is assumed to be homogeneous (or quasi-homogeneous) except for a characteristic that is potentially dangerous to consumers. Foreign and domestic goods can both carry this characteristic. Domestic consumers may or may not be aware of the latter. If they are aware, they internalize the damage in consuming that good.

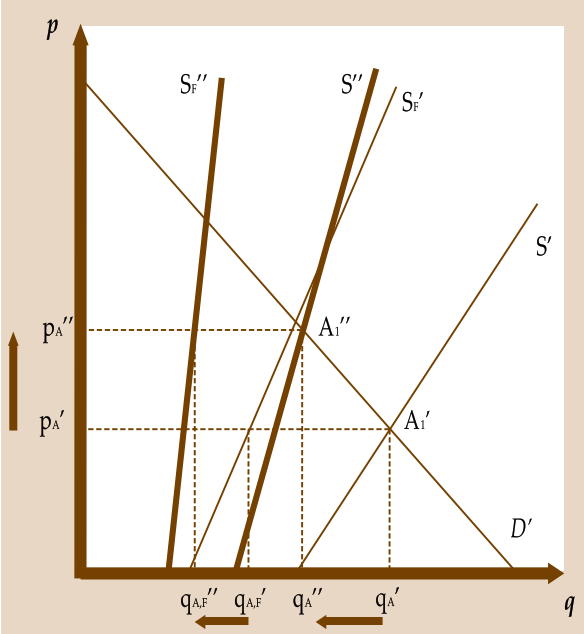
Figure 14. Internalization of damage costs



Consumers internalize the possible damage related to the dangerous characteristic of the product under consideration (figure 14). As a consequence, and assuming that the demand curve is linear in the cost related to the possible damage, the demand curve shifts to the left. The size of the shift depends on whether the dangerous feature is in both domestic and foreign goods or not. The demand curve moves independently of the implementation or not of a standard. The implementation of a standard affects exclusively supply curves as their impact is on the production process and thus on production costs. With internalization, the new market equilibrium occurring in A' is characterized by lower consumption (qA $\longrightarrow$ qA') and lower price (pA $\longrightarrow$ pA'). The fall in consumption is reflected in lower levels of both domestic production and imports. Figure 15 represents the case where a public standard is implemented in order to avoid the presence of a product characteristic found to be damaging to human health. The assumption behind the figure is that this dangerous characteristic is possibly carried by foreign goods only. In that context, the implementation or reinforcement of a standard by domestic regulators exclusively affects imports, i.e. only foreign producers. This implies that only the foreign supply curve is directly affected. We further assume that consumers have internalized the damage before the action of the regulator. The starting equilibrium is made to coincide with the post-internalization equilibrium illustrated in figure 14 and corresponding to point A_1'. The consequence of the domestic standard is an increase in the equilibrium price (pA' $\longrightarrow$ pA") and a fall in imports and thus domestic consumption (qA' $\longrightarrow$ qA"). The overall impact (that is with respect to the initial equilibrium in figure 14 characterized by the coordinates of point A_1') with internalization by consumers of the damage cost is clearly a fall in the quantity consumed but an indefinite impact on the equilibrium price. Note that pA stands above pA' but its position with respect to pA" is not determinate a priori. In practice, the magnitude in the change in the equilibrium price will depend on the probability of contagion, the associated cost from the consumer point of view and the stringency of the standard. Standard stringency could be modelled essentially in two ways. The most straightforward one is by the inclusion of a parameter indicating the proportion of output exported that eventually enters the destination market after inspection. With a more stringent standard this proportion is reduced. The proportion parameter behaves as a standard supply

shift parameter. This approach has been applied to figures 14 and 15 with the additional assumption that no fixed/sunk costs exist. The second approach consists in having a sunk (or fixed) cost parameter that varies with the application and stringency of a standard. Sunk costs are linked amongst other elements to the costs of market entry of a firm and of compliance with regulations. These two approaches are not exclusive and if taken separately they both generate comparable results at least from a qualitative point of view. In the case of the presence of sunk/fixed costs the supply curve is not linear any more.

Figure 15. Application of a public standard

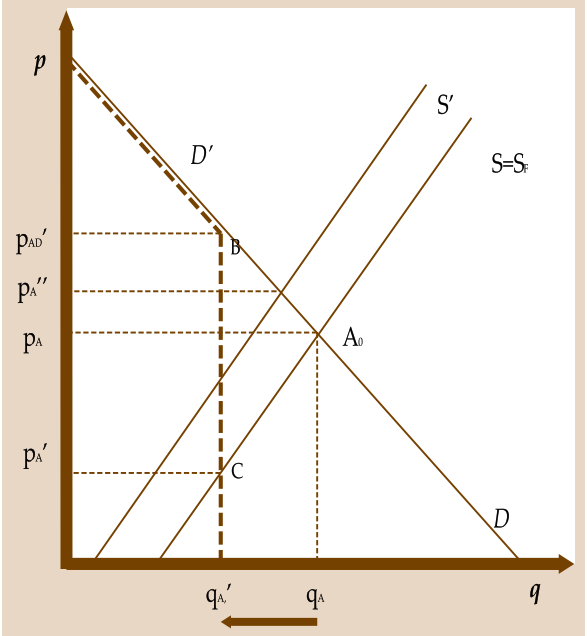


Besides internalization of the damage, the so-called demand-enhancing effect could also lead to a shift in the demand curve. A public standard possibly affects consumers' information set and behaviour. If the measure appears to be informative and signals a higher quality of the permitted imports, then it may enhance the demand for imports. As a response to the measure, the demand curve would shift to the right, counteracting the demand shift coming from the internalization of damage by consumers. The demand-enhancing effect should be considered separately from the internalization of possible damage, although the two could be related. Their correlation may not be of the most intuitive. Indeed, if we allow internalization to be imperfect, then the implementation of the standard could raise the awareness of consumers and as a consequence it would increase the incidence of internalization.

1. Multiple overlapping NTMs

The price effect and the quantity effect of a specific NTM may be difficult to identify in a situation where several NTMs are implemented for the same product. Whether from a theoretical or an empirical point of view, the simplest approach is to consider that the overall impact is related to the relative strength in trade restrictiveness of each NTM in place. That is, there is a dominant NTM in terms of impact which encompasses the impact of all other NTMs. This configuration is illustrated in figure 16 which represents the combination of a quota and some technical regulations. Again it is assumed that the total supply of a specific good is of foreign origin ($S=S_F$). The quota is assumed to be binding and its restrictiveness on imports is such that the cost effect of the technical regulation is absorbed by the quota price effect. In other words, the equilibrium price increase gives no indication as to the price effect of the technical regulation.

Figure 16. Multiple overlapping NTMs



However, there are also cases where NTM impacts do not overlap but add to each other. For instance, if we consider the case of a combination of any ad valorem para-tariff measure and some technical regulations, the aggregate price effect would be the result of the price effect of both NTMs. Theoretically, both measures affect the cost of exporting to the

implementing country and thus shift the supply curve to the left.

Generally speaking, when one of the NTMs implemented has a quantity restriction dimension, it is likely that multiple NTMs have a cumulative but not additive effect.[10]

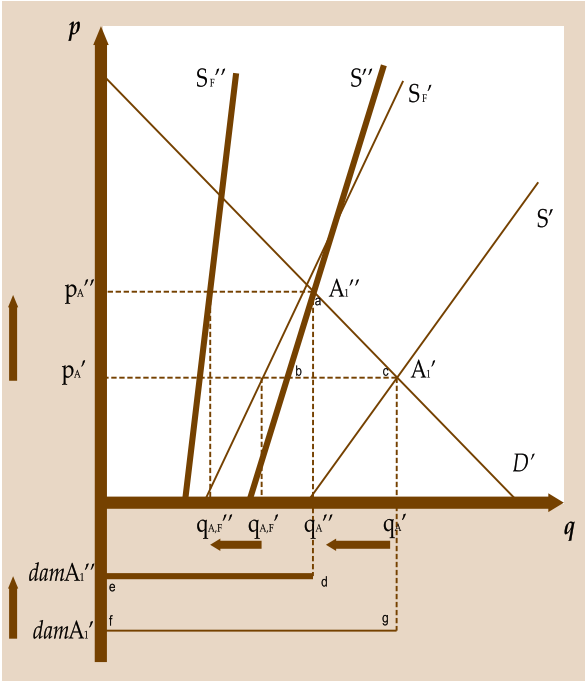
2. Welfare analysis

Welfare analysis in a basic single market linear demand-supply framework, such as the one adopted in previous sections, is straightforward. Consumer and producer surpluses are directly reflected by areas under and above the demand and supply curves respectively. Dead weight losses are triangular areas whose size depends on the relative elasticity of the demand and supply curves. For instance, where welfare is given by the sum of domestic consumer surpluses and domestic and foreign producer profits, the overall dead weight loss generated by the introduction of a quota corresponds to the triangle A_0BC of figure 13.

When considering measures such as SPS measures and TBTs, welfare must also account for the damage linked to the dangerous characteristic of the product, whether the latter is internalized or not by domestic consumers. The internalization leads to a change in demand which de facto affects equilibrium and thus welfare. However, welfare is usually seen from the point of view of a social planner implying that the cost of damage should be included in the set of welfare components. The overall damage cost can be estimated by the probability of having contaminated products times the per unit damage costs expressed in units of the reference good. The implementation of an SPS measure or a TBT will reduce the probability of contamination. This is shown in figure 17, which is a reproduction of figure 14 with a graphical representation of the damage cost of the dangerous characteristic. We further assume that there is no internalization of the damage possibly caused by the dangerous characteristic and that the latter pertains to foreign goods only. The move from *dam*A' to *dam*A" reflects the fall in the probability of contamination due to the implementation of the measure. The welfare net impact is a priori unclear, despite the existence of a standard dead weight triangle, as the damage cost related to the dangerous product characteristic has been reduced by the public standard. As long as the "savings" in damage cost are larger than the dead weight loss, the net welfare impact remains positive. That is, as long as in figure 17 the *qA'qA"defg* area (reduction in the damage cost) is larger than the *abc* area (dead weight loss).

[10] See Tilton (1998) for an illustration based on Korean exports of cement to Japan.

Figure 17. Application of a public standard and a welfare analysis



3. Extensions to the basic framework

There are two major shortcomings in the above approach. First it is a partial equilibrium analysis and second it remains essentially static. A partial equilibrium model, such as the one underlying the graphical analysis used here, focuses only on one part or sector of the economy, assuming that the impact of that sector on the rest of the economy, and vice versa, are either non-existent or small. A general equilibrium analysis on the contrary explicitly accounts for all the links between sectors of an economy - households, firms, Governments and countries. It imposes a set of constraints on these sectors so that expenditures do not exceed income and income, in turn, is determined by what factors of production

earn. These constraints establish a direct link between what factors of production earn and what households can spend. A general equilibrium approach is not necessarily easy to put into practice as it would require more elaborate modelling, especially if the unit of analysis had to be the product. In addition, before turning to considerations of general equilibrium, it is important to make sure that those considerations would generate important additional information. As to the second shortcoming mentioned previously, it can be illustrated qualitatively in our minimalist set-up. Generally speaking, a dynamic set-up would allow the adjustment process going from the original equilibrium to the post-policy reform one to be identified. The best we can do in the above set-up is comparative statics but taking a multidimensional adjustment process into consideration. A good illustration is given by the demand-enhancing effect of the implementation of a standard. Such an effect comes simultaneously or with some lags after the public standard has been implemented. As mentioned previously, the economic effect is a shift in demand which will move the demand curve to the right. For the sake of simplicity, we assume that the two behavioural features are orthogonal to each other. A demand-enhancing effect can in theory be stronger in impact than the rise in production costs, due to the fulfilment of the standard requirements. If this is verified then the implementation of the standard could lead to an increase in both price and quantity at equilibrium. It would also lead to an improvement in overall welfare, always assuming that the implementation of the standard has reduced the probability of damage by raising the quality of products consumed.[11] This result would hold whether the dangerous characteristic is specific to the foreign product or its domestic equivalent or both.

[11] See Carrère and De Melo (2011) for a discussion and further illustrations.

B. Methodologies in the quantification of non-tariff measures[12]

There are several different methodologies that can be applied in the quantification of the effect of NTMs on trade and welfare. The main objective in the quantification of NTMs has been to produce estimates of price effects and translate them into the ad valorem equivalent (also referred to as implicit tariffs or implicit rates of protection). These are often reported as the percentage change in the price of the good due to the presence of NTMs. This approach is particularly attractive as it would synthesize in one single, easily comparable metric the impact of an instrument with multiple dimensions which are often interrelated. The analysis undertaken in the previous section has pointed to the fact that this ad valorem equivalent does not necessarily have to be positive and even if it is positive it does not necessarily reflect a restrictive quantity effect. Hence, the estimation of the effect of NTMs should provide estimates of both quantity and price effects in order to allow for a proper qualification and identification of the NTM impact. One additional complication in the estimation of the effect of NTMs (and trade policies in general) is that NTMs can be endogenously determined. That is, products that are imported the most may be subject to regulations because those products are relatively more important for consumer welfare. To correct for endogeneity, one would need to use a two-stage procedure: first explain the incidence of the NTMs and then estimate the impact on trade flows.

1. Inventory measures

Besides ad valorem equivalents, the incidence and use of NTMs can be measured by much simpler indicators: the frequency index and the coverage ratio. These inventory measures allow the information on NTMs collected at a disaggregated level in simple indicators to be summarized. The frequency index simply captures the percentage of products that are subject to one or more NTMs. The coverage ratio

[12] We refer the reader to Deardoff and Stern (1997) and Ferrantino (2006) for a comprehensive review and discussion of the issue. Useful discussions are also found in Maskus et al. (2001) on quantification of technical barriers to trade. Beghin and Bureau (2001) discuss sanitary and phytosanitary standards.

captures the percentage of imports that are subject to one or more NTMs.

The frequency index accounts only for the presence or absence of an NTM and summarizes the percentage of products to which one or more NTMs are applied. In more formal terms, the frequency index of NTMs imposed by country *j* is calculated as:

$$F_j = \left[\frac{\sum D_i M_i}{\sum M_i} \right] \cdot 100$$

where *D* is a dummy variable reflecting the presence of one or more NTMs and *M* indicates whether there are imports of good *i* (also a dummy variable). Note that frequency indices do not reflect the relative value of the affected products and thus cannot give any indication of the importance of the NTMs to overall imports.

A measure of the importance of NTMs to overall imports is given by the coverage ratio which measures the percentage of trade subject to NTMs for importing country *j*. In formal terms the coverage ratio is given by:

$$C_j = \left[\frac{\sum D_i V_i}{\sum V_i} \right] \cdot 100$$

where *D* is defined as before and *V* is the value of imports in product *i*. One drawback of the coverage ratio, or any other weighted average, arises from the likely endogeneity of the weights (the fact that the level of imports may be dependent on the presence of NTMs). This problem is best corrected by using weights fixed at trade levels that would arise in a world free of NTMs (and tariffs). Otherwise, the coverage ratio would be systematically underestimated. While one cannot get to that benchmark, it is possible to soften the endogeneity problem (and test for the robustness of the results) by using trade values of past periods.

The immediate advantage of such instruments is the relative ease with which they can be collected, in essence not much more difficult than compiling tariff schedules. Inventories of NTMs represent valuable information that could, if updated on a regular basis, help keep track of the evolution of the relative incidence of different types of NTMs on trade flows of goods and of the evolution of their incidence relative to tariffs. Another obvious advantage is that information can be very NTM-specific and highly disaggregated at the product level. On the other hand, these indicators have limitations in that they do not give any direct information about possible impact on price and quantities produced, consumed or traded.

2. Price comparison

A more direct measurement of the price impact of NTMs relies on the comparison of the price of the good before and after the application of the measure (this is also referred to as a price wedge or price gap). In practice, the price gaps measure the impact of the regulatory framework that a country imposes on a given good by comparing the domestic price of that good with its international price. An advantage of the price gap method is that it enables the easy computation of ad valorem equivalents. However, serious conceptual and data problems are likely to arise in the estimation and interpretation of tariff equivalents. First, it is necessary to identify the appropriate prices to use and this is likely to be problematic. While it is fairly easy to obtain information on the price paid by the importers of a good (these are assumed to be free of the price effect of NTMs), it might become difficult to obtain the corresponding price prevailing in the domestic market (assumed to include the additional cost of NTMs), especially at a fairly disaggregated level. This becomes even more difficult if data collection has to be done for a large set of countries. Other drawbacks are that the price comparison implicitly assumes perfect substitution between imported and domestic goods and the price differential does not convey information about how the NTM operates in practice (Beghin and Bureau, 2001). Another factor is that the comparison is made in the presence of the NTM distortion (and not by comparison to a benchmark case without distortion – see Deardoff and Stern, 1997). Related to this is the fact that often the researcher cannot distinguish the impact of known NTMs from other forces which contribute to price gaps. This is particularly problematic, as there are many factors besides NTMs that need to be controlled for so as to isolate the price impact of NTMs.

In practice, price gaps may be calculated arithmetically by comparing domestic prices with border prices. Alternatively econometric methods can try to isolate the price impact of NTMs with that coming from other factors. Econometrically, the price gap is estimated as

a residual or dummy-variable estimate, representing the difference between an actual price and the price one would expect in a given market, given systematic differences in other factors such as non-traded goods prices. The econometric specification attempts to explain the observed price gaps due to NTMs, given observed differences in local markups, transport costs and differences in tariffs, plus some random, unexplained factors (see Dean et al., 2009). The estimates of the gap are only as good as the econometric specification. While they may provide general estimates of the price anomalies associated with NTMs, readers familiar with specific cases and markets will often find individual product-by-country estimates to be unrealistic.

3. Quantity impact

Quantity impact calculations can also provide precise information about the effect of NTMs on trade. However, similarly to the price comparison approach, it may be challenging to obtain appropriate data to compute the exact impact. An advantage of quantity-based indicators is that a general approach to the measurement of the quantity effects of NTMs can be undertaken, leading to the possibility of systematic and repeated estimation. Such an approach could ideally (with a sufficiently large dataset) include all categories of NTMs and thus isolate the individual impact of each. Quantity estimates associated with information about import demand elasticities can then be used to derive price effect estimates and thus the computation of ad valorem estimates. This is the methodology followed in Kee, Nicita and Olarreaga (2009).[13] Empirically, the estimating equation is simply given by:

$$\ln m_{s,j} = \alpha_s + \sum_k \alpha_{s,k} C_j^k + \gamma_{s,j} NTM_{s,j}$$
$$+ \sum_k \delta_{s,k} C_j^k NTM_{s,j} + \phi_{s,j} \ln(1 + tar_{s,j}) + u_{s,j}$$

where $m_{s,j}$ is the is the import value of good *s* in country *j* evaluated at exogenous world prices, which are all normalized to unity so that imported quantities equal $m_{s,j}$; tar is the tariff ; and C_j^k are a set of variables that control for *k* factor endowments (agricultural land, capital, labour force, GDP, etc). The effect of NTMs at the country level is estimated by the interaction term between the NTM dummy (for the presence of a NTM) and the vector of factor endowments of the country C_j^k. This model produces quantity effects of NTMs that need to be translated into ad valorem equivalents using import demand elasticities. Once ad valorem equivalents of each NTM are computed, then it is also possible to aggregate them so as to obtain indices of the overall level of protection at country level.

4. Gravity models

The gravity model of trade is often used to estimate the value impact of NTMs. Gravity models are estimated both on cross-section and panel data. Cross-section models have the advantage of a much lower data requirement and an easier calculation of the price and quantity effects of NTMs. Panel data models (or repeated cross sections) allow for a better identification strategy of the effect of the implementation of NTMs. In practice, if the data allows, a panel structure is preferable even if it may complicate the empirical decomposition of variations in value into price and quantity variations.

The standard gravity estimation can be implemented at various degrees of aggregation. Normally the analysis is conducted at the product level (e.g. HS six-digit classification) or at the industry level (e.g. international standard industrial classification). The estimation is often restricted to a group of countries for which detailed data is available. The general specification of the gravity model is as follows:

$$\ln m_{sij,t} = \phi_{sij,t} \ln\left(1 + tar_{sij,t}\right) + \gamma' NTM_{sj,t}$$
$$+ \beta' z_{ij} + fe_{si} + fe_j + fe_t + \varepsilon_{sij,t}$$

Where $m_{sij,t}$ is the import value of good *s* in country *j* from country *i* at time *t* and *tar* is the bilateral tariff, *NTM* is a set of NTM implementation-related indicators, z is the typical set of bilateral gravity variables and the *fe* variables refer to sector, exporting country, importing country and time fixed effects. The NTM set could reduce to the standard dichotomous indicator of the existence of an NTM, possibly capturing its trade

[13] The theoretical foundation for this kind of study is the n-good n-factor general equilibrium model with log-linear utilities and log-linear constant returns to scale technologies (see Leamer, 1988 and 1990). This model allows for both tariffs and NTMs to deter trade with effects that vary by importing country and good.

cost effect. However, it could also include variables allowing for the identification and estimation of the demand-enhancing impact discussed above.

5. Computable general equilibrium models

Thanks to advances in computer and simulation technology, such as the global trade analysis project (GTAP) (Hertel, 1997) and efforts to improve data collection and availability, computable general equilibrium (CGE) simulations on the effect of traditional trade policies (tariff reductions) can now routinely be carried out. Although CGE models have been extensively used to assess the impact of WTO negotiations on tariffs, these pre-packaged models are not generally suited to the analysis of NTMs. In practice, these CGE models require the quantification of NTMs into the ad valorem equivalent. In this regard, Fugazza and Maur (2008) offer a global and detailed assessment of NTMs in a CGE model (the standard GTAP model) using recent econometric estimates of ad valorem equivalents of NTMs. Within a CGE model, the protection effects are usually assessed at the border. These border effects generate a wedge, either between the world price and the domestic price in the importing country or between the world price and the domestic price in the exporting country. One problem is that protection effects also arise beyond (within) the border because NTMs do not necessarily discriminate between domestic and imported goods. Tackling these effects that arise beyond the border would require models including increasing returns to scale and export-specific costs. In addition, the assessment of the other economic effects in a CGE context is much more complex. Although it would be desirable to investigate how one can identify and separate the cost and the welfare-enhancing dimension of NTMs, it is difficult to think of a methodology that would allow this to be carried out in a systematic way. Detailed information is needed; it would have to be provided by technical experts (Deardoff and Stern, 1997) and probably only for specific products or a limited range of countries. All in all, standard CGE models do not offer a fully satisfactory way to include demand-shift and supply-shift effects, which are necessary to quantify the effects of NTMs.

In practice, CGE models are useful in providing the level of protection of NTMs in a general equilibrium framework, but cannot really assess the price or quantity impact of NTMs. This information has to be computed externally and then included in the model. In this regard, CGE models by Andriamananjara et al. (2004) offer to date the most comprehensive study of the impact of NTMs in a CGE model. They include 14 product groups and 18 regions. This work first makes global ad valorem estimates for NTMs, using price data from Euromonitor and NTM coverage information from UNCTAD. They then use their ad valorem estimates to simulate in GTAP the welfare effects of a removal of the selected NTMs. Similarly, Chemingui and Dessus (2008) assess the impact of NTMs in the Syrian Arab Republic within a CGE framework. They introduce estimates of the price effects of NTMs as regular tariffs. Ad valorem estimates of NTMs are obtained in their study using the price comparison approach.

With the surging interest in trade facilitation programmes affecting trade costs, several studies have attempted to capture the potential impact of trade facilitation in lowering NTMs. Hertel et al. (2001) introduce an efficiency shock variable in GTAP to simulate the impact of lower non-tariff trade costs, such as customs clearance costs in the free trade agreement between Japan and Singapore. Fox et al. (2003) account for the different nature of costs created by NTMs by modelling both the direct costs and the indirect transaction costs of trade facilitation at the United States-Mexico border. Direct transaction costs are modelled as a usual import tax, reflecting a transfer of rent between importers and domestic agents, while indirect transaction costs are modelled as pure efficiency losses. Walkenhorst and Yasui (2005) follow the same approach to estimate the gains to be expected from trade facilitation liberalization, additionally splitting the taxes between those borne by importers and those borne by exporters. Francois et al. (2005) assess the impact of trade facilitation reform related to the WTO Doha round of negotiations. They adopt the trade efficiency cost approach to simulate the impact of improvements in trade logistics. This brief review of existing applied work reveals that CGE models predict important income-welfare effects from NTMs. These are likely to substantially vary across countries and products, but also with the specific functional form chosen to model them in simulation exercises. In particular, efficiency-type effects tend to weigh heavily in the overall welfare effects.

6. Cost-benefit analysis

NTMs do not necessarily embody the economic inefficiencies that are associated with classical trade barriers. Therefore, the impact of regulations is not always inefficient and their removal would not necessarily achieve efficiency gains that would exceed the losses from weaker regulation. In practice, NTMs can provide substantial benefits to the economic system. For this reason NTMs are often analysed in a cost-benefit framework. One example of a cost-benefit framework applied to NTMs is van Tongeren, Beghin and Marette (2009). The main advantage of such an approach is that the quantification of costs and benefits for all the different economic actors (domestic consumers, domestic and foreign producers and government, etc.) involved allows for a more tailored evidence-based treatment of specific NTMs. This comparative approach to NTMs allows for the identification of alternative ways to address a specific regulatory problem. Cost-benefit analysis is generally used only in specific case studies of NTMs where detailed information can be obtained. In practice, the traditional cost-benefit framework expands the analysis to cover not only the costs or benefits associated with the presence of NTMs, but also those of not having NTMs in place. Ultimately, this methodology contributes to a more comprehensive welfare analysis of NTMs than that offered by looking at trade effects alone. In the cost-benefit framework, the costs of the measures are generally imputed on the basis of the "willingness to pay" methods. That is the value (or cost) that consumers and producers impute to removing (or implementing) the measure. For example, the value that consumers give to avoid an undesired product characteristic is a key variable in the cost-benefit assessment. Clearly, the validity of the cost-benefit analysis depends on the accuracy with which the "willingness to pay" is computed. There are various methods of measuring "willingness to pay". The most commonly used are contingent valuation, choice experiment and experimental or behavioural economics methods. Contingent valuation methods involve directly asking individuals about their "willingness to pay" to obtain an otherwise unavailable good. Choice experiments indirectly determine the "willingness to pay" by econometric estimation based on choices models. Finally, experimental economics uses simulations and control groups to reveal the "willingness to pay" of agents (for more details see Lusk and Shogren, 2007).

III

NON-TARIFF MEASURES: REVIEW OF EMPIRICAL EVIDENCE FROM CASE STUDIES

This section presents a review of the empirical literature concerning NTMs. It focuses on a number of case studies, providing policy recommendations and quantitative analysis on several sectors, countries and types of NTMs. The papers summarized in this section also illustrate how some empirical methodologies presented in section II are applied in the analysis of how NTMs affect trade. The section is organized by type of NTM: it first reviews a number of studies related to technical measures, including import bans and pre-shipment inspections and then presents some studies related to other NTMs, such as rules of origin, export restrictions, State trading enterprises, anti-dumping and tariff rate quotas. Given the large number of studies on these topics, this review does not intend to be exhaustive. Nevertheless it provides major insights into issues related to some of the most frequently used forms of NTM.

A. Technical measures

This section presents case studies which discuss some aspects related to technical NTMs affecting international trade. These measures are comprehensive of a wide array of regulations which vary considerably by type, intent and scope. The studies presented here are limited to some of the most interesting cases from a developing country perspective, where a thorough empirical analysis allows some of the impacts on trade or welfare of these types of NTM to be determined.

1. Sanitary and phytosanitary measures and technical regulations

Sanitary and phytosanitary measures include regulations and restrictions to protect human, animal or plant life or health. TBTs address all other technical regulations, standards and conformity assessment procedures imposed with a non-trade objective (i.e. to ensure safety, quality and environmental protection, etc). SPS measures and TBTs are addressed in two important WTO agreements (see section IV), which impose disciplines that go beyond the usual non-discrimination.[14] Independently from their objective and legal frameworks, SPS measures and TBTs can have important economic effects on international trade. Those measures often increase fixed and marginal trade costs and/or production costs. Most SPS

[14] Andrew Guzman and Joost H.B. Pauwelyn (2009), International Trade Law, Wolters Kluwer/Aspen Publishers.

measures and TBTs may raise legitimate concerns about trade disruption (and/or distortion) which may have greater implications for developing than for developed nations. Many of these NTM measures require improved production processes, investment in new technology, efficient trade infrastructure and the use of more expensive shipping methods, all of which are often more costly to implement in developing countries. In addition, SPS and TBT regulations are often administered by a series of conformity assessment measures (science-based requirements in the case of SPS measures and a "not-more-trade-restrictive-than-necessary" test in the case of TBTs), whose cost, complexity and length may depend on the origin of the product. Finally, the complex and sometimes inconsistent application of both regulations and conformity assessment measures may cause SPS measures and TBTs to be perceived by developing nations as creating unfair market access restrictions to the markets of developed economies.

From an economic standpoint, not all SPS measures and TBTs have a negative effect on trade. Some may reduce trade costs by streamlining information regarding the safety, quality and specifications of products between trading partners and ultimately the information provided to consumers. Demand for product varieties whose imports are regulated by SPS standards or TBTs may increase because those measures often provide quality assurance on products and increase consumer confidence. In practice, the effect of SPS and TBT measures on trade can be quite diverse. While some of the effects of SPS measures and TBTs are linked to trade disruption and trade diversion, some are linked to trade creation. The effects of SPS measures and TBTs on trade are also often related to compliance costs, lack of technology, weak infrastructures and poor export services, all of which may impede developing countries in meeting SPS standards and requirements and overcoming TBTs.

Empirically, most analyses exploring the effect of SPS measures and TBTs on trade investigate the impact of those measures in terms of additional costs (marginal and fixed), foregone trade, or in relation to harmonization of standards (in a bilateral or multilateral context). In terms of scope, most studies focus on a few economic sectors and very specific types of restrictions (e.g. maximum residue limits, labelling, conformity assessments, etc.). With regard to the empirical approach, the majority of studies of SPS measures and TBTs generally rely on econometric estimations, often in the form of gravity models. Some studies also apply other methods, such as survey analysis, cost-benefit frameworks and price differential calculations, as discussed in other sections above.

One of the early and more discussed studies on the impact of SPS standards on trade is Otsuki, Wilson and Sewadeh (2001). They provide one of the first empirical analyses of the substantial impact of SPS standards on the exports of developed economies. Using a gravity model framework, their analysis investigates the impact of European Union regulations on aflatoxin (a naturally occurring mycotoxin) in a few selected African export products. Their findings indicate a quite important effect of the European Union regulation on African exports of cereals, dried fruits and nuts. They quantify it as about a 65 per cent export loss. Since their paper, a number of studies have investigated similar issues on different countries and sectors using quantitative methods.

Gebrehiwet, Ngqangweni and Kirsten, (2007) apply a similar analysis of the trade effect of aflatoxin regulations set by five members of the Organisation for Economic Co-operation and Development (OECD) – Germany, Ireland, Italy, Sweden and the United States – on South African food exports. Their findings support the hypothesis that the stringent SPS standards are limiting trade markedly. Their results indicate that, if the five countries had adopted the aflatoxin levels recommended by the Codex Alimentarius (Codex) – instead of the stringent country-specific standards – South Africa would have gained an estimated additional amount of $69 million per year from food exports between 1995 and 1999. The study concludes that stringent SPS standards set by developed countries have the potential to offset the perceived gain of liberalizing tariffs on agricultural trade.

A more recent analysis on the same topic is provided by Xiong and Beghin (2010). In their work, they cast doubt on the conventional wisdom that European Union regulations are trade restrictive. In particular, they use econometric estimations to investigate the effect of the tightening of the European Union maximum residues limit on aflatoxins in 2002 and its impact on African exports of groundnuts. Their results show that the change in the maximum residues limit in European Union regulations had no significant trade impact on groundnut exports from Africa. They provide two possible interpretations: either the regulations

were not binding for African groundnut exporters, possibly because other factors in production and behind the border were more binding impediments. Alternatively, they suggests that it is possible that the higher production costs related to a tighter limit generated trade benefits because European Union consumers valued safer groundnut products. In practice, the costs and benefits of the more stringent regulations could have offset each other. In their paper they suggest that production processes play an important role in the determination of both the trade volumes and the propensity to trade in groundnut products. They conclude that the trade potential of African groundnuts exporters is more constrained by domestic supply issues than by European Union standards.

Many studies assess the effect of SPS standards and TBTs by comparing standards applied by different export markets on specific products. This approach allows standards (and markets) which are relatively more restrictive to be identified. In this regard, Sithamaparam and Devadason (2011) assess the impact of NTMs on Malaysian exports by examining the heterogeneity of various export markets (European Union, Japan and ASEAN-4[15]). Their analysis is not restricted to standards but looks at a wider array of NTMs using the old UNCTAD classification. Their findings reveal the presence of a diverse effect of regulations and standards on Malaysian exports, both across products and across destinations. While TBTs are found to exert a beneficial impact on industrial exports, their effect is overall negative for agricultural exports. They suggest that the Malaysian export-oriented industrial sectors might be more responsive in conforming to the standards and regulations of the importing country. Conversely, they indicate compliance costs as the main impediment for the export of agricultural products. They also find a positive effect of harmonization of standards. Their results suggest that, while exports to ASEAN-4 have increased because of the harmonization of regional standards, they have not increased to the European Union, which generally adopts different standards to other regions.

Another study that contributes to the body of knowledge on the effects of SPS standards from the perspective of the exporter is Chen, Yang and Findlay (2008) which studies the effect of regulatory measures applied to Chinese exports. They examine Chinese agricultural trade disputes to identify key agricultural exports which may be constrained by maximum residue limit regulations. The trade impact of the regulatory framework is assessed in regression analyses by using a gravity model. Their results show that food safety standards imposed by importing countries have a negative and statistically significant effect on Chinese exports and that this effect is generally much larger than that of the existing import tariff. In addition, they also find that in many cases the removal of uncertainty facing exporters about decision-making by import authorities (i.e. certainty of entry if regulations are met) is more important than the standards themselves.

The fact that SPS standards and TBTs are often very different across countries makes harmonization of standards a policy priority. The argument is that if standards are necessary (e.g. for food safety), then commonly agreed international standards based on scientific grounds should facilitate trade by harmonizing the production process across countries. In practice, the harmonization of standards should remove many of the restrictions to trade, as production processes do not need to be customized to meet requirements particular to each export market. The studies on harmonization generally compare country-specific standards to internationally set guidelines (Codex, ISO, etc). This allows any trade effect of a more stringent national standard to be assessed. In this regard, Czubala, Shepherd and Wilson (2009) investigate the impact of harmonized standards on African exports. They examine the African export dynamics of products regulated by standards specific to the European Union versus those regulated by international standards adopted by the European Union. They focus on textile and clothing exports and their findings indicate that standards specific to the European Union are particularly damaging to African exports. Conversely, international standards adopted by the European Union are less restrictive of trade. Moreover, they find that it is not just mandatory technical regulations that can have significant trade impacts, but voluntary product standards as well. They suggest that while country-specific standards increase the marginal and fixed costs of exporting for African firms, the use of international standards as the basis for harmonization may reduce their costs of compliance. Their results also suggest that working toward the harmonization of product rules across

[15] Cambodia, Lao People's Democratic Republic, Myanmar and Viet Nam.

markets could be a supportive policy to encourage the ability of small and medium-sized firms to enter new export markets. More generally, the results suggest that efforts to promote African manufacturing exports in high-income countries should include international harmonization.

Another study related to the effect of harmonization of standards is undertaken by Wilson, Otsuki and Majumdsar (2003). Their paper examines the impact of antibiotic residue standards on trade in beef and analyses the trade effect of setting harmonized international standards. They specifically look at the diverse standards applied in six importing countries or regions (Australia, New Zealand, United States, Canada, European Union and Japan) and how these affect exports from a number of countries (Australia, Argentina, Brazil, Canada, Chile, China, Hungary, Mexico, New Zealand, Nicaragua, South Africa, Switzerland, Thailand, Ukraine, Uruguay and United States). By using an econometric approach the authors find that bovine meat imports are significantly lower for an importing country that has a more stringent standard on tetracycline (an antibiotic). They quantify the effect of a worldwide implementation of international standards set by Codex on an increment of the international trade of beef of about $3.2 billion. Among developing countries, South African exports would rise by $160 million, those of Brazil by $200 million and those of Argentina by over $300 million. They also find that not all countries would benefit from such harmonization. Interestingly, they find that while a universally adopted Codex standard on beef would significantly increase bovine meat exports from the emerging developing countries, it would decrease exports from low-income countries. The reason is that many low-income countries can export only to countries applying relatively lax standards as they do not have production processes in line with the Codex standards, let alone with the more stringent standards of many high-income markets. Their findings suggest that a worldwide international standard on beef may result in a substantial loss of exports from low-income countries, at least in the short run.

Another important policy matter is whether standards should be harmonized multilaterally or on a bilateral or regional basis. This issue is gaining relevance as an increasing number of partnership and regional agreements also concern mutual recognition of standards or outright harmonization of bilateral standards. Although multilateral harmonization of standards under international guidelines is generally positive for developing countries, the benefits of mutual recognition of standards are more controversial. The issue of the detrimental impact that mutual recognition or harmonization of bilateral standards can have for developing countries is discussed in Disdier, Cadot and Fontagné (2012). Their study investigates the effect of technical requirements contained in North-South regional trade agreements. They start from the general evidence that agreements between North and South lead to a convergence of standards to the more stringent ones and to the adoption by developing economies of standards imposed in rich markets. Their results indicate that the adoption of northern standards leads to higher quality but also higher costs in the South. Ultimately, southern countries will increase their exports to the North, diverting South-South trade. In this regard, they emphasize how mutual recognition of standards in North-South regional trade agreements creates or strengthens the hub-and-spoke structure of global production networks. More generally, their findings indicate that harmonization of standards is often not in the best interests of developing countries and erodes some of the benefits linked to the signature of the agreement. They also show that the existence of North-South regional trade agreements hurts South-South trade and impedes the diversification of developing countries into new markets. Overall, their results suggest that standard harmonization provisions included in North-South agreements may miss their target and tend to marginalize southern countries from the world economy.

On the same issue, Shepherd (2007) presents empirical evidence that the harmonization of international standards is associated with increased export diversification in new markets, while bilateral harmonization is not. His findings indicate that a 1 per cent increase in the total number of country-specific standards leads to a 0.7 per cent decrease in partner country export variety, but a 1 per cent increase in the number of internationally harmonized standards leads to a 0.3 per cent increase in export variety. Both effects are larger in absolute value terms for low-income countries than for high-income countries, thus highlighting the importance of the international harmonization of standards from a development point of view. In this regard, multilateral harmonization can be an effective way of promoting access to foreign markets for firms with lower productivity, since it induces an upward shift in the cut-off point of the export marginal cost. International harmonization

could therefore be expected to encourage exports by small and medium-sized enterprises in developing countries, while mutual recognition would not.

The analysis of standards is not always limited to compliance costs but also includes their effect on information costs. The rationale is that standards increase information flows between importers and exporters and thus may have a positive impact on trade. In this regard, Moenius (2004) analyses the impact of country-specific and harmonized standards on trade. The empirical methodology relies on estimates of a gravity equation that includes measures of harmonized and country-specific product and process standards. While his results support the general view that harmonized standards promote trade, the impact varies across sectors. While standards are found to reduce agricultural trade, they are found to promote trade in the manufacturing sector. The author suggests that the relationship between information costs and compliance costs can explain these results. Standards, whether country-specific or harmonized, reduce information costs and allow for easier contracting (because they provide useful information for product adaptation). Nevertheless, compliance with standards is costly. If the costs of adapting products to foreign markets are small relative to information costs, the benefits of standards overcome the adaptation costs. This explains the positive effect of standards for manufacturing industries where information costs are likely to be greater because of a higher technological content. In non-manufacturing industries and in the agricultural sector, products are generally homogeneous, so informational requirements are lower. In these sectors, compliance costs are likely to dominate information costs and thus standards have a negative effect on trade.

The positive role of standards in relation to information costs is also discussed in Fassarella, Pinto de Souza and Burnquist (2011). In their paper they suggest that requirements for conformity assessment could enhance the information content about products and processes. This information may stimulate demand to a point that might compensate for the additional costs introduced by the requirements. In particular, they evaluate the effects of technical and sanitary measures introduced by the major importers of Brazilian poultry meat. The impact of the SPS measures is estimated using a gravity model constructed with disaggregated data on bilateral poultry meat between Brazil and its trading partners for the period from 1996 to 2009. Their results indicate that the existence of technical and sanitary regulations related to labelling promotes trade, while the presence of strict regulations related to conformity assessment appears to reduce the volume of Brazilian exports. These results emphasize the importance of the choices countries make about how to regulate in order to meet their primary established purposes, since different types of requirements can have different impacts upon trade.

The impact of standards is also analysed in terms of their possible trade-diverting effects. The general rationale is that the cost of compliance may be different across countries because of different technology, infrastructure and geography. Thus the imposition of SPS and TBT regulations may shift trade from one producer to another one. In this regard, Reyes (2011) finds that, while harmonization tends to increase exports from the developed world, it has an ambivalent impact on exports from developing nations. The divergent impact of harmonization across rich countries and developing countries is in line with the presence of two distinct market access frameworks. The explanation is based on the pro-competitive effect of international harmonization. As harmonization increases competition, the key feature that must determine the overall impact in export value, at the country level, is the unobserved ability of new firms to start exporting in response to harmonization. Empirical evidence suggests that while firms in developed countries are responsive to harmonization, few firms in developing countries are able to quickly adapt to the change in product standards.

The impact of standards on different exporters is also discussed in Chen, Otsuki and Wilson (2006). In their paper they analyse how foreign standards and technical regulations affect the export decisions of firms. Their rationale is that standards represent an important barrier to entry because compliance with standards can be quite costly for producers. Less competitive firms may be cut out of the market. In this regard, firms in developing countries may be at a disadvantage. Indeed, their results indicate that standards and technical regulations do affect the propensity of developing-country firms to export. In particular, firms in developing countries tend to export 16 per cent less of their total sales because they cannot easily meet testing requirements. Testing procedures and lengthy inspection processes cause an even larger adverse impact on agricultural firms

which produce highly perishable goods. Their results also suggest that the difference in standards across foreign countries causes diseconomies of scale for firms and affects decisions about whether to enter export markets. Their analysis suggests that country-specific standards result in increasing the marginal costs of entry (by increasing specialization and market segmentation) and thus firms do not find it profitable to diversify into a large number of markets.

Many of the studies reviewed focus only on a particular type of SPS measure or TBT. However, these measures may take very different forms and thus have different effects on international trade. This issue is analysed by Chen, Otsuki and Wilson (2008) who examine the importance of various types of standards for the export decisions of developing-country firms. Using information from the World Bank TBT survey database, they find that different types of standards exhibit sharply distinct relations with the intensive and extensive margins of exports of firms. Quality standards are found to be positively correlated not only with the average export volume of firms, but also with their export diversification. A similar relationship is found in regard to labelling requirements. On the other hand, they find that certification procedures are associated with a significant decline in the number of export markets and export products. The results suggest that the impact of different standards can be very diverse. Different approaches should therefore be taken in addressing each type of technical regulation. By reducing consumer uncertainty about the quality of products, quality standards and labelling requirements can significantly increase the willingness to pay and thus increase the profits of firms. The negative effect of conformity assessments suggests that repetition in testing and certification procedures in multiple markets can cause significant diseconomies of scale and scope. The policy implication of their study is that not all standards need to be negotiated, as some may have positive effects for exporters. They point to the importance of negotiations on streamlining certification procedures which should help firms improve their economies of scale and scope.

The effect of SPS measures and TBTs can also be analysed in the context of supply capacity and production constraints. Meeting SPS standards or overcoming TBTs often requires long-term investments that are not available to many firms. The implications are that regulations and standards may not represent a critical problem for larger firms with more advanced production processes, while they are crucial for small and medium-sized enterprises. The implications of SPS measures and TBTs for different typologies of firms and producers are analysed in a number of papers. Wong (2007) explores the impact of the non-tariff requirements of major export markets on Ecuadorian exports of bananas and pineapples. The analysis is based on survey data from farmers and exporters. His results indicate that the ability to cope with SPS and TBT requirements is not the same for large, medium-sized and small banana and pineapple producers. Generally, for large producers there is no problem in complying with SPS and TBT requirements. However, for medium-sized and small producers, it is very difficult, if not impossible, to comply with the stringent requirements from high-income markets such as the European Union. The results suggest that the presence of cooperatives can be a promising solution for small and medium-sized producers. Cooperatives give more market power to small producers and provide information on the standards that producers need to meet to be able to sell their fruit. Another solution in coping with these standards is related to export contracts (between exporters and farmers). These contracts establish long-term business relationships that improve quality controls and mutual trust. Interestingly, most of the large banana and pineapple producers do not consider SPS standards a crucial trade barrier. Banana exporters and producers all agree that tariffs are the main barrier to the banana trade. On the contrary, for pineapple producers and exporters (given that pineapples in general are not subject to tariffs in the United States and the European Union), it is the non-tariff requirements that are considered a trade barrier rather than tariffs.

Standards and other NTMs not only affect firms and producers differently, but ultimately may have strong redistributive effects and thus affect welfare, poverty and inequality. Maertens and Swinnen (2009) quantify the income and poverty effects of standards on trade. Their paper first analyses how the structure of the fruit and vegetables export supply chain in Senegal has changed in response to tightening food standards and then investigates how this has affected the welfare of poor households. The authors summarize their findings in four parts: first, NTMs on fruit and vegetables do have an impact on poverty, as these products contribute to poor household incomes in Senegal; second, exports from Senegal to the European Union have increased sharply over the past decade, despite

increasing standards in the European Union; third, tightening food standards has induced structural changes in the supply chain, including a shift from smallholder contract-based farming to large-scale integrated estate production; and fourth, the welfare implications of higher standards for export production are found to be positive for poor rural households. In practice, their findings suggest that the restructuring of the supply chain has altered the mechanism through which local households benefit: increasingly through labour markets instead of through product markets. More so, landless poor households can now benefit relatively more from working on large-scale farms than from contract farming.

Another study examining the welfare effects of SPS measures and TBTs is that by van Tongeren et al. (2010). This study applies a cost-benefit framework, where the cost of the imposition and implementation of the regulatory framework is weighed against any welfare or economic loss. The paper illustrates the effect of NTMs on three specific sectors and focuses on mandatory regulatory measures (SPS measuress) implemented by OECD Governments. In the first case study they look at the regulatory framework on imports of raw milk cheese in Quebec, Canada. Their results indicate that, although the requirements imposed on imported unpasteurized cheese were reasonable on health and safety grounds, a more lax regulation would produce gains to domestic consumers from larger choice and higher supplies. Moreover, these gains would outweigh any health risk due to the possibility of bacterial contamination. A critical issue on these types of analysis is how to measure health risk. The authors adopt a "willingness to pay" method (the maximum amount a person would be willing to pay, sacrifice or exchange in order to receive a good or to avoid something undesired, such as sickness). The second case study investigates shrimp imports from South-East Asia to OECD countries. Major importing markets impose strict regulations on shrimps, which are required to be free of bacteria and antibiotics. In cases where shrimps test positive, consignments are rejected and further consignments are subject to 100 per cent testing requirements or temporary import bans. To comply with these SPS requirements, many developing countries have tried to improve their production methods so as to avoid the use of antibiotics. Two different changes are analysed: a shift either to better management practices involving a less intensive and more environmentally friendly production method, or to a more disease resistant shrimp variety. Their findings suggest that better management practices are more profitable, even considering the higher cost of implementation. The alternative of disease-resistant shrimp is not competitive because of a much lower profit margin in consumer markets. Finally, the third case study investigates imports of cut flowers into the European Union. The European Union recently strengthened its regulatory measures on imports of cut flowers to limit the possible spread of organisms harmful to plants or plant products. This negatively affected imports from developing countries, largely because tighter inspection led to losses related to depreciated quality (which in turn is due to time requirements for inspection procedures). Improved production methods in exchange for reduced inspection tightness also led to diminished profits for foreign suppliers, because of higher production costs. In all cases, the increase in inspection costs is found to outweigh the estimated gain to the domestic sector from being less prone to plant disease. That is, the authors find that taking all costs and benefits together, the estimated net benefits of tighter inspection are negative.

Import bans are intrinsically related to SPS measures and TBTs, as they are frequently imposed in relation to events or circumstances that may result in hazard to human, animal or plant life or health from either pests, disease or from contaminated food, beverages or feedstuffs. They can also be introduced in relation to mandatory SPS and TBT regulations imposed by the importing country, such as requirements imposed to improve national security. Classic and well-known cases of import bans are related to the insurgence of epidemics in exporting countries (e.g. avian influenza, bovine spongiform encephalopathy), or to the more general need to protect the environment and the agricultural sector from exotic invasive pests and pathogens. While import bans are extreme measures which have a dramatic impact on international trade, there is no disagreement about the basic need for an exception to WTO obligations that allows States to exclude from their markets products that are unsafe.[16] Under the WTO SPS Agreement a scientific risk assessment is needed to justify an import ban. In practice, the legitimacy of an import ban is related to a convincing scientific proof of the necessity of such a ban. From an economic standpoint, the cost of an import ban needs to be assessed in a cost-benefit

[16] Andrew Guzman and Joost H.B. Pauwelyn (2009), International Trade Law, Wolters Kluwer/Aspen Publishers.

framework by comparing the threat of economic damage – due to the actual risk posed to human, animal or plant health – to the welfare loss due to the unavailability of the product.

The import ban imposed on bananas by Australia is a fairly well-known and well-studied case of the effect of such measures on producers and consumers. Since the Quarantine Act in 1908, the Australian default position on quarantine has been to ban imports of biological material, unless it is shown to be safe to do otherwise. This trade policy stance has created and continues to create tensions with Australia's trade partners, especially South-East Asian banana producers. In the specific case of bananas, Australia requires stringent import protocols that often result in a de facto import ban. On one hand, the ban benefits Australian growers of bananas by protecting their production from possible exotic pests and pathogens introduced with imports. On the other hand, Australian consumers of bananas continue to face higher prices. The study by James and Anderson (1998) was one of the first to demonstrate the potential value of economics in quarantine decisions using the Australian banana market as a case study. In their work, a static, cost-benefit partial equilibrium model is used to compare three situations with respect to imports, namely: an outright ban, a cost-free regime for import risk management at the border and unrestricted (but unsafe) free trade. They conclude that even if imported diseases wiped out the local industry, the gains to consumers would outweigh the losses to producers competing with imports from removing a ban on imports. This would leave the country better off than with the import ban. Javelosa and Schmitz (2006) undertake a similar analysis using data for the year 2003. They extend the study from James and Anderson (1998) by calculating the welfare effects for the Philippines of a change in the Australian import regime. They apply static and deterministic analysis and reach a similar conclusion: even if exotic pests and diseases were to wipe out the Australian banana industry, the country would still be better off by allowing the free importation of bananas than by continuing with the long-run practice of banning imports.

A more recent work on the same issue by Leroux and Maclaren (2011) reaches a different conclusion. This work uses a dynamic model which allows a more sophisticated analysis of the consequences of lifting an import ban, both in the short and long run. Moreover, the authors take into account the costs and benefits of developing an adaptation strategy. They show that, even when net economic welfare gains could be realized from lifting import bans, it may still be suboptimal to do so immediately when a longer time horizon is considered. More specifically, they analyse the trade-off between delaying the lifting of an import ban and the benefits from engaging in freer trade immediately. As the threat of economic damage from biological invasions of pests and pathogens may be significant, it is important to determine carefully the optimal trade policy to be adopted. Their analysis highlights the fact that the economic analysis should carefully assess welfare benefits against the implicit risk of removing an import ban. In fact, they point out that previous research based on static economic net welfare benefit analyses can mistakenly support decisions in favour of unrestricted free trade, even in the presence of high-risk imports of agricultural commodities. They conclude that both welfare implications and sound scientific evidence have to be taken into account. When scientific evidence is not readily available, it is often optimal to wait for more substantial evidence than remove import restrictions. To determine the optimal timing of when trade bans should be lifted in the face of a biological invasion and research and development uncertainty, they develop a stochastic continuous-time model of optimal quarantine decisions. In the case of Australia, they quantify the optimal delay to free trade in bananas as 5.5 years from the time research into banana-specific exotic pests and pathogens and the development of effective adaptive strategies commence. More generally, their numerical results highlight the importance of accounting for uncertainty and irreversibility when developing rules based on economic decisions to determine optimal quarantine policies related to import bans.

The import of Hass avocados into the United States is another interesting case in the literature. Imports of fresh Mexican Hass avocados into the United States have been restricted, totally or partially, since 1914 on grounds of the potential risk of pest infestation, especially for Californian producers. In 1997, entry of Mexican Hass avocados was allowed into 19 north-eastern states and the District of Columbia during a four-month period. In 2001, the area approved for import was expanded by an additional 12 states and the period of import was extended to six months. In 2003, the Government of Mexico requested access for avocados from approved orchards into all 50 states throughout the year. This case is analysed by

Peterson et al. (2004), who assess the economic impact of allowing imports of fresh Mexican Hass avocados into the United States without geographic or seasonal restrictions. The authors adopt a static, partial equilibrium model to analyse the impact of removing the partial import ban on Mexican avocados. Their analysis clearly shows the trade-creation and trade-diversion effects of the regulatory regime. Expanding access throughout the year to all states would cause a decrease in production and prices for California and Chilean producers, while Mexican exports would increase. However they find net welfare benefits for the United States as a whole, since consumers there would benefit from a greater availability of fresh avocados at lower prices and the gain in consumer welfare would more than offset the loss in producer welfare.

Another common cause of import bans is the outbreak of animal diseases. The outbreak can trigger worldwide import restrictions that greatly penalize exporting countries where the outbreak originates. Such events often result first in a sudden drop of demand and then in significant increases in exports for non-affected exporters once there is enough confidence that the outbreak is localized and contained. In practice, the trade-diversion effects of import bans due to disease outbreaks are quite large and so are the gains that non-affected countries may reap. Felt, Gervais and Larue, (2010), study the case of Japanese pork imports, where the risk of foot and mouth disease motivated the Japanese decision to impose a ban on pork exports from Taiwan Province of China in 1997. At the time, Taiwan Province of China was supplying 41 per cent of Japanese pork imports. The authors look at whether the exit of a major competitor affected the remaining exporters (United States, Denmark and Canada) by allowing them to command higher prices. Their results suggest that foreign exporters were delayed by two years in making adjustments after the exit of Taiwan Province of China from the Japanese market. United States exporters were able to reap most of the market opportunities stemming from that exit.

Another interesting case study of the trade effects of a disease outbreak is related to the avian influenza (HPAI) pandemic. This case is analysed by Nicita (2008), who illustrates the effect that import bans due to HPAI have had on the international trade of poultry products. The findings of this study suggest that the outbreaks of avian influenza have substantially restructured the international flow of poultry products. In the years before the HPAI epidemic the principal driver of the Asian poultry market was Japanese demand for unprepared poultry from China and Thailand. As HPAI outbreaks spread through Asia, Japanese importers shifted their suppliers to the advantage of countries which were free of HPAI. Brazil was the main beneficiary of the import ban imposed on Chinese and Thai exporters because of its large supply capacity and competitive products relative to other HPAI-free countries, namely the United States. An interesting finding of this study is that the Thai and Chinese poultry industries were able to contain the negative consequence of avian influenza. In fact, the poultry industries in South-East Asia largely refocused their export markets by converting production from unprepared meat (subject to import bans) to prepared poultry meat (perceived as safer by consumers and not subject to import bans). In particular, Thai poultry-exporting firms managed to quickly refocus their exports from unprepared to prepared poultry meats. The author concludes by suggesting that the HPAI outbreaks may have accelerated a transition to the production and export of higher value added products.

2. Pre-shipment inspections

Pre-shipment inspections (PSIs) are measures requiring imports to be inspected by a private surveillance company at the origin of a shipment, instead of just at the customs of the importing country. Governments impose PSIs to ensure that the price charged by the exporter reflects the true value of the goods, to check the quality of goods that enter their country and to mitigate attempts to avoid the payment of import taxes. Often, the main purpose of PSIs is to streamline import procedures in countries where customs administration is weak. PSIs provide a parallel information system enabling client Governments to control the tax collection functions of their own bureaucracies. In this regard, PSI services are used to fight evasion of import tariffs, curb underinvoicing and fight corruption at customs. PSIs were given official legitimacy in international trade with the 1993 ratification of the Agreement on Preshipment Inspection (Dutz (2000).

In an interesting study, Anson, Cadot and Olarreaga (2006) analyse whether PSIs help reduce tariff evasion. They investigate whether PSI programmes are an

effective way of improving tariff revenue collection and of reducing fraud when customs administrations are inefficient. The authors show that the introduction of PSIs may not mitigate the level of fraud, in particular when PSI data is not systematically reconciled with customs data by national authorities. They identify two diverse effects related to the introduction of PSIs: on one hand, PSIs directly generate information useful for detecting possible tariff evasion schemes; on the other hand, PSIs may provide disincentives for additional custom controls as they may act as a strategic substitute for customs administration. In other words, although common sense would suggest that PSIs can only improve the ability of national authorities to gather more information and hence to better control fraud, it may have a perverse effect on the motivation to control customs. In practice, PSIs should not be the only instrument for Governments to combat tariff evasion, but should be paired with additional customs controls. Lastly, the authors find that the effect of PSIs can also be negative because PSI services are generally expensive. PSI companies are paid a share – around 1 per cent – of the import value inspected. Besides adding to trade costs, the authors suggest that the fee creates incentives for PSI companies to "overcorrect" underinvoicing in order to maximize their revenue. In order to avoid being challenged by importers or customs officers, this overcorrection is more likely to occur on products with low tariffs, which generally attract less scrutiny.

The incentives for PSIs to overinvoice are also analysed in Yeats (1991). This study adopts a cost-benefit approach in evaluating the effect of PSI on customs valuations. It analyses the relative import prices in Madagascar before and after the introduction of PSI. In particular, the paper examines whether Madagascar paid "inflated" prices for some goods and, if so, how effective PSI was in counteracting this problem. The author concludes that PSI failed to reduce the excessive import prices Madagascar was paying. In fact, Madagascar paid a premium for most imported goods before and after PSI was adopted. The author finds the most extreme overpayments clustered in chemicals and basic manufactures products where PSI was generally required. Furthermore, the study shows that collaborative false invoicing may exist, as indicated by the fact that the import prices of high tariff items (subject to higher controls) were significantly below those of low tariff products (less controlled).

B. Non-technical measures

This section presents case studies which discuss some aspects related to non-technical NTMs affecting international trade. As non-technical measures vary considerably by type, intent and scope, the review is not intended to be comprehensive. The studies presented here are limited to some of the most interesting case studies from a developing-country perspective, where a thorough empirical analysis allows some of the impacts of these types of NTMs on trade or welfare to be determined. The selected case studies cover measures including State trading enterprises, tariff rate quotas, rules of origin, export taxes and anti-dumping.

1. State trading enterprises

State trading enterprises (STEs) are enterprises authorized to engage in trade (exporting and/or importing) that is owned, sanctioned or otherwise supported by Government. They are legitimate trading entities, subject to WTO definition and rules. Because they can affect international trade they have become an important policy issue. From an economic standpoint, STEs do not have an unambiguous effect on trade, as they are simply instruments through which Governments control market structures as a mean of redistributing income between producers, consumers and taxpayers. In practice, Governments use them to regulate markets as a means to implement redistributive policies. Generally their trade effects may be equivalent to an export subsidy in developed countries, while in developing countries the effect of them can often be equivalent to an export tax. In any case, their effect on trade and welfare is often suboptimal and their reform may expand market access and reinforce the benefits of international trade. Among the formal economic analyses related to them, a series of studies by McCorriston and MacLaren specifically analyse whether State trading exporters distort trade and affect welfare.

State trading enterprises can take different forms, depending on the rights they are entitled to. McCorriston and MacLaren (2005a) focus on their effect on importing countries and how that effect depends on their different rights. An STE may have single-desk authority over imports, together with sole

control over domestic procurement and sales; or it may compete with private sector firms for domestic procurement and sales but have exclusive rights only with regard to imports. It may also coexist with private firms in both markets. The effect of the reform of State trading on market access and welfare will largely depend on the nature of these rights, how these rights are changed in the process of deregulation and the extent of private sector competition that subsequently arises. The paper by McCorriston and MacLaren presents a model that provides a direct tariff-equivalent measure of the trade-distorting effect of STEs which is contingent on the nature of the exclusive rights that apply. The authors also use a computable partial equilibrium model to evaluate quantitatively the effect of an STE on market access and welfare in the Japanese wheat sector. The paper shows that when an STE has the objective of transferring income to producers, it not only impedes imports but it generally reduces the welfare of the country. They also show that importing STEs – which in developed countries are assumed to have a policy bias towards producers – have the potential to distort trade significantly by restricting market access for foreign competitors and in so doing reducing welfare in exporting countries. Even STEs in developing economies – assumed by the authors to be concerned about consumer welfare and profits from the sales of the good and not about producer welfare – are likely to inhibit trade, despite the focus on the interests of consumers. More generally, the results suggest that the trade-distorting effect of STEs is likely to vary considerably, depending on the type that arises in particular circumstances.

In another paper, McCorriston and MacLaren (2005b) investigate the trade-distorting effects of a "single-desk" type of STE (i.e. those that have exclusive rights in both the domestic and export markets). They analyse the effect of the Canadian and Australian wheat boards, which differ in the exclusive rights that their respective Governments have given them. The study shows that, depending on the nature of the exclusive rights and the interaction with other government policies, the trade-distorting effects of STEs can be equivalent to either an export subsidy or an export tax. They argue that, in considering the magnitude of the trade distortion, it is important to consider the benchmark or counterfactual against which STEs are compared (i.e., the domestic market structure that would evolve after an STE loses its exclusive rights). To measure the effect of STEs on trade, the authors develop a framework to determine the implicit export subsidy equivalent that it would be necessary to pay to (or the export tax that would be implicitly imposed on) private firms to replicate the observed level of exports. It is shown that, even if an STE increases the welfare of domestic producers and consequently expands exports relative to those in a deregulated market, the end result may nevertheless be a net reduction in welfare because of higher domestic prices. Moreover, the effect of STEs may also reduce the welfare of competing exporter countries (because of lower international prices) and, despite the gains to importers, reduce global welfare.

In a more recent paper, McCorriston and MacLaren (2007) examine the welfare effect of the Canadian Wheat Board, which received much attention from the United States and the European Union in the WTO agriculture negotiations, and of the China National Cereals, Oils and Foodstuffs Corporation in China, which received attention in the negotiations on Chinese accession to WTO. Their study finds that the Canadian Wheat Board is equivalent to an implicit export subsidy. The domestic welfare effect essentially involves transfers from consumers to producers. In the case of the China National Cereals, Oils and Foodstuffs Corporation, the results show that the size of the trade distortion depends on whether the bias of the underlying agricultural policy favours consumers or producers. More generally, the authors conclude that the presence of STEs is suboptimal and tends to lead to a reduction in welfare because it essentially involves inefficient redistribution. As with more traditional trade policy instruments, removing them would be likely to increase domestic and world welfare because third-country importers would also be affected.

An important issue of consideration in relation to STEs is that their redistributive purpose indirectly creates rents which may increase corruption and inefficiencies. For them to achieve their intended goal, proper administration is therefore essential. In this regard, a study examining how a badly managed STE can evolve into a wasteful enterprise is a paper from Cadot, Dutoit and de Melo (2009). This paper focuses on how the Madagascan Vanilla Marketing Board affected prices paid to farmers, incentives and ultimately poverty. Marketing boards are a common form of STE in developing countries and typically buy up the domestic supply of a good and sell it on the international market. The prime motive in the establishment of marketing boards is to stabilize producer prices, particularly in the case of products whose international price fluctuations are large, or to

try to obtain higher international prices by regulating supply. In the 1960s, Madagascar was one of the major producers of vanilla and thus a cartel was formed with other smaller regional producers with the purpose of taking advantage of the huge market power of the region to obtain higher prices. This was implemented by establishing a marketing board with the task of fixing producer and export prices. In the initial years, the Marketing Board was successful as the worldwide market share of the cartel increased to more than 80 per cent, while international prices climbed. However, in the late 1970s the sector started to become uncompetitive, largely because of rent-seeking and corruption. The gap between producers and export prices constantly increased, with farmers receiving less than 8 per cent of the international price of vanilla. Low producer prices discouraged plantation and made it all but impossible for farmers to renew plant material and maintain quality. In addition, while part of the supply was destroyed to sustain high prices, the overpricing in international markets encouraged other countries (notably Indonesia) to increase plantation and enter the international market. As a consequence, the market power of the cartel declined to less than 40 per cent in the mid-1990s. Only when the Marketing Board was finally abolished in 1995 was Madagascar able to regain market share and increase the quality of its vanilla production. Although this also resulted in an increase in the volatility of world prices, the overall result was positive. The study quantifies the elimination of the Marketing Board as translating into increased income for producers that resulted in lifting about 20,000 individuals out of poverty.

2. Tariff rate quotas

Tariff rate quotas (TRQs) combine two policy instruments: quotas and tariffs. Imports entering under the quota portion are usually subject to a lower (sometimes zero), tariff rate. Imports above the quantitative threshold of the quota face a much higher tariff. In theory, TRQs are not quantitative restrictions, as the import quantity is not limited and above-quota imports are permitted at the higher tariff. In practice, above-quota tariffs are often prohibitive, thus the effect of a TRQ is often equal to a simple quota. Although the utilization of TRQs for enhancing market access is a key component of global agricultural trade negotiations, there is little empirical evidence of the impact of TRQ implementation practices on market access.

One study examining the impact of TRQs on market access is Li and Carter (2009). They conduct a comprehensive study of agricultural TRQs and identify factors affecting the importance of TRQs in terms of market access. The analysis covers individual TRQs notified by 28 WTO member countries from 1995 to 2000. The paper uses econometrics to deal properly with the double-censored nature of TRQ fill rates. The results show that reducing in-quota tariffs will significantly improve market access, while the market access effect of any reduction in above-quota tariffs is marginal. The authors also find that TRQ administration methods are a principal determinant of the volume and distribution of trade and of the distribution of quota rents. Each method has its own advantages and disadvantages, incurs transaction costs of different magnitudes, results in different hidden costs and fill rates and affects imports differently. The findings of the study also indicate that a simple applied tariff method is superior to other administration methods and has the least impact on market access. This suggests that the sooner the transitional TRQ regime is phased out and replaced by a tariff-only regime, the greater market access will be. The authors also argue that reforming TRQ administration methods is a key issue in trade negotiations.

The TRQ system was instituted in the aftermath of the Agreement on Agriculture of the Final Act of the Uruguay Round, which set new rules for trade in agricultural products. The implementation of TRQs was also envisaged as a means to ameliorate market access for the exports of developing countries. However, TRQ allocation is not always in favour of developing countries. Since they are potentially large exporters of the agricultural products subject to TRQs, a more flexible administration of TRQs is of great importance for these countries. Khorana (2004) focuses on Swiss agricultural imports and discusses whether TRQs enhance or discriminate against market access for agricultural exports from developing countries. The study illustrates the existing modalities for the allocation of licences and argues that an efficient TRQ administration is one that allows for full utilization of import quotas, is transparent, certain and at the same time efficiently liberates the distribution of trade from the distribution of rents. As TRQs are often not fully utilized, an important feature of their administration should be permission for the resale of quota rights. This would provide low-cost suppliers with an opportunity to purchase quota rights from high-cost exporters and would facilitate new

entries. The author concludes that a TRQ by itself is not a major market access barrier, but when TRQs are used as non-tariff barriers they have the potential to impede market access for the products of developing countries.

3. Rules of origin

Rules of origin (RoO) are the criteria needed to determine the country of origin of a product. Their importance is derived from the fact that duties and import restrictions may depend upon the origin of imports. RoO are categorized as preferential and non-preferential. They serve different purposes. Non-preferential RoO are generally used to determine the country of origin in regard to allocation of quotas and the effect of contingency protection measures. Preferential RoO determine which products can benefit from preferential access and are deemed necessary to enforce preferential schemes. Preferential RoO are further divisible into rules on general preferential treatment (under Generalized System of Preferences (GSP) schemes) and those relating to regional trade agreements. Preferential RoO play a major role in the new trading system and are an integral part of all trade agreements. From an economic standpoint, preferential RoO have a direct effect on international trade as they affect the rate of import taxation.

The primary justification for the use of preferential RoO is to prevent trans-shipment (trade deflection). In theory, preferential RoO are in the interest of beneficiary countries as they guarantee that countries non-eligible for preferential treatment do not free-ride on the preferential scheme by trans-shipping or minimally processing their export goods through eligible countries. Imports from an eligible trade partner which are produced using materials or components from a third (non-eligible) country will not qualify for preference unless they comply with RoO. Another justification for the use of RoO in North-South preferential trade agreements is that they can foster the emergence of integrated manufacturing activities in southern partners. Given the increasing fragmentation of production processes across different countries, RoO need to be stringent and complex to serve their primary scope. However, stringency and complexity impose substantial additional costs to beneficiary countries. In extreme cases, the preferential margin guaranteed by the preferential scheme is completely eroded by the compliance costs associated with RoO. In these cases, exporters from eligible countries may find it optimal to opt out of the preferential schemes, thus defeating their primary purpose.

Cadot and de Melo (2008) provide a comprehensive overview of the issues related to preferential RoO. Their study points to the complexity of RoO and the related compliance costs imposed on eligible countries. It highlights how the burden imposed by the RoO applied by many developed countries is often beyond the level that would be justified to prevent trade deflection. Even so, the authors indicate that the system of RoO applied by developed countries often defeats the developmental aspect of RoO. Forcing southern producers to inefficiently source intermediate goods locally or in high-income markets (instead of from the most price-competitive sources) raises overall costs. More generally, RoO are found to substantially reduce preferential access margins and to create rents for northern producers.

Another constraint resulting from RoO requirements is related to the presence of overlapping RoO schemes. In this regard, Brenton and Özden (2005) analyse the role of different RoO in the textile and apparel sector in Africa. Their study examines the nature of trade preferences for apparel and the evolution of the apparel trade from developing country beneficiaries. Most African countries are granted preferential market access to the European Union, the United States and Japan. However preferential access is regulated by RoO that are specific to each importing country. The differences in preferential arrangements regarding RoO create inefficiencies for exporters as they find it very costly to adjust their production operations in order to benefit from all preferences. In practice, an African apparel product allowed to enter under one country's preference scheme will not be able to enter under another. This has the consequence of segmenting export markets rather than providing incentives for diversification.

The trade impact of similar RoO can be quite diverse depending on their requirements. A paper comparing the effects of different RoO, undertaken by de Melo and Portugal-Perez (2008), investigated the schemes of the European Union and the United States. The European Union and the United States offer similar preferential market access for apparel exports to a group of African countries (a 10 per cent preferential margin). However, these agreements differ in their product-specific rules of origin. While the European

Union Everything but Arms initiative and the Cotonou Agreement required yarn to be woven into fabric and then made up into apparel in the same country or in a country qualifying for cumulation (double transformation), The United States African Growth and Opportunity Act granted a special regime to least developed countries allowing them to use fabric from any origin and still meet the criteria for preferences (single transformation). Since most African least-developed countries do not have highly developed industries, in many cases it is impossible for them to fulfil the stringent RoO requirements without incurring additional production costs and thus intermediate inputs are largely imported. The authors of the paper find that although both agreements have similar utilization rates, they have quite different effects for African exports. Using several estimation methods, they find that export performance to the United States market is constantly higher than to the European Union market, both in terms of trade values and in the number of products exported. They conclude that strict RoO – such as the double-transformation requirement imposed by the European Union – has discouraged African exports at both the intensive and the extensive margins.

Preferential RoO are also applied to regulate the Generalized System of Preferences (GSP). Khanal (2011) analyses the different RoO in GSP schemes and their impact on Nepalese exports. Despite three quarters of Nepalese exports potentially enjoying preferential market access, preference utilization is low due to various stringent RoO requirements. In particular, the study examines the effect of RoO criteria on carpets, pashmina (a type of cashmere wool), handicrafts and tea exports from Nepal to the European Union, Japan and the United States. The analysis is based on a small-scale survey aimed at analysing the experience of firms with the RoO provisions. Khanal reports that a sizeable number of respondents indicated that documentation processes, registration and controls at custom points related to RoO often constrained exports and added costs to exportable products in the range of 20 to 30 per cent. In addition, the author finds that whether these products qualify for the preferential scheme depends on the method adopted to assess the total value content of each product.[17] Khanal calculates that in the case of pashmina the level is above the qualifying range only when the value content is calculated with the build-up method.[18] The findings provide further evidence that RoO criteria and verification procedures need to be revised to allow least-developed countries to benefit from preferential trade.

4. Export restrictions

Export restrictions come in a variety of forms. They include quantitative restrictions or taxes imposed by the exporting country, charges, mandatory minimum export prices, strict export licensing and domestic sales requirements.[19] Export restrictions are often considered domestic policies and are generally not notified to any international body.[20] However, export restrictions have an important effect on international markets. In fact, by reducing international supply, export restrictions have been shown to increase international prices. In this regard, particular attention has been given to the detrimental impact that such measures can have on issues related to food security. The justifications for imposing export restrictions include price stabilization, generating government revenues, promoting

[17] There are two main methods to assess value content. The build-up method is used to verify the value of originating materials used in the production of goods. The build-down method is used to examine the value of non-originating materials that are used in the production process. Both methods allow verifying the fulfillment of the RoO provisions.

[18] For the build-down method, the regional value content is = ((AV-VNM)/AV)*100, where AV is the invoice value; and VNM is the value of non-originating materials used by the producer in the production of the good. For the build-up method, the regional value is RVC = (VOM/AV)*100, where VOM is the value of originating materials used by the producer in the production of the good. Whether a material is originating or non-originating is subject to very specific rules.

[19] Another less obvious form of export restriction is the reduction of VAT rebates. Producers may choose to supply more products to domestic markets while choose to export products that are further downstream (or upstream) in the production chain so as not to be penalized for exporting non-rebated products. (Korinek and Kim, 2010).

[20] Such restrictions are not included in WTO disciplines, except for Article I (Unconditional MFN treatment for both exports and imports) and Article XI of the GATT 1994 stipulating that there is a general prohibition on quantitative restrictions (both on exports and imports). In addition, a notable general exception exists in GATT 1994 for reasons that relate to the "*conservation of exhaustible natural resources if such measures are made effective in conjunction with restrictions on domestic production or consumption*" (Article XX, GATT 1994).

downstream processing industries and preserving natural resources. Indirect objectives are domestic food security, export diversification, resource allocation and income distribution. Export restrictions are often used when countries have great market power. They are sometimes used with other mechanisms, such as import tariffs (on both the product itself and on inputs), to promote the development of a domestic processing industry (import substitution industrialization).

An overview of the economic effects of an export tax on prices and the volume of exports is given in Piermartini (2004). The discussion in this paper focuses on the positive and negative aspects of an export tax as an instrument of trade policy to improve the terms of trade of developing countries, reduce commodity price fluctuations and inflationary pressures, favour economic diversification and ease the collection of government revenues. The author reviews the experiences of a number of countries in implementing export taxes on commodities. The study indicates that export taxes encourage inefficient production and consumption patterns, as well as inefficient resource allocation, and eventually cause a dead weight loss for the world economy. The author indicates that export taxes can only be justified as a short-term second-best policy option, when best policy options are not feasible. Moreover, export taxes should be temporary and should thus require the specification of an explicit timetable for their removal. Finally, the findings of this study highlight the importance of analysing the effects of an export tax, not only on the markets for the taxed commodity but also on the markets for substitutable and complementary goods and on the backward and forward markets in the production chain.

An applied study of the impact of export restrictions on trade and global supply is undertaken by Korinek and Kim (2010). The authors present three case studies on the impact of export restrictions on different raw materials and on producers and consumers. The first case considers how China has used several export restrictions on exports of molybdenum (export taxes, export licensing system, VAT rebates and export quotas) for environmental reasons and for preservation of natural resources. By analysing trade flows of both molybdenum and its processed products, the authors do not observe evidence that the export restrictions implemented in 2007 had the desired effect on production. In fact, in order to fulfil the stated policy objectives of environmental stability and the preservation of natural resources, the export restrictions should have resulted in a decrease in the production of molybdenum in China. This has not been the case, as the production of molybdenum has risen continually since 2004 by approximately 30 per cent per year. They conclude that the measures did not achieve their stated objectives. In the second case, they review the imposition of an export tax on chromite (a mineral) by India, aimed at providing a greater supply of this mineral to the domestic market. The application of the export tax did not significantly change the level of production of chromite in India, however export restrictions resulted in diverting Chinese imports from India to other countries, especially South Africa. They find that the restrictions imposed by one country can lead to a situation of competitive policy practices, with other countries imposing similar export taxes. One implication of this research is that when spare supply capacity is limited, export restrictions can easily spread across countries, with disastrous consequences for global supply and international prices. The third case analyses the decision by the Government of China to preserve its rare earths resources by imposing a series of export measures. In this case, the authors find that export restrictions can impact potential investments in mining facilities worldwide by introducing an added element of risk in the industry, i.e. the possibility of sharp changes in world prices due to the relaxing of Chinese restrictions.

Export restrictions are generally implemented for domestic purposes, mainly as price mechanisms. One paper focusing on the domestic impact of export restriction is Nogués (2008). The author utilizes a general equilibrium model to investigate whether Argentine export restrictions met their stated domestic objectives of mitigating food prices. He argues that such policies have succeeded in easing pressure on domestic prices but at the expense of the economic and social performance of the country. The results suggest that an elimination of the export barriers imposed on agriculture could increase GDP between 2 and 4 per cent and lead to an expansion of employment by 300,000 jobs. However, since these gains would take time to materialize, temporary adjustment mechanisms would be required in order to reduce the social costs of higher domestic prices. In terms of government revenues, the removal of export barriers would result in an immediate loss of revenue. However, this loss could be more than compensated by the additional collection of income tax, triggered by higher producer prices and expanded production. The author also finds that price controls

on food products were maintained for too long and contributed to a distorted official inflation rate. More generally, the implications of this research indicate that export restrictions often harm the competitiveness of countries more than tariff and non-tariff barriers imposed by its trading partners.

Export restrictions can have a positive connotation when they are used for redistributive purposes. For example, Governments can use export restrictions to internalize some of the benefits resulting from currency devaluation. The policy instrument in this case is an export tax which has redistribution as its main objective. After a currency devaluation, exporters whose goods are priced in foreign currency become better off than exporters who earn in local currency. Concerns over equity could lead to taxing exports more after devaluation to compensate for lower government revenue from other sources. Deese and Reeder (2008) analyse this issue in relation to the Argentine imposition of export taxes on soybean products. Following its economic crisis in 2002, Argentina raised the export taxes of soybeans, soybean meal and soybean oil. The paper argues that the Government of Argentina used export taxes to capture some of the gains of the real 60 per cent currency devaluation from 2001 to 2002, that otherwise would have accrued only to Argentine soybean and soybean product exporters. Because soybeans and soybean products are nearly all consumed outside Argentina, foreign consumers also pay a portion of the export tax.

A new form of policy intervention with restrictive effects on exports is domestic sale requirements. This policy requires a certain percentage of the production of a good or service to be sold in the domestic market. Only the remaining production can be exported. Devadoss (2009) analyses the Indonesian experience with domestic sale requirements on crude oil. This policy is utilized in addition to subsidizing domestic sales so as to benefit consumers with lower prices. Specifically, oil-producing firms are required to sell 25 per cent of their output to domestic buyers and export the remaining oil to overseas markets. In addition, Indonesia sets the fuel price well below the market price and allocates funds in its national budget to subsidize sales of petroleum products at the lower price. This study analyses the effects of these two policies on prices, quantities and welfare and compares those effects to those of an export quota. The results show that the combined effect of the domestic sale requirements and subsidy policies are clearly inferior to free trade but superior to export quotas. The reason is that under these policies, unlike under export quotas, supply is allowed to respond to world market prices.

5. Anti-dumping

A firm is considered to be dumping if it exports a product at a lower price than the value of the product on its own domestic market. In a worst-case scenario, dumping can even act as a predatory price practice, forcing established domestic producers out of a market and leading to monopolistic positions by the exporting firm. Domestic firms may counteract dumping practices by filing anti-dumping petitions. The anti-dumping procedure is complex and regulated by a specific WTO agreement. The agreement does not pass judgment, but provides guidelines as to how a Government can or cannot respond to dumping. When dumping is found, anti-dumping measures often result in the imposition of additional import duties so as to re-establish market prices.

More than 40 members of WTO are now active users of an anti-dumping policy and developing countries are some of the newest and most frequent users. As for the effects of the increased anti-dumping usage by developing economies, there has been relatively little research. One issue of concern is that anti-dumping laws are also abused as protectionist policies. In this regard, researchers have challenged the view that anti-dumping measures restrict trade only when anti-dumping duties are actually imposed. The argument is that the threat or even the mere possibility of duties can also affect import flows. In any case, from an economic standpoint the question of interest is not related to the legitimacy of anti-dumping petitions but whether it is an effective trade restrictive tool.

Bown and Tovar (2011) find evidence that India relaxed its commitment to reduce tariffs through use of anti-dumping measures and safeguard protection in the face of political economy pressures. The estimates of their study show that the magnitude of import reduction associated with Indian use of anti-dumping measures is similar to the initial import expansion associated with its tariff reform. Ganguli (2008) studies empirically the effect of Indian anti-dumping cases on trade flows from other countries. He finds that Indian anti-dumping law is moderately effective in limiting

import competition to domestic traders. As a matter of fact, in the first three years after a case is filed, imports from subject countries fall by as much as 29 per cent. Non-subject countries, however, manage to mitigate some of this impact by increasing their trade flows to India by about 11 per cent in the two years after a case is filed and hence trade diversion occurs. Despite that, overall imports are observed to fall in response to Indian anti-dumping legislation. Vandenbussche and Zanardi (2010) provide evidence that active "new users" of anti-dumping measures – most of which are developing countries – experience significant reductions in import volumes beyond the specific narrow sectors targeted (which can be considered a "chilling" or "spillover" effect on trade more generally), largely offsetting the trade-increasing effects of Uruguay Round liberalization.

Another important question related to anti-dumping measures is the relation with traditional trade policy. Bown (2008) exploits a cross-country sample of newly available, relatively disaggregated data as a first attempt to examine empirically the determinants of industrial use of anti-dumping measures in developing countries. He argues that the adoption by a developing country of an anti-dumping law has implications for the endogenous formation of its trade policy. The paper finds evidence consistent with the theory of endogenous trade policy formation in the context of an anti-dumping law. On average, larger industries that face substantial import competition are more likely to pursue an anti-dumping investigation and receive protection from imports. This study also finds that, on average, industries that face slower output growth are more likely to pursue an investigation and receive protection. The same is true for industries that are potentially more susceptible to cyclical dumping due to greater capital investment expenditures. The author also provides evidence that changing macroeconomic conditions – e.g. exchange rate and GDP shocks – also affect the use of anti-dumping measures. More generally, this study illustrates the flexibility of the use of this particular policy by protection-seeking industries and their Governments, as well as the lack of discipline that the Anti-Dumping Agreement may have when attempting to limit anti-dumping use in practice.

IV

TRANSPARENCY IN NON-TARIFF MEASURES: REPORTING AND MONITORING

Lack of regulatory transparency is a major and recurrent obstacle, both for policymakers negotiating trade agreements and for businesses seeking to trade internationally. The transparency of the regulatory framework not only facilitates cross-border transactions, but also helps to identify and address obstacles to trade. In addition, transparency is essential to check against subtle forms of protectionism. Transparency is also important for a non-discriminating business environment. When transparency is lacking, there is an additional cost involved in obtaining information. Fixed costs associated with obtaining the relevant information are often higher for foreign firms than for domestic firms, thus making NTMs de facto discriminatory. In addition, small and medium-sized enterprises have less capacity to absorb these information costs and thus will be at a disadvantage vis-à-vis more established international companies.

In addition to the transparency related to the NTM per se, there can be compliance costs attributable to a lack of transparency as to how regulations are interpreted and implemented. Given uncertainties as to how regulations will be enforced, assessment of conformity can be more difficult and expensive. In this regard customs, technical and procedural capabilities are often an issue, as well as outright corruption in the implementation of measures. Transparency in the implementation of regulations is a key problem, particularly in developing countries.

Transparency can be improved with the established multilateral notification process. However, these notification mechanisms are not without cost and Governments may be reluctant to bear the costs involved. In addition, although there are transparency provisions in many agreements (e.g., notification of SPS and TBT measures to WTO), many are not enforced properly, some for the very reasons that impose additional burdens on members. Moreover, domestic regulators are often unaware of such international requirements. A more strict enforcement of transparency disciplines, paired with efforts to streamline NTMs and trade facilitation initiatives, can play a role in increasing transparency. The proliferation of regional trade agreements may also contribute to improving transparency. Capacity-building in developing countries in the context of regional trade agreements can help to increase transparency and reduce problems associated with NTMs (e.g. through assistance with inspection legislation, setting up inspection systems, equivalence and technical assistance for risk assessments). In addition, regional institutions can provide a vehicle for the increased involvement of participating national economic and trade agencies in the formation of rules and also a forum for meetings between national regulators (which improves communication on measures and confidence in their application).

Transparency in rules and regulations is not only related to information costs. There are several additional important reasons why transparency is an important prerequisite for tackling NTMs. One reason is related to the possible protectionist intent of NTMs. As Bhagwati (1988) remarked, exposing protectionist policies to daylight and the scrutiny of trading partners would result in more cooperative, less protectionist policies. Another reason is that, whereas some NTMs have a protectionist purpose, others address societal concerns which are largely the same everywhere, albeit to different degrees. Publicly disclosing NTM information encourages latecomers to the regulation-making process to adopt measures patterned after existing ones, thus reducing the bureaucratic and political burden of designing regulations, improving design and promoting natural harmonization as opposed to fragmentation. Finally, transparency in NTMs involves more than simply having information on measures or notifications readily available. It requires knowledge and analysis of how international trade in general and companies in particular are affected by these measures. Policymakers often ask for aggregate assessments on the importance of a particular type of measure and its impact. As presented in section II, economic analysis can play a useful role in providing policymakers with a better understanding of the impact of NTMs.

A. World Trade Organization notifications

Notifications by member States to the WTO secretariat can increase the transparency of NTMs, as they represent an official and important source of information. However, the notification mechanism is far from satisfactory and needs to be improved. An in-depth analysis of the performance of the WTO notification system can be found in Bacchetta, Richtering and Santana (2012), on which this section draws.

WTO involvement in NTMs goes back largely to the 1964-67 Kennedy Round, which initiated the first system of "reverse notification" of NTMs. Under reverse notification, one contracting party would notify the GATT secretariat of the measures its exporters faced in the market of another contracting party. The notification system was reinforced by the Tokyo Round "Understanding regarding Notification, Consultation, Dispute Settlement and Surveillance", adopted in 1979. The understanding invited contracting parties to notify "to the maximum extent possible" measures that could affect GATT. The objectives of the notification system were clarified in notes circulated by the GATT secretariat in 1984 and 1985 as follows:

- Assist in the surveillance of developments in the trading system
- Meet obligations under plurilateral (Tokyo Round) agreements
- Demonstrate contracting-party compliance with GATT obligations.

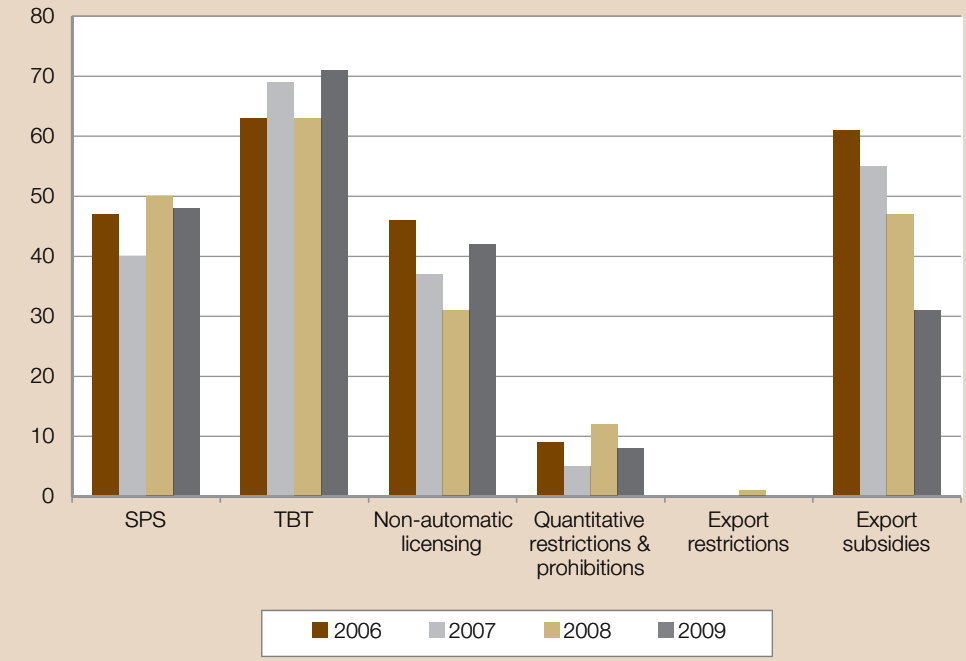
The secretariat further recommended more regular and complete notifications by contracting parties, expanded use of reverse notifications and independent information collection by the secretariat. A negotiating group was formed in 1987 to improve the notifications system based on the preparatory work of the secretariat and the 1987–94 Uruguay Round created a surveillance body to which reverse notifications could be sent. The Uruguay Round Ministerial Decision on Notification Procedures further restated the commitment of member States to the notification of measures and established a central registry of notifications in the WTO secretariat. It also established the basis for a review of the notification system, which by then had grown to cover over 200 separate notification requirements.

The system currently covers 24 areas of measures, defined relatively broadly and with fairly extensive coverage including agriculture (special safeguards, tariff quotas, export restrictions, domestic support and export subsidies) and preferential agreements.

As discussed by Bacchetta, Richtering and Santana (2012), compliance is difficult to measure since there is no clearly defined benchmark. However one can get a rough idea of the extent of compliance by just glancing at raw numbers.

Given the widespread use of SPS measures and TBTs, the low number of notifying countries shown in figure 18 (40 to 50 for SPS measures, 60 to 70 for TBTs) suggests substantial non-compliance. Instruments that are now increasingly used, such as export restrictions, are not notified at all (only one notification in 2008). Moreover, the rising number of countries notifying SPS measures and TBTs suggests some improvement since the Marrakesh Agreement, but

Figure 18. Number of notifying countries by type of measure (selected types)



Source: adapted from Bacchetta, Richtering and Santana (2012), table A2.

at a modest pace. By contrast, the sharp reduction in the number of countries notifying export subsidies may possibly be attributed, at least in part, to a general slowdown in their use. The Chair of the General Council of WTO took up the issue of low compliance rates in a 2009 letter to all relevant committees, but how to raise it remains a subject of discussion today.[21]

The issue of low compliance rates is essentially one of incentives – what economists call "multiple equilibria". In a game where few countries comply with their notification obligations, those few which do look as though they are the only ones using NTMs, a sort of self-indictment. Thus, low compliance across member States generates individual incentives for non-compliance. By contrast, in a game where all countries comply, non-notification is less likely to be interpreted as non-imposition of measures, but rather as non-compliance with notification rules, which is the correct interpretation. In that case, compliance has a positive pay-off. Thus, low compliance is a systemic issue that can be tackled only through improved cooperation and, probably, stronger discipline.

Beyond low compliance rates, the WTO notification system suffers from a number of weaknesses which prevent it from playing the role that it could play as the authoritative source of information on trade-relevant regulations imposed by member States. First, notification requirements may impose weak discipline in terms of how measures are notified; for instance, many TBT measures are notified without a precise description of the specific products they apply to. Use of the HS system of product classification (which is widely used in the reporting of trade statistics and in some types of measures, such as anti-dumping) would greatly improve the usefulness of notifications. Even the types of measure are sometimes described in loose terms, making it difficult to assess how restrictive the measures are or how much of a burden they may imply for traders. Notifications are also not always precise about the date on which measures are

[21] The technical regulations and conformity assessment procedures for SPS and TBT notifications are similar. New or changed requirements must be notified, as well as measures not based on international standards and cases where no international standards exist. Thus far, more than 100 members have submitted at least one SPS or TBT notification to WTO. The share of notifications by developing countries has been increasing and amounted to about 70 per cent of the total in 2009 – 10 years earlier their share was 20–30 per cent.

put in place. Many NTMs are grounded in laws that go back very far in time – some to the 1920s – but involve new provisions in the form of revisions which change their effects.

Timewise, variation in the applicability of measures is important for the econometric estimation of their effects on trade flows and it is generally not available on a reliable basis. Finally, the classification of measures used by WTO is not identical to, and far less comprehensive than, that used by UNCTAD and some other international organizations since 2010. This makes it difficult to compare and verify WTO notifications with data collected or gathered elsewhere. UNCTAD and WTO are collaborating to harmonize the two classification systems and the adoption of a common classification of measures will facilitate the establishment of a common, authoritative database on NTMs.

B. Private sector surveys

Information on rules and regulations affecting trade are essential for facilitating international trade. The lack of information on regulatory regimes makes it particularly difficult for firms seeking to export their product to make efficient business decisions. Available survey data at firm level suggest that a primary concern of the private sector, particularly of small and medium-sized enterprises, is the lack of, or poor accessibility to, information related to NTMs.

Besides highlighting the need for more information, private sector surveys can also act as a tool to increase transparency. Well-designed surveys can provide information on what types of NTM are most relevant for firms and which are most lacking in transparency. In addition, surveys at firm level may produce information for monitoring progress in regional integration and for drawing up priorities in the gradual reduction of barriers within an intrabloc trade.

An example of information that can be generated by surveys is provided in UNCTAD (2010) and reported in table 3. Data are based on a series of company-level surveys of 300 to 400 interviews, which were conducted by ITC and UNCTAD in several developing countries to identify measures that exporting companies perceive as barriers.

These results highlight the importance of technical regulations, an item of growing importance in the array of NTMs around the world. Compliance with technical regulations and the associated conformity assessment procedures are reported as by far the principal barriers to trade, with almost three quarters of respondents indicating this as their primary concern. These measures include, among others, regulations related to product characteristics or the related production process. For exporters, it can be challenging to comply with these regulations, as they might be very complex and often vary significantly across destinations. Other measures are reported to be far less important; the exceptions are PSIs and other administrative formalities which are an important concern for some of the exporters surveyed, especially in Tunisia and Uganda.

As survey data on NTMs is often based on respondent perceptions rather than hard facts, it should be interpreted very cautiously. It may be that surveys,

Table 3. NTMs flagged by exporters as principal barriers to trade (percentage)

NTM Group	Chile	Philippines	Thailand	Tunisia	Uganda	Simple average
Technical regulations (SPS and TBT)	70.3	76.4	93.5	62.7	64.1	73.4
PSI and formalities	14.0	3.1	2.3	22.6	23.1	13.0
Licences and quantitative restrictions	6.1	0.4	2.2	0.5	0.3	1.9
Charges, taxes & para-tariff measures	1.2	2.7	0.2	4.7	7.4	3.2
Finance measures	2.1	0.6	0.1	4.2	0.2	1.4
Other	6.4	16.9	1.6	5.3	4.9	7.0
Total	*100*	*100*	*100*	*100*	*100*	*100*

Source: UNCTAD (2010).

for example, reveal more about differences in export competencies among companies than about the NTM per se. In addition, companies may be reluctant to provide information on NTMs in response to a survey if they believe that their knowledge of NTMs or their ability to handle them confers a competitive advantage (asymmetric information).

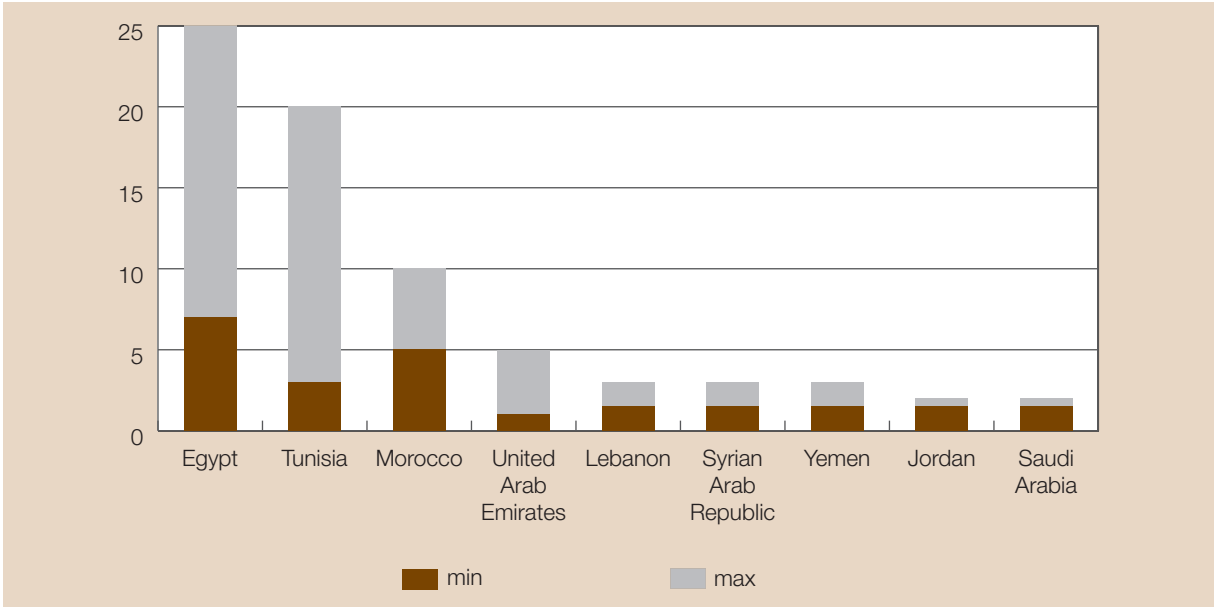
In practice, private sector surveys need to be properly analysed as their misinterpretation may result in incomplete or incorrect information. To provide an example, private sector surveys are often used to identify problems related to enforcement, rather than to the NTMs themselves. In this regard, in a series of surveys conducted in the Middle East and North Africa region by the World Bank, a large share of exporting companies complained about issues related to conformity assessments at customs as a major trade impediment, in particular with respect to border inspections. However, the complaints that border inspections cause problems to trade are not substantiated by the response of importing companies interviewed in the same set of surveys. These companies reported that inspection rates are in most cases reasonable. Only Egypt and Tunisia are reported to apply inspection rates higher than 20 per cent and only for some sensitive products (figure 19).

Similarly, figure 20 shows the amount of time spent dealing with bureaucracy and red tape, another issue often highlighted in surveys as a major impediment to export. However, a better analysis of the data indicate that an average of 20 man days spent in one year dealing with administrative issues reported in private sectors survey should not be a first-order impediment as the average firm has about 100 employees.

Regardless of the actual effects of conformity assessments enforced at the border or customs administration procedures, these contradictory results illustrate how survey data should be carefully interpreted and if possible substantiated by official data.

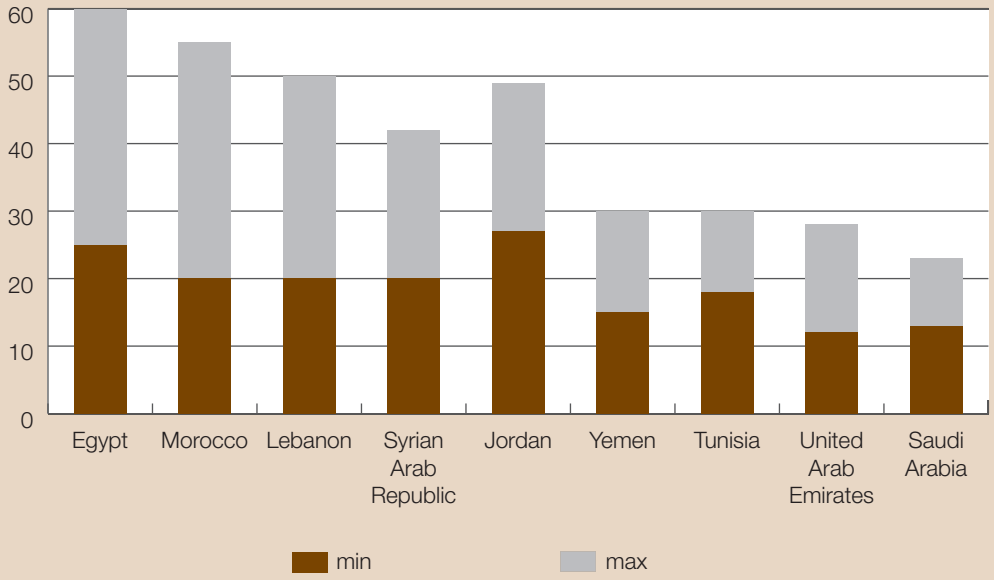
Private sector surveys on NTMs face additional issues as firms often do not have much knowledge of underlying regulations. Firms generally list problems associated with cross-border business transactions, regardless of whether these problems are related to hard rules and regulations. In many cases the problems faced by the companies surveyed do not involve destination markets but originate from weak customs and administrative procedures, a lack of local facilities and infrastructure within their own country.

Figure 19. Inspection rates reported by the private sector by country (percentage of lowest and highest rates reported)



Source: adapted from Hoekman and Zarrouk (2009).

Figure 20. Man days spent per year resolving problems with customs and tax administrations



Source: adapted from Hoekman and Zarrouk (2009).

C. Official data collection

To increase the availability of information on NTMs, UNCTAD, ITC, the African Development Bank and the World Bank, have been working together to revitalize the collection and improve the organization of data on NTMs. In addition, several regional economic communities in Africa have started to put in place monitoring schemes for NTMs affecting intrabloc trade. Moreover, some countries have implemented autonomous projects to provide NTM information so as to facilitate both imports and exports. These initiatives, if properly coordinated, have the potential to improve the picture drastically in terms of transparency in NTMs in the next few years.

1. Global initiatives

Until recently, the authoritative source of statistical information on NTMs was the TRAINS database maintained by UNCTAD. A major achievement at the time, TRAINS put together information on NTMs coded according to a precise NTM nomenclature over the HS six-digit classification system. The pairing of the NTM nomenclature with the HS classification made it possible to match NTM data easily with tariff and trade data and was thus a big step forward compared to the WTO notification system which, as already discussed, has suffered from imprecise descriptions of the products affected by the measures notified.

However, TRAINS coverage was incomplete in terms of countries, as fewer than 100 countries were covered. It was also incomplete in terms of measures, with a heavy emphasis on old-style "command-and-control" NTMs, such as quotas and prohibitions, and far less comprehensive coverage of new-style regulations such as SPS measures and TBTs. In addition, data collection was not sustained across time and resulted from a one-time effort, with most of the data collected between 1999 and 2001.

Leaving aside its limitations, the TRAINS database has been used extensively by researchers and has generated important statistical information on the incidence of NTMs and their severity. However, with no follow-up in the data collection and given the limitations of the initial exercise, empirical analysis of NTMs has been achieving diminishing returns.

Over the last few years, under the aegis of UNCTAD, a new data collection effort has been undertaken, with a pilot phase successfully concluded in 2010. This effort started with a new and more detailed classification incorporating new forms of NTM. Besides generating new data and interest for a new effort to replenish the

TRAINS database, the pilot phase generated useful lessons on the process itself. Even though some countries had shown the capability to organize the data collection themselves, it was clear that relying on countries was bound to encounter the same basic incentive problem that WTO notifications have been encountering: countries that carry out data collection properly look like they are intensive users of NTMs and therefore potentially "bad players" in the world trading system, whereas countries that underreport look like they are "good players". While data collection undertaken for statistical purposes under the auspices of UNCTAD has less of a "surveillance" overtone than in the case of notifications to WTO, the incentive problem is basically the same. Essentially, countries do not have many incentives for disclosing information on the regulatory regimes they apply to imports and are more interested in better understanding the regulatory regimes of their trading partners. The collection of data in a global or regional manner therefore often results in much less resistance. In addition to the incentive problem, many countries simply do not have the capacity to do the data collection themselves, at least without the support of external technical assistance.

Regional collection of NTM data coordinated by regional economic communities is potentially a powerful way of overcoming incentives and technical problems. However, in this case the technical and organizational capabilities of those communities vary substantially and their capacity to organize the collection of data also varies for particular reasons that do not necessarily correlate with overall capabilities. For instance, ALADI has successfully coordinated NTM data collection for Latin American countries in collaboration with UNCTAD. ASEAN, with informal assistance from the World Bank and UNCTAD, is currently setting up an agenda for coordinating the various independent national data collection efforts occurring in the region. Some of the regional initiatives are reviewed in more detail in the following section; suffice it to say that relying on the regional economic communities for data collection, while providing a natural route toward sustainable data collection, is likely also to require substantial technical assistance.

In parallel and in coordination with the activities listed above, the World Bank initiated NTM data collection projects in several countries. Data collection was subcontracted to local consultants, including academics, think tanks and consulting firms. The issue of capabilities was approached by identifying "pivot" countries and local consultants to organize and train other consultants in the region.

Another advantage of the approach was to raise the visibility of the data collection/transparency issue with national authorities in the countries where data was being collected. In virtually all cases, data collection was followed by a validation workshop with all government agencies involved, in order to ensure that no important items had been missed and that there was no major misunderstanding. This last step was important not just in terms of data accuracy, but also to establish the legitimacy of the process, in spite of the fact that it had been initiated and conducted by non-government bodies – a useful first step in the dialogue between government authorities and civil society on the issue of NTMs.

However, coverage remains very incomplete. All things considered, the various data collection efforts have produced data for about 30 countries. Coverage is shown in table 4.

In this regard, the "Transparency in trade" initiative, launched in July 2011, is an attempt to expand and put trade data collection, publication and dissemination on a sound footing by providing a clear framework for collaboration between UNCTAD, the World Bank, ITC and the African Development Bank.

The initiative provides, inter alia, data collection on NTMs, service trade and regulations, anti-dumping and tariffs and trade data. It is strongly innovative in that it emphasizes as one of its core principles universal free access to the data, as opposed to the many restrictions and fees that have long plagued trade data publication, with adverse consequences particularly for researchers, in particular younger ones and those in developing countries who do not have access to the research funds that can finance subscriptions to expensive databases.

2. Regional initiatives

There are also many regional initiatives to improve transparency in NTMs. In this section, we will take stock of progress in transparency efforts in two selected regions where such efforts are underway: ASEAN and East Africa.

Table 4. NTM data collection (country coverage)

	Latin America and the Caribbean	North America	Europe and Central Asia	Middle East and North Africa	Sub-Saharan Africa	South Asia	East-Asia and the Pacific
Covered	Argentina		European Union	Egypt	Kenya	Bangladesh	Japan
	Bolivia, Plurinational State of			Lebanon	Mauritius		Philippines
	Brazil			Morocco	Uganda		Indonesia
	Chile			Tunisia	Senegal		Cambodia
	Colombia				Namibia		Lao People's Democratic Republic
	Ecuador				Madagascar		Hong Kong, China
	Mexico				South Africa		
	Paraguay				United Republic of Tanzania		
	Peru						
	Uruguay						
	Venezuela, Bolivarian Rep. of						
In collection							China

Source: UNCTAD / World Bank WITS database.

The ASEAN approach to streamlining NTMs and improving transparency in these policies was initiated in November 2007. At that time ASEAN leaders committed to accelerating their efforts toward regional economic integration by adopting a well-defined set of goals and a strategic schedule and timetable of removal and harmonization of NTMs and other measures (i.e. the ASEAN economic community blueprint (AEC)). The ASEAN secretariat was given the task of monitoring compliance, based on a set of "statistical indicators to assess the progress of implementation of each element of the AEC", supported by efforts to harmonize national statistics and improve data quality. In February 2010, the secretariat issued a "scorecard" that covered the first two years of the implementation of the blueprint (2008 and 2009). In this area, the ASEAN secretariat benefited from technical assistance from the World Bank and IFC for strengthening its statistical capabilities and for using "Doing business" indicators as measures of trade facilitation.

East African efforts to streamline NTMs also go back to 2007. At that time, using support from the Regional Trade Facilitation Programme, the secretariat of the Common Market for Eastern and Southern Africa (COMESA) commissioned a number of studies on NTMs affecting intrabloc trade, as reported by the private sector. The classification used for such studies does not conform to the UNCTAD classification and measures are categorized as follows:

- Specific measures on agricultural products (including SPS issues and single-channel marketing)
- Standards requirements
- Visa requirements (travel documents and work permits)
- Transport and transit regulations (infrastructure, charges, tolls, permits)
- Customs procedures and documentation
- Border management and services
- Import and export permits and licensing requirements
- Other NTMs falling under government participation in trade, such as foreign exchange controls, creation of monopolies, import licensing and quantitative restrictions.

The studies also looked at implementation and compliance costs not necessarily related to NTMs, classifying them as follows:

- Official payments, such as charges incurred on import quality inspections and certification procedures.
- General expenses, such as staff costs and storage costs while awaiting verification or clearance of cargo at border crossings.
- Non-official payments paid to Customs officials, quality inspection officials, police officers at road blocks/border crossings, immigration officials, or officials at weighbridges.
- Payments to officials in charge of licensing and registration functions to shorten or ignore cumbersome processes.
- Lost business opportunities arising from application of discriminatory tax rates and other import procedures, such as application of discriminatory COMESA tariffs by one partner State to a product originating from other States, application of a higher domestic tax on imports than on equivalent domestically produced goods, application of discriminatory procedures on imports.
- Wasted products, especially for perishable goods that may go to waste due to a full inspection instead of a sample inspection, or during weighing of axle load/gross vehicle weight specifications.
- Time lost due to application of procedures that are unjustified or non-transparent.

The studies were discussed at the first meeting of the COMESA national enquiry points on non-tariff barriers held in September 2007 in Blantyre and in a workshop in Nairobi in June 2007. In November 2007, at its twenty-fourth meeting, the Council of Ministers asked the COMESA secretariat to undertake an impact assessment of prevailing NTMs in the region.

The East Africa Community (EAC) secretariat has also been active in the area, with a series of studies identifying NTMs based on surveys undertaken by private sector advocacy groups (see Kirk 2010). One result of this effort was the adoption, in January 2009, of the EAC time-bound programme for elimination of identified non-tariff barriers, which records measures reported by the private sector in each member State. This programme is based on a double classification of NTMs, using both the WTO notification categories and three ad hoc classes (A, B and C) depending on the level of political and economic complexity and the impact on intra-EAC trade:[22]

- Category A: low political and economic complexity, low impact on EAC trade, immediate action required, consensus reached at the EAC Council.
- Category B: low political and economic complexity, high impact on EAC trade, short-term (1-6 months), EAC Council consensus but no agreement on implementation.
- Category C: high political and economic complexity, high impact on EAC trade, medium-term (6-12 months), no political consensus at the EAC Council.

The inventory of measures provides a brief description of each measure and indicates which member States are affected, which government agency, department or ministry is at the source of the measure in the country imposing it and a subjective assessment of its impact on business.

Clearly, these regional efforts need to be better integrated into the multilateral data collection effort and coordinated through the "Transparency in trade" initiative. This will avoid the risk that multilateral and regional efforts run along parallel lines, with duplication of effort and possibly inconsistent classification of measures. Adoption of similar data collection procedures and a common NTM classification is the imperative.

3. Country-level initiatives

A number of countries have unilaterally adopted transparency initiatives aimed at providing information related to NTMs. For example, rules and regulations affecting European Union imports are accessible through the Export Helpdesk. This is an online service, provided by the European Commission, to facilitate market access, in particular for developing countries, to the European Union. Although it is mainly aimed at exporters, it provides comprehensive and up-to-date information on European Union rules

[22] This description is based on Kirk (2010).

and regulations affecting international trade. The European Commission has agreed to provide relevant information from the Export Helpdesk to UNCTAD to feed its global NTM database.

In Indonesia, the Government has worked to improve transparency in NTMs by coordinating work on regulatory transparency with the Indonesian National Single Window (INSW). The INSW authority makes information on NTMs available online for importers and exporters, integrating the flows of data-processing systems in different agencies into a single portal. The system allows users to simultaneously submit applications for export or import clearance to different agencies. To make the process transparent, the authority set up an online database to pool information from different agencies on qualifications for obtaining customs clearance for different products and on NTMs. As part of their mandate to integrate information for processing trade clearance, the agency put together a database (LARTAS) on documentation requirements for trade clearance. One aspect of INSW is that it has quasi-legal authority in the sense that border enforcement of NTMs was made conditional on participation by the issuing agency in the INSW system, such that if a measure was not posted on INSW, there was no guarantee from customs that it would be enforced consistently. This is a very interesting instance of a system that overcomes the basic incentive problem of transparency – namely, that agencies issuing regulations have no incentive to expose themselves to criticism through openness.

Mauritius recently drew up an exhaustive inventory of NTMs with assistance from an academic team from the University of Mauritius and technical assistance and financing from the World Bank and UNCTAD. The inventory, which is being merged with the customs databases on measures enforceable at the border, has served as a basis for policy discussions on how to improve the process of streamlining NTMs.

Not all national initiatives have been successful. For example, a long-standing effort to improve regulatory transparency in Egypt, financed by the United States Agency for International Development (USAID) through the Errada project, has produced an extensive inventory of NTMs but has nevertheless not succeeded in getting any political traction or attention. The data collection procedure has now stalled.

V

REGULATORY FRAMEWORKS FOR NON-TARIFF MEASURES

Although some forms of NTMs are left to the discretion of countries and are not subject to international scrutiny or disciplines, many forms of NTMs, especially SPS measures and TBTs, are disciplined in international forums such as WTO and regional and bilateral agreements. This section presents an overview of the existing regulatory frameworks of NTMs, especially in regard to SPS standards and TBTs. The discussion covers WTO disciplines on the matter and NTM disciplines within regional and bilateral agreements. The section highlights some of the issues related to standard harmonization and mutual recognition.

A. World Trade Organization disciplines on non-tariff measures: the case of technical barriers to trade and sanitary and phytosanitary measures

The Uruguay Round Agreements recognized that disciplines had to be imposed not only on tariffs but also on diverse NTMs, subsidies and domestic support for agriculture and manufacturing. In practice, the WTO agreements allow countries to achieve legitimate objectives through the use of NTMs, but in the case of technical regulatory measures, as a general rule, they should not be implemented in such a way as to pose unnecessary obstacles to trade. In other words, the WTO disciplines regarding technical NTMs such as TBTs and SPS measures are largely meant to prohibit "regulatory protectionism".

These disciplines are built around three principles: non-discrimination, transparency and proportionality. The WTO agreements dealing with NTMs include the Agreement on Technical Barriers to Trade, the Agreement on the Application of Sanitary and Phytosanitary Measures, the Agreement on Article VII of the General Agreement on Tariffs and Trades 1994 (concerning customs valuation) and a number of rules on import licensing procedures.[23] WTO agreements also include measures related to trade defence (anti-dumping, countervailing measures and safeguards).

These rules have developed as a result of multilateral rounds of negotiations (in particular the Tokyo Round) and GATT jurisprudence on national treatment provisions (Article III.4) and general exceptions (Article XX). The Uruguay Round expanded the range of measures covered by GATT/WTO disciplines, including, for instance, SPS measures on agricultural products.[24]

[23] This section and the next draw on Cadot, Maliszewska and Saez (2011).

[24] Although trade in services is outside the scope of this report, The General Agreement on Trade in Services (GATS) article VI is also an important agreement in terms of the disciplines imposed on domestic regulations.

The SPS and TBT agreements have particularly important implications in terms of trade. Although, they recognize the right of member States to adopt regulations that potentially affect international trade, the agreements impose three types of discipline on those regulations:

- On the process of adoption of the measures and on their implementation
- On their proportionality to the objective sought
- On their necessity.

As for the first discipline, concerning the process of elaboration and adoption of measures, in addition to the transparency requirements which were discussed in section IV, measures must be designed (de jure) and implemented (de facto) in a non-discriminatory way. This means that they should be "fair" in the sense of not providing advantages to national producers of similar products or altering competitive opportunities, even incidentally.

In the case of SPS measures, for instance, the first discipline means that measures should be based on scientific evidence (article 5.2). When the scientific evidence is uncertain, article 5.7 allows limited and temporary use of the precautionary principle, subject to disciplines regarding the pursuit of additional evidence and a reasonable timeline for final decision:

> "In cases where relevant scientific evidence is insufficient, a Member may provisionally adopt sanitary or phytosanitary measures on the basis of available pertinent information, including that from the relevant international organizations as well as from sanitary or phytosanitary measures applied by other Members. In such circumstances, Members shall seek to obtain the additional information necessary for a more objective assessment of risk and review the sanitary or phytosanitary measure accordingly within a reasonable period of time."[25]

The second discipline concerns the "proportionality" of the measures, i.e. that the instrument chosen should be the least restrictive of trade among available and feasible instruments. This is in essence an efficiency criterion.

Finally, the third discipline concerns the "necessity" of the measures, which should be needed to achieve a legitimate policy objective. The necessity test implies that the burden of proof – that a given measure is needed and that no less trade-inhibiting measure is appropriate – rests on the country imposing the measure.

Taken in a strict sense, the combination of the second and third disciplines should be verified through a complete cost-benefit analysis establishing that (a) the benefits of a measure outweigh its costs, both internally and for other WTO members and (b) in the set of feasible measures, the one under consideration minimizes costs subject to the constraint that it satisfies a non-trade objective.

As a rule of thumb, WTO considers that there is a presumption that regulations based on international standards are cost-minimizing. Underlying this principle is the intention that the adoption of international standards should minimize the market-fragmenting effect of NTMs and that compliance with international standards somehow limits the scope for regulatory capture by domestic special interests. Countries adopting regulations more stringent than international standards must justify their choice, based on a risk assessment. Measures deemed inconsistent with TBT or SPS obligations must be justified under general exception rules.

The necessity test is central to these WTO rules.[26] However, it should not be construed as restricting the right of members to regulate the management of public goods, even if the consequence is to restrict trade. In a number of disputes, the WTO Panel found that it behoved members to decide on policy objectives they wished to pursue and on the levels at which they wished to pursue them. For example, the WTO Appellate Body states:

> "…does not mean, or imply, that the ability of any WTO Member to take measures to control air pollution or, more generally, to protect the environment, is at issue. That would be to ignore the fact that Article XX of the General

[25] http://www.wto.org/english/tratop_e/sps_e/spsagr_e.htm.

[26] For instance, it is explicitly stated in GATT articles XI, XIV, XX; GATS articles VI and XII and the annex on telecommunications; articles 2.2 and 2.5 of the TBT Agreement; articles 2.2 and 5.6 of the SPS Agreement; articles 3.2, 8.1 and 27.2 of the Agreement on Trade-Related Aspects of Intellectual Property Rights; and article 23.2 of the Agreement on Government Procurement (WTO, 2003).

> Agreement contains provisions designed to permit important state interests – including the protection of human health, as well as the conservation of exhaustible natural resources – to find expression. The provisions of Article XX were not changed as a result of the Uruguay Round of Multilateral Trade Negotiations. Indeed, in the preamble to the WTO Agreement and in the Decision on Trade and Environment, there is specific acknowledgement to be found about the importance of coordinating policies on trade and the environment. WTO Members have a large measure of autonomy to determine their own policies on the environment (including its relationship with trade), their environmental objectives and the environmental legislation they enact and implement. So far as concerns the WTO, that autonomy is circumscribed only by the need to respect the requirements of the General Agreement and the other covered agreements"[27]

The necessity test should also be construed as an obligation to search for the cost-minimizing instrument, as stated quite crisply by the panel in United States – section 337 of the Tariff Act of 1930:

> "It was clear to the Panel that a contracting party cannot justify a measure inconsistent with another GATT provision as "necessary" in terms of Article XX(d) if an alternative measure which it could reasonably be expected to employ and which is not inconsistent with other GATT provisions is available to it. By the same token, in cases where a measure consistent with other GATT provisions is not reasonably available, a contracting party is bound to use, among the measures reasonably available to it, that which entails the least degree of inconsistency with other GATT provisions."[28]

In practice, in order to assess whether members should adopt an alternative measure consistent with WTO, instead of the one being challenged, three conditions must be met: (a) the alternative is economically and technically feasible; (b) it would achieve the same objectives; and (c) it is less restrictive of trade. In case any of these conditions is not met, the member should not be required to resort to the alternative measure.

Finally, if a country believes that another WTO member is not satisfying its obligations under the WTO agreements, a number of sequential steps are generally taken:

- Informal bilateral contacts to try to remedy the problem
- Diplomatic intervention (a complaint lodged through diplomatic channels)
- Multilateral representation (e.g. raising the issue in the WTO TBT or SPS Committees)
- High level political intervention (e.g., at the head of State level)
- Use of WTO dispute settlement proceedings.

In addition to these measures, steps may be taken through avenues provided in bilateral or regional trade agreements.

It appears that the WTO disciplines on NTMs discussed above have struck a balance between the need to leave members freedom to regulate public goods as they wish while maintaining the integrity of the multilateral trading system. This balance has been achieved, both through the wording of the agreements and the ensuing case law, by imposing high standards on the process through which these measures are adopted and by emphasizing the necessity test.

B. Regional and bilateral agreements disciplining non-tariff measures

NTMs vary considerably across countries, both in regard to rules and regulations and in regard to assessment of their conformity and actual enforcement. With the proliferation of regional and bilateral trade agreements, the issue of streamlining and harmonizing NTMs across trading partners has become central to many trade agreements, especially in regard to SPS measures and TBTs. However, because countries typically have large numbers of regulations on the books, streamlining them is a long and complex process.

[27] United States – Standards for Reformulated and Conventional Gasoline, Appellate Body report, WT/DS/2/AB/R, page 28.

[28] Report by the Panel, L/6439 - 36S/345, paragraph 5.26.

There are several ways in which regional trade agreements can address issues related to NTMs. First, the creation of supranational institutions, such as the European Commission and the European Court of Justice, can play a leading role in fostering the elimination of discriminatory NTMs and in the general streamlining and harmonization of regulations, at least on intraregional trade. Second, as in the North American Free Trade Agreement (NAFTA), the agreement itself can serve as a political anchor for reform-minded politicians with liberalizing agendas. That is, if the free trade agreement enjoys the strong backing of all stakeholders, it can be used as a justification for NTM reforms even when some of them hurt specific interests (e.g. the elimination of some non-trade barriers benefiting domestic producers). Third, as with ASEAN, regional institutions can provide a useful forum for exchanging experiences, suggesting directions for further moves and motivating reformers by overcoming their isolation at home.

The experience of the European Union suggests an especially powerful route to the streamlining of product standards. Harmonizing standards across the European Union to achieve a common market was an almost impossible task as it would have required the consensus of member States for all regulations. Instead, the European Union resolved the issue with a legal approach. When a German spirits importer complained in 1979 to the European Court of Justice that the German authorities were preventing him from importing a French spirit called “cassis de Dijon”, the Court responded with a landmark decision. It ruled that a product – in that case a spirit – that had been cleared for sale in one member State had no reason not to be cleared, automatically, in any other member State. In its ruling, the Court rejected the defence of the Government of Germany that “mutual recognition” (as the principle has come to be known) would lead to a race to the bottom. In fact, it did not and the European Commission has since enforced this principle in a wide range of areas.

NAFTA contributed to providing political traction to an agenda for streamlining NTMs in Mexico through a different mechanism – by providing a political anchor. NAFTA was important for Mexico in terms of securing stable access to the United States market and had high political visibility. In addition, the United States had recently pursued a programme of privatization and regulatory roll back initiated by the Reagan administration. Moreover, because of the high stakes, NAFTA provided a guarantee against reform reversal, which was important for gathering support.

ASEAN did not provide such a strong political anchor. However, it has consistently pursued an agenda of streamlining NTMs, especially focused on eliminating those most harmful to regional trade. In 1987, the memorandum of understanding on standstill and roll back of non-tariff barriers sought the elimination of measures that were inconsistent with GATT and the preferential reduction of others. The Agreement on the Common Effective Preferential Tariff Scheme for the ASEAN Free Trade Area called for the immediate elimination of all quantitative restrictions and in 1997 the ASEAN Free Trade Area (AFTA) Council designated priority areas for harmonization of product standards. Since then, the AFTA Council and the ASEAN Council of Ministers have repeatedly emphasized the need to streamline NTMs and to avoid a substitution of non-tariff barriers for tariffs as the latter are phased out. Although the elimination of non-tariff barriers and the harmonization of standards are still distant objectives, ASEAN is relatively more advanced in the process than many other free trade areas. More recently, the “ASEAN scorecard” listed three broad objectives: (a) the virtual elimination of tariffs on goods imported from ASEAN member countries, (b) moves underway to address non-tariff barriers (e.g. through harmonization of standards, streamlining of customs procedures and improvements in logistics) and (c) greater liberalization in services and investment provisions. It has reported substantial progress, with an estimated 73.6 per cent implementation rate of the measures, activities and sectoral agreements scheduled to be adopted during the first two years.

Given their importance, NTMs are also part of most bilateral trade negotiations of free trade areas, especially in those where at least one party is a high-income country. For example, preferential agreements involving the European Union and the United States often contain measures aimed at the reduction or elimination of NTMs (Horn, Mavroidis and Sapir, 2009). These agreements can be separated into two broad types of commitments:

- Those going beyond the WTO, but building on WTO commitments (“WTO+”), including e.g. SPS and TBT commitments.
- Those covering areas not covered by the WTO (“WTO-X”), including e.g. labour or environment commitments.

Many United States and European Union bilateral free trade agreements have WTO+ clauses. For instance, all 14 European Union agreements reviewed include TBT provisions, but those are enforceable in only five of them (the Caribbean Forum of African, Caribbean and Pacific States (CARIFORUM), Mexico, Chile and the European Economic Area (EEA) and Turkey). These commitments are typically deeper than in the case of United States agreements, which only restate the WTO obligations of preferential partners. Eight European Union agreements include SPS provisions and only three are legally enforceable (EEA, Chile and CARIFORUM). As for the United States, 12 agreements include SPS provisions, but only two are legally enforceable through dispute settlement (Israel and NAFTA).

Lesser (2007) provides another review of bilateral agreements involving NTMs covering 28 North-South and South-South preferential trade agreements signed by Chile, Mexico and Singapore. Most of the agreements are based on transparency requirements and mutual recognition of conformity assessment results, an approach considered less costly than harmonization. Members are for instance asked to notify each other about the introduction of new measures or the modification of existing ones. Most of the agreements reviewed also call for the establishment of joint bodies to monitor the implementation of TBT provisions and facilitate cooperation. Most agreements also include dispute settlement mechanisms for disputes related to TBTs.

In terms of the depth of TBT commitments, few preferential trade agreements go beyond the TBT Agreement. However they often display WTO+ characteristics, using the term coined by Horn, Mavroidis and Sapir (2009). The most far-reaching involve mutual recognition of conformity assessment procedures and bodies, meaning that parties are required to justify non-equivalence and non-recognition. A few blocs and sub-blocs (e.g. the European Union and the more developed members of ASEAN and the Asia-Pacific Economic Cooperation) have adopted mutual recognition arrangements for conformity assessments in particular sectors, such as telecommunications and electrical, electronic and medical equipment.

In practice, agreements can have different degrees of strength in relation to the elimination and harmonization of NTMs. This strength depends essentially on three key factors. The first is the level of development of the parties. Standard harmonization and, even more, mutual recognition of conformity assessment results are much easier among countries with similar levels of development. The second factor is the overall degree of integration of the agreement. Deeper agreements, such as customs unions and common markets, can go more easily beyond WTO commitments. The third factor is the presence of large high-income countries as one of the parties to the agreement. In general, agreements involving the United States often include acceptance of partner technical regulations as equivalent, alignment on international standards and mutual recognition of conformity assessment. Agreements involving the European Union often rely on alignment with European Union regulations, standards and conformity assessment procedures, especially with close partners such as the Mediterranean countries. For instance, article 51 of the Euro-Mediterranean Agreement states that:

> "The Parties shall cooperate in developing: (a) the use of Community rules in standardization, metrology, quality control and conformity assessment; (b) the updating of Moroccan laboratories, leading eventually to the conclusion of mutual recognition agreements for conformity assessment; (c) the bodies responsible for intellectual, industrial and commercial property and for standardization and quality in Morocco."

European Union trade agreements with more distant countries like Chile, with which it does not have deep integration agendas, contain less stringent clauses on TBTs. For instance, article 18 of the European Community-Chile Association Agreement states that:

> "Cooperation between the Parties will seek to promote efforts in (a) regulatory cooperation; (b) compatibility of technical regulations on the basis of international and European standards".

In some other cases, the agreement may push for convergence towards international standards. In this regard, article 19 of the European Community-Mexico free trade agreement merely states that the parties:

> "…shall work towards: …(c) promoting the use of international standards, technical regulations and conformity assessment procedures on the basis of international agreements; (d) facilitating the adoption of their respective

> standards, technical regulations and conformity assessment procedures on the basis of international requirements."

Similar clauses towards international harmonization can be found in other North-South agreements. For instance, article 705 of the Thailand-Australia Free Trade Agreement states that:

> "The Parties shall, where appropriate, endeavor to work towards harmonization of their respective technical regulations, taking into account relevant international standards, recommendations and guidelines, in accordance with their international rights and obligations."

However, there is a degree of difference in the scope of harmonization. For example, in the case of the Australia-Thailand agreement, chapter 7, to which article 705 belongs, applies to "all goods traded between the parties", implying that goods not traded bilaterally could potentially remain uncovered; whereas no such scope limitation can be found in the clause on harmonization in the European Community-Mexico agreement. Therefore, if one accepts the idea that even when the letter of the agreement does not prescribe convergence on the Northern standard, de facto this is what is likely to happen, the European Community-Mexico harmonization clause can be taken as more encompassing than the Thailand-Australia one, which leaves regulations that are irrelevant to bilateral trade outside the scope of the agreement. Similar limitations can be found in e.g. article 7.2 of the United States-CAFTA (Dominican Republic-Central America) Agreement and in article 7.1 of the United States-Bahrain Free Trade Agreement.

In a review of over 70 preferential trade agreements covering several regions, levels of development and depth of integration, Piermartini and Budetta (2011) also find that harmonization is more frequent than mutual recognition for technical regulations (29 agreements against 15), but mutual recognition of conformity assessment is the most frequent approach (39 agreements) followed by harmonization of conformity assessment procedures (25 agreements). Harmonization of technical regulations is a characteristic of European Union agreements, sometimes, as noted, implying adoption of the European Union *acquis communautaire* by partners in free trade agreements. Transparency provisions are also found in 30 agreements. Most of the agreements with TBT provisions also include the establishment of a monitoring committee or body for matters related to standards and 24 had provisions for the resolution of disputes between members.

Harmonization of technical regulations in the context of North-South agreements is not free of risks regarding their compatibility with the broader aim of multilateral liberalization, as they can lead to specifications that are overly complex or burdensome from the point of view of many developing countries. As argued by Maur and Shepherd (2011), different economic and social conditions may call for different levels of "strictness" of technical regulations. Indeed, Disdier, Fontagné and Cadot (2012) show that North-South free trade agreements with harmonization provisions contribute to hub-and-spoke trade patterns. The reason is that technical regulations aligned on northern ones raise production costs and therefore can price the products of southern partners out of other, southern markets that are not in the same bloc. Disdier et al. find that a gravity equation picks up this reinforcement of hub-and-spoke trade patterns as a result of harmonization in North-South free trade agreements. This suggests that harmonization issues in North-South agreements should be viewed strategically by southern Governments, rather than as a technical issue.

South-South agreements have only recently taken NTMs into consideration. For instance, article 6 of the Southern African Development Community (SADC) Protocol on Trade calls for the elimination of all existing forms of protectionist or overly restrictive NTMs (non-tariff barriers) and for member States to refrain from imposing new ones. While implementing this article remains a major challenge, SADC Ministers of Trade have identified 10 categories of particularly trade-damaging non-tariff barriers for "immediate" action: (a) cumbersome customs documentation and procedures; (b) cumbersome import and export licensing/permits; (c) import and export quotas; (d) unnecessary import bans and prohibitions; (e) import charges not falling within the definition of import duties; (f) restrictive single-channel marketing; (g) prohibitive transit charges; (h) complicated visa requirements;(i) pre-shipment inspection; and (j) national food security restrictions.

Although in some of these areas there has been progress, most barriers are still in effect. In practice, most of the tangible efforts have tended to focus on

improving the monitoring and reporting of non-tariff barriers rather than their elimination. Monitoring has taken two main forms:

- Audits of the implementation of the SADC Protocol on Trade have been undertaken every year since 2007. Their main focus has been on progress in removing tariffs facing regional trade, as per country commitments, but they also review some NTBs, in particular those relating to rules of origin.
- The SADC Trade Monitoring and Compliance Mechanism (TMCM) was established in mid-2008. This has two distinct elements: (a) an online non-tariff barrier monitoring mechanism which records non-tariff barriers reported by firms and (b) the elimination and reduction of barriers (both tariffs and non-tariff barriers) following bilateral negotiation or outcomes from the various dispute settlement mechanisms.

The publication of non-tariff barriers under the auspices of the monitoring mechanism is a major step forward. However, while the monitoring mechanism is now well established, there are problems with it, including misidentification of some of the barriers reported and, most importantly, slow progress in resolving the barriers once they have been notified. Just half of the complaints received by SADC and 20 per cent received by COMESA have been resolved under the tripartite monitoring mechanism. The main reason is that there is no obligation for countries to remove their barriers once notified by others. The system relies purely on moral suasion.

Similarly, article 49 of the COMESA Treaty obliges member States to remove all existing non-tariff barriers to imports of goods originating from the other member States. In addition, member States are expected to refrain from imposing any further restrictions or prohibitions, with the Treaty stating that:

> "Except as may be provided for or permitted by this Treaty, each of the Member States undertakes to remove immediately upon entry into force of this Treaty, all the then existing non-tariff barriers to the import into that Member State of goods originating in the other Member States and thereafter refrain from imposing any further restrictions or prohibitions."

However, like many other agreements, the COMESA Treaty recognizes the right of member States to impose trade-restricting regulations for health, safety or environmental reasons.

In summary, even when treaties oblige member States to remove rules and regulations, their actual removal is often a long and difficult process. For example, in the East African Community (EAC), practically all the NTMs targeted for "immediate removal" shown in table 5 are still in place. Experience from other regional groupings, such as the European Union and ASEAN, points to the importance of establishing effective enforcement and compliance mechanisms. However, establishing such mechanisms is difficult and presupposes the existence of a strong political drive for deep integration.

Implementing the EAC agenda on NTMs has proved difficult for a variety of reasons besides the lack of political traction. One important reason for poor implementation is the lack of administrative capacity. This is important, as the issues related to NTMs can quickly become very technical. Recognizing this, the EAC secretariat has tried to set up information/monitoring mechanisms supported by capacity-building and training and to favour the creation of country-level structures such as monitoring committees. This is a promising area of cooperation between the Governments of member States and the regional commissions in EAC and elsewhere and also clearly an area where international support would have a high payoff.

The approach adopted by the ASEAN secretariat consisted of classifying NTMs into broad classes using several criteria. NTMs were first classified on the basis of WTO principles: transparency, non-discrimination, science basis (for SPS measures) and proportionality/necessity. The secretariat tried to strike a balance between non-trade regulatory objectives, such as revenue generation and protection of health and safety of consumers, and trade costs measured through a trade impact criterion. The criterion used a number of indicators, including the number of private sector complaints, the difference between domestic and world prices, sectoral importance and trade value, and was used to group NTMs into three categories:

- Red box: NTMs that impede trade in ASEAN and which require immediate elimination.

Table 5. Measures targeted for immediate removal by the East African Community

NTM category	Summary description	Stated objective	Potential for non-transparent and discriminatory application	Evidence/ scientific basis	Alternative measure
II	Non-recognition of EAC rules and certificates of origin	Prevent trade diversion under the EAC FTA	High	Verification missions	Apply risk assessment
I	Import bans (milk, day-old chicks, beef and poultry)	Public health	High	Inconsistent between imports and domestic production	Mutual recognition within EAC
VII	Cumbersome procedures for registering a business across borders	Statistics and record keeping	Varies between countries	Not applicable	Automatic business registration
II	Multiple road blocks	Prevent tax evasion on transit goods	High evidence of bribes	None	Document based controls at borders
IV	Charges levied on plant import permit for Ugandan tea (Kenya)	?	Yes	None	Abolish levy
IV	Non-recognition of SPS certificates on Ugandan tea (Kenya)	Public health	Yes	Lack of confidence in UNBS CA	Recognition of SPS certificates within EAC
II	Multiple weighbridges along the Northern Corridor	Road safety	High	None	Use risk assessment
IV	Certificates of analysis required in spite of UNBS quality certificate (Burundi and Rwanda)	Public health/ safety	High	Lack of confidence in UNBS	Mutual recognition within EAC
II	Requirement for bond and import licence from Trade and Industry Ministries prior to excise duty stamps (United Republic of Tanzania)	Protection	Yes	None	Remove requirement
II	Discriminatory excise duty on BAT cigarettes by United Republic of Tanzania that do not have 75 per cent of Tanzanian tobacco	Domestic content protection	Yes	None	Remove requirement
II	Landing certificates for exports from Kenya through Namanga issued by TRA in Arusha rather than at the border	Administrative	Yes	None	Abolish landing certificate requirement
II	Extra charges levied on Kenya pharmaceutical exports by the United Republic of Tanzania	Protection	Yes	None	Abolish requirement
II	Cotecna inspection required for imports to the United Republic of Tanzania	Undervaluation	Yes	None	Abolish requirement
II	Road consignment note required from transporters prior to packing of goods	?	Yes	None	Abolish requirement
II	Consignment values for Punchline Ltd uplifted	Concern over undervaluation	Yes	None	Abolish requirement
II	TRA refusal to recognize certificates of origin issued by KRA on buses manufactured at Namanga	Conformity with the rules of origin	Yes	None	Recognize the EAC Certificate of Origin
II	Discriminatory charges on ad hoc landing of aircraft in different EAC member States		No	None	Abolition of discriminatory charges
II	Inadequate escort mechanism	Concern over tax evasion	Yes against all transit goods	None	
II	Corruption along the Northern and Central Corridors at roadblocks, weighbridges, and borders		Yes	None	Increase transparency

Source: Adapted from Kirk (2010).

- Amber box: NTMs which could not be clearly identified or classified as barriers.
- Green box: NTMs which could be justified, including measures that have a scientific basis and are applied to both domestic and imported goods.

The categorization into boxes naturally led to a prioritization in terms of streamlining. In addition, the ASEAN secretariat called for eliminating first the non-transparent and discriminatory measures and then turning to those that were transparent but discriminatory. NTMs deemed unnecessary would be removed without being replaced with alternative measures (e.g., automatic licensing). For NTMs with protective objectives, a re-examination was suggested in view of the commitment to promote intraregional trade. In such a case, the replacement with tariffs should also be set, initially at rates with an equivalent impact to the NTM and gradually reduced in order to be less discriminatory against imports. Moreover, any measure that was less trade-distorting which was replacing an existing NTM would need to take into account the regulatory objectives of the original measure.

The ASEAN secretariat identified the greatest positive impact on trade as likely to come from removing the following NTMs: administrative pricing, non-automatic licensing, quotas, enterprise-specific restrictions and pre-shipment inspection. These should be replaced with tariffs, fiscal incentives, or risk management with post-entry audit systems at customs. NTMs that are transparent but discriminate between imports may be considered next although their immediate removal would also yield trade benefits (e.g., prohibitions on "non-sensitive" goods and a single channel for imports). The ASEAN secretariat also sought to remove NTMs in nine priority sectors, including electrical equipment, organic chemicals, motor vehicles, pharmaceuticals, cosmetics, beverages, edible fruit and nuts, cocoa and dairy products. Tariff quota duties, anti-dumping measures and restrictive foreign exchange allocation are not included in the ASEAN scheme. The reason is that anti-dumping is covered by WTO rules, tariff quota duties may be tariffied and prohibitions are usually imposed on sensitive goods for national security, religious or moral, health and safety, or environmental reasons.

On the compliance side, the ASEAN secretariat clearly took into consideration that enforcement of the rules might take place at different levels. Self-compliance is highly likely where the net benefits of the proposed arrangement are unequivocal for the member, which would serve as the impetus to implementation. Second- or third-party enforcement will require bodies with clear mandates, rules that are flexible yet stable and quality information but more importantly, the political will of members to deliver on their commitments. Nevertheless, formal mechanisms and arrangements within ASEAN were considered essential to institution-building as they improve on informal practices and instil a sense of obligation into the agreement by bringing countries under the same jurisdiction.

In sum, regional experience in streamlining NTMs suggests the following guiding principles:

- Partners should be consulted systematically when new regulations are being considered.
- Harmonization should be limited to essential health and safety standards, with details left to national authorities to be set according to local needs.
- Whenever international standards are available, they should be preferred.
- Provisions on TBTs and SPS matters in regional agreements should be made, as far as possible, legally binding.
- Technical assistance and capacity-building should be provided as early as possible for less developed partners.

VI

STREAMLINING NON-TARIFF MEASURES

Although some NTMs can be reduced or eliminated, many are implemented for legitimate and worthy purposes. In this regard, streamlining NTMs consists in reforming and harmonizing them so as to maintain their purposes but at the lowest possible costs. "Efficient regulations" should be the ultimate objective of NTM reform, as efficient regulations are essential for increasing competitiveness. In practice, since they generally impose additional costs to trade, streamlining NTMs will reduce costs and increase the competitiveness of firms engaged in international trade. Streamlining NTMs involves two distinct tasks: one consists of improving the nature of existing NTMs, the other consists of improving the process through which new ones are introduced.

A. Approaches to reform of non-tariff measures

In the short run, in the presence of a legacy of overregulation, a "cleaning-up" process is a useful first step and possibly the one with the greatest benefits. Striving for an improvement in existing NTMs means reviewing them in light of the existing evidence of their effects. Transparency, as discussed in section IV, is an essential prerequisite in this regard. In many cases, the most harmful regulations and NTMs are easily identified – and often the problems have been flagged repeatedly by the private sector and are known by competent ministries. In order to eliminate them, one approach is to name and shame responsible agencies and ministries in round tables with the private sector, or through the creation of registries – e.g. single windows – where issuing agencies are asked to justify all measures.

In the long run, what matters is the process. Modern societies require a growing number of product standards and regulations in order to respond to growing societal demands for health, safety and environmental concerns. Developing a rule-making process that is transparent, satisfies international obligations and allows trading partners adequate time to comment on proposed regulations before they go into effect is a challenge, especially for developing countries. In order to stem the tide of new regulations, countries often impose periods of "regulatory moratorium" (e.g. Mexico in 2004). This, however, is generally only a temporary fix. Preventing regulatory proliferation is one thing; improving the process through which regulations are issued and enforced is another. For that, procedures must be put in place with requirements that are clear and consistent with WTO. In this regard, the international best practice is to impose mandatory regulatory impact assessment procedures, such as those illustrated in box 2.[29]

[29] A typical regulatory impact assessment will include the purpose and nature of the regulation; the consultation process; a review of options for solving the problem; the benefits and costs of the regulation; compliance, enforcement and monitoring; and summary and recommendations.

Box 2. Simple regulatory impact assessment guidelines: Mexican version

General questions

General data on the regulatory proposal (name, initiating agency, responsible officers)

Summary of the proposal (objectives, problem being addressed)

Section A: Legal analysis

Type of proposal (law, by-rule, technical standard)

Alternative measures considered

Legal basis for the measure

Related regulations, existing regulations affected by the proposal.

Section B: Regulatory analysis

Regulatory effects (identify and describe)

International experience (compatibility of proposed regulation, approaches followed in other countries)

Public consultation (describe process, who participated, what proposals were submitted, why not incorporated)

Implementation (describe resources available)

Enforcement (describe mechanisms)

Section C : Impact analysis

Is this a high-impact measure? (compliance cost over $80m/year)

Is compliance cost concentrated on a particular group?

If yes to both, full cost-benefit analysis must be annexed

General effects on competition and trade (international and domestic)

Effects on consumers

Effects on SMEs

Measurable costs (description & quantification)

Measurable benefits (description & quantification)

Non-measurable benefits, additional information on costs & benefits

Effect on business formalities (does it affect, eliminate, or add one?)

Source: www.cofemer.gob.mx

1. The objective: efficient regulation principles

"Efficient regulation" is the objective of regulatory reform. Whether NTMs or business regulations are concerned, the principles that should guide regulatory practice are largely the same. As defined by OECD, these principles can be summarized in nine key components:

1. Transparency and openness. All stakeholders should have unrestricted access to relevant information on regulations and procedures and be consulted on their design. Bureaucratic discretion on the ground should be limited by clear rules.
2. Non-discrimination. Similar products and services from all countries should be given equal competitive opportunities, in conformity with the WTO principles of national treatment and most favoured nation clause. For instance, technical regulations should not be designed to be costlier for some producers than for others.
3. Avoiding unnecessary trade restrictiveness. Governments should avoid the use of instruments that restrict trade and investment more than is needed to fulfil legitimate non-trade objectives, either by design or in their implementation.
4. Use of performance-based regulation instead of regulations based on design or descriptive characteristics, so as to preserve producers' technical flexibility in meeting requirements. This is important to encourage innovation in response to regulation. More broadly, regulatory instruments should be market-based.
5. Systematic use of regulatory impact assessments to evaluate, ex ante, the likely impact of new regulations.
6. Simplification to minimize compliance costs, through one-stop shops, computerization and extensive use of IT, simplification of licensing and permit procedures and time limits for administrative decisions.
7. Use of international standards for technical regulations.
8. Ensuring the quality of conformity assessment procedures, so as to make them trade facilitators (by raising consumer confidence) as opposed to bureaucratic harassment. Options include mutual recognition agreements, recognition of supplier's declaration of conformity, unilateral recognition of conformity assessment results from other countries and voluntary agreements between conformity assessment bodies in different countries.
9. Incorporation of competition-policy principles into regulatory design. Creating or enhancing competition should be a regulatory objective on a par with other objectives.

These principles constitute a long-term goal for any regulatory body, whether trade-relevant or not, and regulatory impact assessment plays a central role among them. Substantial benefits can be expected from their application.

First, they should contribute to making the domestic economy more efficient – through a better allocation of resources – and more adaptable to change. Good regulations foster innovation and encourage a drive for quality. They also contribute to setting high standards in the private sector by spreading quality management, transparency and accountability.

Second, efficient regulation should contribute to making the domestic economy more competitive. Good regulations provide a fair business environment in which the best firms can thrive and expand, while inefficient ones are not propped up artificially by regulatory barriers against competitors. A better regulatory environment also attracts foreign capital, contributing to employment, capital accumulation and technology spillovers.

Finally, efficient regulation should contribute to achieving societal goals such as the protection of local public goods – the environment, public health and so on – effectively and at low cost. By reducing the business and trade costs of achieving broader societal goals, better regulations enhance the achievement of those goals.

In terms of implementation, a crucial element to ensure sustainability is for the institutional set-up to give an active role to the private sector and more broadly to all interested parties in civil society. That is, the top-down initial impulse should be complemented by a bottom-up dynamic, because the latter is more likely to be self-fuelling simply because those affected by a regulation are in a better position to take the

initiative for its review than bureaucrats inside the administration.

In addition, any review body for NTMs should not be just a forum for the private sector to manifest its discontent as after a few meetings where discontent is expressed but to no avail, private sector interest wanes. In many cases, there is actually a plethora of such bodies. There should be one body and it should be endowed with a permanent secretariat with the resources and skilled staff to conduct meaningful reviews.

2. Streamlining regulations: a menu of approaches[30]

How to reach the objective of efficient regulations through regulatory reform has proved a formidable challenge. Several approaches have been proposed and tried, largely on a pragmatic, experience-based basis, going from drastic rethinking to the mere re-engineering of day-to-day administrative transactions.

The "guillotine" approach, used in Mexico and Korea, involves drawing up inventories of measures and then setting reduction targets in terms of numbers (say, "eliminate 300 regulations by 31 December") or through a given criterion. In the latter case, the guillotine approach "reverses the burden of proof", meaning that it is up to the regulators to justify the fact that licences or regulations are needed, the default being elimination. Fast and effective, this approach does not require lengthy and costly legal action on each regulation and is appropriate in environments characterized by heavy burdens of "legacy regulations".

The "bulldozer" approach relies on civil society mobilization – grass-roots movements, non-governmental organizations, consumer associations, concerned business lobbies and the like – to identify unnecessary regulations and advocate their reform or removal. That is, local communities and lobbies serve as the "bulldozer" to confront and remove regulatory obstacles.

"Scrap and build" is a more drastic approach that challenges the entire regulatory regime. It consists of a complete review of the regulatory system, rethinking everything from first principles. The idea is to build from scratch a new, coherent and integrated regulatory body. This approach has seldom been used, as it requires immense political will and a high level of technical capability, together with a willingness to get rid of all legacy regulations, which seldom go together except after conflicts and drastic political changes.

The "staged repeal" or "automatic revocation" approach consists of a systematic and comprehensive review of existing regulations, in which regulations are grouped according to their age and progressively repealed after review, focusing on their compatibility with the current obligations and standards of the country. It is a progressive and staggered schedule of repeal based on the date of adoption. Regulations not considered obsolete are remade. This process gradually brings the entire stock of regulations into conformity with current standards.

Review and sunset clauses are automatic triggers to eliminate potentially outdated measures and to prevent "legacy regulation". Review clauses are requirements for reviews to be conducted within a certain period. The underlying assumption is that, unless something is done, rules continue to be applied by sheer inertia. This "something" is a clause mandating a review of the rules, with an option to phase them out if need arises. "Sunsetting" goes farther by setting an automatic expiration date, unless the measure is remade through normal rule-making processes. This ensures continuing review and updating of the stock of regulations. Sunset clauses ensure that review of regulations takes place after a determined period of time. For example, in Australia since 2006 most subordinate regulations (where the Parliament has delegated the powers to make regulations to a minister) are reviewed after a certain number of years.

Finally, process re-engineering – the least ambitious approach – is the redesign of compliance verification procedures and other paper transactions between administrations and the private sector, eliminating redundant steps and using information technologies whenever feasible. These approaches have the power not only to reduce the bureaucratic burden imposed on businesses to verify compliance with local regulations, but also to streamline administrative operations as well and thus to cut costs for Government. Reform of licences and permits is the most popular target of process re-engineering as they impose heavy burdens on investment, business start-ups, existing businesses and the public administration workload.

[30] This section draws on IFC (2010).

Which approach is appropriate depends on the particular context of reform; indeed, these models are ex post categorizations of approaches that have been tried in recent history. Whatever the model, what matters in the practice of advice on regulatory reform is (a) to calibrate the ambitions of the agenda to its political traction; (b) to ensure local ownership of the reform agenda and to make it self-fuelling; (c) to design it, as much as possible, in a way that makes future reversals difficult and costly.

B. Regulatory reform: lessons from recent experience

1. Overall lessons

Regulatory reform is a long and difficult endeavour requiring strong political traction, which should be achieved through a mixture of a strong and stable institutional set-up to ensure lock-in and international support to reduce the cost of policy experimentation. In terms of political support, reviews cannot satisfy everyone and choices have to be made down the road to maintain, scrap or change regulations. Some of those choices will necessarily involve clashes with special interests and political authorities must be willing to stage those battles in order to translate the results of regulatory reviews into action, lest the whole process becomes meaningless.

Another key political aspect of reviews is that, although they should be technical rather than political exercises, they should involve wide participation by stakeholders. In all its diverse forms, regulatory impact assessment, for instance, allows for a consultation process at all stages. The greatest advantage of conducting a transparent process of regulatory impact assessment is that when the decision is finally enforced, all sectors affected by the measure have had the opportunity to voice their opinions in a democratic process and are thus willing to accept the outcome and adapt to it.

The recent experience in improving regulatory quality, in particular through cost-benefit analyses and regulatory impact assessments, highlights the importance of skills and staff resources available in administrations. Quantifying economic, social and environmental impacts is a highly technical task and can yield misleading conclusions if not done correctly. When analytical capabilities in the administration are short, expertise networks can be formed with academics and think tanks. This has the added advantage of drawing in sectors of civil society which may not otherwise have a voice in the process. The review process must be endowed with substantial financial resources. If serious impact evaluation or cost-benefit analysis is considered, the amounts of funding that must be mobilized are considerable. Another potentially critical bottleneck in conducting meaningful reviews, cost-benefit analyses and regulatory impact assessments is the availability of data and data analysis to guide the regulatory reform.

2. A case study: Mexican regulatory reform

Mexico is an interesting case study for several reasons. First, at the time the reforms were launched, it faced a formidable legacy of over-regulation, protectionism and a culture in State administrations that was unfriendly to business. Second, the reform drive was very energetic and was largely triggered by external events: NAFTA and the Tequila Crisis of December 1994. Third, the reform lost most of its political traction in less than a decade, shedding light on the role of reform design in ensuring the sustainability of results.

The Government of Mexico has been involved in a continuing effort to streamline its NTMs as part of a broader reform agenda involving regulatory improvement – in some cases outright deregulation – privatization and trade and financial liberalization. This agenda marked a spectacular break from over three decades of over-regulatory policies.

NAFTA provided a strong political anchor to a reform process that predated it. The need for reforms had become clear during the debt crisis of the 1980s and the reforms started at low speed in 1986 with Mexican accession to GATT. At that time, the Mexican economy was characterized by heavy concentration – a small number of large firms dominated the economy and wielded a great deal of political power – and by an oversized administration, with as many as 2 million public sector workers in 1988 (IFC 2008). When NAFTA entered into force in 1994, it gave the push needed to lift the reform process. This became apparent in the peso crisis of December 1994, during which the private sector clamoured for protectionist measures.

However, as NAFTA made reversion to protectionism impossible, the only avenue left to improve the competitiveness of Mexican industry, besides peso devaluation, was to improve the business environment. Thus NAFTA eliminated protectionism from the menu of viable policy options, while the peso crisis put the alternative – regulatory reform – at the centre of the political debate.

The regulatory reform process was top down and driven by a small group of 15 to 20 technocrats. These were a mixture of economists and lawyers, many of them trained abroad and sharing a vision that placed markets – rather than the State – at the centre of the Mexican growth strategy. The technocrats had the full support of the Presidency and in particular of the President's legal counsel, under the administrations of Presidents Salinas (1988-94) and Zedillo (1994-2000). Presidential support was especially powerful at a time when the President's party, the PRI, also controlled Congress. The subsequent fragmentation of political power was a major contributing factor in the weakening of the reform process. Political support at the highest level, coherence in the overall reform agenda and strong credentials gave the technocrats the authority they needed to make things move.

The process was institutionalized through the creation of an agency for regulatory improvement. The Economic Deregulation Unit (UDE), created as early as 1989, was placed under the authority of the Secretariat of Trade but given, by Presidential decree, a broader authority than the Secretariat itself . However, the controversial decision to place the unit under the umbrella of a ministry rather than making it a strictly independent agency has been argued by some to be at the root of its current weakening. In the early days, UDE gathered credibility and authority by initially targeting "low-hanging fruits" – regulatory reforms that were easy and widely seen as urgent. Early achievements included deregulation of road transport, electricity and the ports, followed by a land tenure reform. This short list shows that UDE embarked on an ambitious deregulation agenda rather than tackling a laundry-list of small-scale, low-visibility regulations and NTMs. However, it also undertook more pedestrian endeavours; for instance, it created an exhaustive federal registry of business formalities. It required all ministries not just to notify, but also to provide justification. This shamed ministries into eliminating the most inadequate formalities, leading to the elimination of 45 per cent of them by 1999 (IFC 2008).

A second step in the institutionalization of the regulatory reform process was the creation of the Economic Deregulation Council, a consultative body bringing together representatives of the ministries which issued regulations, UDE, business, the labour unions and academia (IFC 2008). Although without formal sanction powers, the Council, which met quarterly, reinforced the UDE strategy of exposing silly or harmful regulations, or those driven by special interests. Distortionary regulations often make their way through the political process because of an imbalance between concentrated beneficiaries (lobbies) and dispersed societal interests. Around the Council table, lobby-driven ministries, which were required by the President to be represented by their secretaries of State themselves (no low-level substitutes), found themselves surrounded by representatives of wider interests and that, by itself, made it more difficult to ram through harmful measures. UDE would review ministries strategically, starting with friendly ones (Trade and Foreign Affairs) and turning to more difficult ones (Interior, Communications, Transportation) later on.

The third and final step came with the passage of the Federal Administrative Procedures Act and the transformation of UDE into a formal federal agency, the Comisión Federal de Mejora Regulatoria (COFEMER), in 2000. The objective of the law was to ensure that new regulations would obey standards of transparency and rationality by assessing the regulatory process of specialized agencies. Since 1996, federal agencies had been required to submit regulatory impact assessments with new regulation projects. The creation of COFEMER, with a staff of about 60 professionals, a budget of $5 million and an independent status with a head appointed by the President (although still within the Secretariat of Trade) was meant to reinforce its powers. International support was also important, including technical assistance from peer agencies in Canada, the United Kingdom of Great Britain and Northern Ireland and the United States. However, key limits to its power, such as the exclusion of all tax-related matters, were maintained, as opposition from the Finance Ministry made the inclusion of tax-related matters impossible.[31]

[31] This exclusion contained aspects such as customs procedures and regulations in general, including regulations and requirements for customs brokers.

In spite of the institutionalization of the regulatory reform process, the effectiveness of COFEMER was only as strong as the President's political backing. When elections returned a majority in Congress that was hostile to the President, his backing became less powerful and partisan politics significantly slowed down the reform process between 1997 and 2000. By that time, general reform fatigue in the face of disappointing growth (although the performance of the country was due to a variety of factors that had little to do with that of COFEMER) had eroded political support for further regulatory reform. In 2003, COFEMER lost a key battle against the telecommunications sector, waiving its right to issue an opinion on its draft regulation (which was favoured by incumbent operators).

The Mexican experience highlights the benefits that come from streamlining NTMs when this is part of a broader regulatory reform agenda. The number of licences, permits and other information requirements in the commerce and transport sector, for instance, was cut from about 1,000 in 1995 to fewer than 400 in 2000 (IFC, 2008) and UDE reviewed over 500 regulatory proposals between 1995 and 2000. All in all, about 90 per cent of the regulatory framework was affected by the process. During the reform period, capital inflows represented over 4 per cent of GDP on average and the recovery after the 1994 peso crisis was much faster than after the debt crisis of 1982 (IFC, 2008). However, as noted, the drive for reform lost momentum in later years. Both the initial successes and the later loss of impetus carry important lessons.

The reform agenda must be comprehensive and consistent rather than piecemeal. For instance, there is little point in eliminating harmful or unnecessary NTMs if ministries come up with new regulations that are no more transparent or rational than the ones being eliminated. If the improvement in the NTM environment is to be permanent, new regulations must be systematically based on regulatory impact assessments.

Also, when NTMs protect particular interests, making their elimination politically viable requires compensation. The objective of a consistent reform agenda is to find compensatory measures that also enhance overall efficiency, such as improvements in the domestic regulatory environment, customs reform, labour market reform, or a better competition policy. For instance, the overall objective of NTM improvement is to make markets for tradable goods more competitive, but exposing sectors of tradable goods to more competition is not acceptable if upstream services (banking, telecommunications, energy, transportation) are dominated by inefficient monopolies or cartels. Making tradable goods more competitive is acceptable to the private sector only if it is compensated by the lower input costs brought about by an effective competition policy at home (or by customs reform and improved trade facilitation).

Reforming alone is hard. The Mexican experience shows the critical importance of international support. UDE and later COFEMER drew extensively on support from peer agencies and international experts. In this regard, product standards in particular are increasingly complex, but at the same time regulatory needs are not enormously different from one country to another. There is no need for national administrations to spend precious budget resources duplicating work (in the form of standard-setting or expert review) that has already been done elsewhere. However, fruitful contact and cooperation between the national agency and foreign counterparts require personnel in the national agency to be sufficiently well-trained to be able to communicate with their foreign peers. This allows ideas to be exchanged and best practices to be brought home, is key to their efficiency and motivation and points to careful selection of agency personnel at the outset.

The sustainability of the reform process requires an institutional set-up topped by a powerful, independent agency. UDE was in that category, but COFEMER proved to be a relative disappointment. Its location within the Secretariat of Trade gave, rightly or wrongly, the impression that it lacked independence. It proved unable to overrule the most powerful vested interests in Mexican society and each lost battle weakened its standing. By contrast, the Federal Competition Commission steadily consolidated its power over time. These contrasting evolutions have prompted some observers to suggest that one single agency, combining enforcement powers in both competition authority and regulatory improvement, would have had more authority, with each branch leveraging the authority of the other. In addition, there are obvious synergies in the analytical work performed by both types of agencies, so the personnel required would be largely the same. COFEMER has proved itself too dependent on waning political support.

Engaging middle-ranking administration levels in the reform process is crucial. Streamlining NTMs and regulatory reform may sound good in high-

level pronouncements, but they are worth only what actually happens on the ground. Typically, the strongest resistance to corporate change comes from middle-level management. The same applies to public administrations. Changes in rules and procedures mandated from the top are only as good as their implementation by division heads and lower-ranking officials. This requires their adhesion in the face of uncertainty about the effect of regulatory reform on their status and position. When regulatory improvement comes as part of an aggressive agenda of State retrenchment and privatization, it can easily be perceived as hostile and threatening, leading to inertia or passive resistance. In Mexico, the spoils system made it possible to change the personnel of the public administration down to middle levels in key areas (IFC 2008). However this carries a risk of politically motivated reversal later on and is not conducive to the long-term viability of the reforms. Far better would be to gain the support of a stable, competent administration through training and communication, which COFEMER tried to do (but with insufficient means) through capacity-building seminars.

Highlighting the fragmentation and uncertainty of the reform process, the Government of Mexico recently undertook a new regulatory review process under the name of "Zero base regulation approach", led by the Ministries of the Economy and of Public Administration and apparently bypassing COFEMER. The process was expected to be concluded by the end of 2011.

This brief review of the Mexican experience suggests that the NTM regulatory improvement toolbox has essentially four elements, each of which can play a role separately or in combination with the others:

- A consistent and mutually-reinforcing reform agenda and a strong and permanent political anchor, such as a binding trade agreement (e.g. NAFTA).
- International support in the form of technical assistance to the regulatory improvement body and international (typically regional) cooperation in the elimination of NTMs.
- A credible institutional set-up revolving around a strong independent, competent oversight body with high-level political support.
- Engagement of national administrations, in particular middle-level civil servants, in a regulatory impact assessment process for new regulations and NTMs, taken seriously and used in conjunction with systematic exposure and consultation with stakeholders.

The first element may not be readily available, since few international agreements provide political anchors as strong as NAFTA for Mexico or the Treaty of Rome for European Union member States. It is up to reform-minded Governments to find the commitment mechanism, internal or external, that best fits national particularities. The second is a question of mindset – accepting that foreign experience is relevant and foreign advice is useful. The third element (the institutional set-up) can be easily created for the purpose of the reform; the difficulty is to design it right. The last element poses no conceptual problem, since guidelines for regulatory impact assessment are available from Governments that use them extensively (e.g. the United Kingdom); the real difficulty is in effective engagement of domestic administrations.

C. Streamlining of non-tariff measures: a practical, step-by-step approach[32]

Any review of NTMs should be based on a few guiding principles to ensure that it is effective in the sense of getting acceptance for reform while not watering down proposals for change when they are needed. This means that the process should generate ownership in the agencies driving the regulatory process, but at the same time that it should generate enough new information to make proposals for reform flow naturally from factual analysis. It should also be sufficiently flexible to accommodate different methodologies and adapt the review process to specific country environments in terms of capabilities. These basic working principles translate into the following guiding elements:

- The review process aims to improve trade regulations by determining whether they are fulfilling their stated objectives while being the least restrictive of trade.

[32] This section draws on the forthcoming toolkit for streamlining NTMs developed by the World Bank (Cadot, Malouche and Saez (2012)).

- The primary responsibility for regulation lies with the issuing regulatory agency or ministry. The aim of the review process is to support their work.
- The review process should be led by an agency, ministry or committee[33] with a clear mandate, which is accountable and has strong political support.
- The review process is gradual, sustainable and aims to establish a self-fuelling process that can grow over time. Gradualism means that the review process could focus initially on specific institutions (e.g. standard-setting bodies) and regulations (e.g. prohibitions, licensing or other prima facie trade barriers) and later on move to wider issues.
- The review process should be initiated only when minimum requirements are met, in order to avoid using resources on irrelevant requests.
- The review process should proceed as an ex-post regulatory impact assessment by providing a cost-benefit analysis of measures in place.

1. Process of streamlining non-tariff measures

There are several actors that can initiate (or request) a process for streamlining NTMs. They include interested stakeholders, the private sector, government agencies and other regulatory and legislative bodies. Once these actors make the case to Government, the government task is to decide at which level it would like the process of decision to take place and to appoint or create an agency to oversee the overall review process.[34]

The second step consists of defining the mandate of the agency responsible for conducting the reviews, as well as the nature and objectives of the process. Although one agency should be designated to lead the process, in order to ensure ownership, all relevant regulatory bodies should be involved in the process and the review of the facts, as well as in the analysis of the work conducted by the review agency. An example of the mandate for the agency responsible for leading the review of domestic trade regulations is to:

- Propose procedures for conducting the review.
- Check the legitimacy of requests for review in terms of factual accuracy and the importance of the issue.
- Inform the relevant authorities of its decision to undertake a review, if it decides to do so.
- Gather survey, statistical and technical information, e.g. through questionnaires to stakeholders.
- Organize hearings with stakeholders to discuss and clarify the information gathered.
- Coordinate the review process with all regulatory agencies.
- Issue a report of the review process. Reviews could be made shorter for measures for which there is a presumption of redundancy or inconsistency with WTO, whereas heavily technical cases involving SPS measures or technical regulations could take longer.

The agency would then start the review process by first conducting a preliminary check to verify the accuracy and adequacy of the information provided by the initiating agent so as to determine whether the evidence is sufficient to justify the initiation of a review. The agency has the authority to request/acquire additional information or directly reject the case and terminate the review process if it finds that that there is not sufficient evidence for proceeding with the review.[35] Some of the criteria for assessing whether or not to initiate a review include whether the measure clearly restricts trade (e.g. prohibitions and quantity restrictions); whether the impact is large; and whether the industry/sector being affected by the existing regulation contributes substantially to the economy (GDP, employment, foreign reserves, etc.).

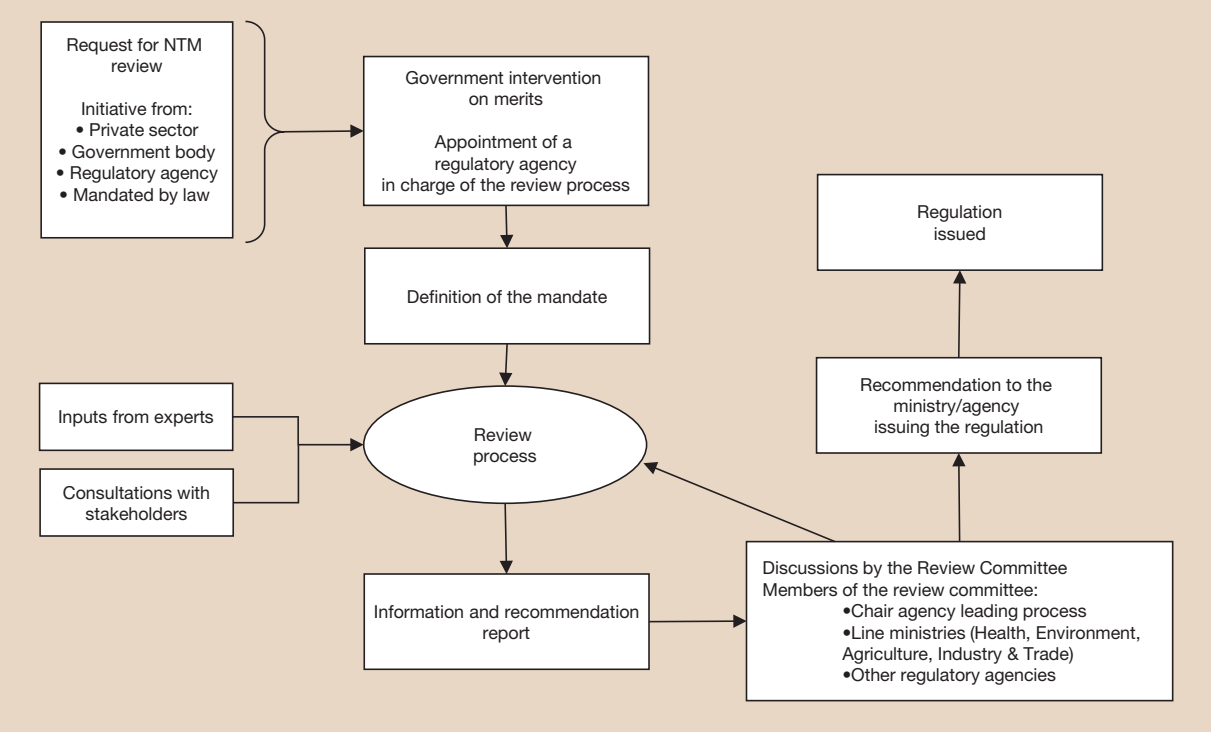
If the agency decides that the information provides enough evidence for possible NTM reform, it will initiate a formal review process which will result in a

[33] This includes the possibility of an interministerial or inter-agency committee.

[34] For instance, in New Zealand, the Treasury is responsible for reviewing new regulations, while in Mexico a specialized agency (COFEMER) conducts the reviews.

[35] The agency could adopt a set of parameters to quickly assess the impact of the existing barriers, such as a *de minimis* threshold to assess the costs of the measure, to determine whether the impact is negligible.

Figure 21. Approach to streamlining NTMs



Source: adapted from Cadot, Malouche and Saez (2012).

report to be submitted to a review committee. The review process, of which the technical details are presented in the next section, should allow for inputs from the private sector and more broadly from all interested parties in civil society. This is consistent with the idea that a broadly based constituency for reform is also required.[36] Another important element is for all regulatory agencies to be represented on the review body in order to ensure that the decision to initiate a review is accepted simply by the force of an open and democratic decision-making system. Complementary to that is that a dispute resolution mechanism must be clearly spelled out, with the possibility of referring disagreements about the actions to follow the recommendations of a review up to the highest levels for final decision. This is the most delicate part of the design, as the process is politically sensitive and should not be perceived as adversarial at the outset, in case no agency participates in it. Ideally, the process should be initially viewed as producing technical solutions to technical problems and only progressively grow into a truly comprehensive regulatory framework.

In general, the review process should aim to inform all interested parties of the essential facts under consideration, which form the basis for the recommendations regarding the measures under review. In more detailed terms, the outcome report should discuss the findings and recommendations of the review process and should:

- Clearly define the regulatory NTM problem.
- Identify the public policy objectives of the measure(s).
- Identify and analyse the measure(s) related to the problem, including whether they are clear and concisely written.
- Provide an analysis of the incidence of the trade-related impacts of the measure(s): who bears the costs and benefits, i.e. small business versus medium-sized and large business, exporters versus import substitution firms etc.
- Provide an assessment of other available policy options, their incidence and how they could achieve an outcome that is less restrictive to trade, while maintaining the same level of

[36] Akinci and Ladegaard (2009) and Jacobs and Ladegaard (2010).

protection. Due consideration should also be given to the difference of the incidence of impact, depending on the various policy options.

- Describe the consultation process undertaken during the review.
- Present the overall assessment, including the findings and policy recommendations: maintain, change or remove a measure.
- Also include analysis of the issues related to the implementation of any proposed reforms, e.g.:
  - Administration issues, such as which agency is responsible for the administration of the options and resources available.
  - The information that regulated parties will require in order to comply with the regulation.
  - Timing and transitional arrangements, i.e. gradual introduction of new requirements, at least six months before the entry into force of the new regulation, provision of interim assistance.
  - Enforcement strategy – how compliance can be enforced and the suitability of risk-based enforcement strategies.

Ultimately, the report will recommend adopting, maintaining, changing or eliminating the NTM concerned. The recommendation should to be submitted to a review committee composed of all regulatory agencies involved in the regulatory reform. The review committee can request additional analysis or clear the report and submit it to the competent authority for implementation.

Finally, as the process will eventually grow into full-blown regulatory reform, one important question is how to give the regulatory watchdog enough power to pick up meaningful battles against vested interests. One possibility, briefly discussed in the Mexican context, is to merge several economic watchdog functions into a more powerful body. This body should have a broad mandate including (a) regulatory oversight, (b) competition policy and (c) oversight of government procurement. These issues are clearly intertwined; for instance, NTMs which restrict trade have much more deleterious effects in the presence of domestic interests, which is a competition policy issue. Similarly, government procurement can be used to reinforce or, on the contrary, fight dominant positions on the domestic market. In terms of governance, there are high stakes in all three areas, so tackling them all together may bring very substantial benefits.

The role of regulatory watchdog can also be established at a supranational level, especially where regional integration is already advanced. In addition, the creation of a regional institution replacing national agencies with similar mandates further facilitates effective trade integration.

2. The review process for non-tariff measures in detail

The review process for NTMs is a particular instance of a broader exercise of impact evaluation, in which some outcome of interest (employment, foreign trade, welfare or other) is compared in the presence of a policy measure vs. that in its absence. The key problem is one of "missing data", because one cannot observe the world both with and without the measure – it can only be examined one way or the other. In an ex ante exercise, such as a regulatory impact assessment, the outcome without the measure is the current one; the outcome with the measure must be simulated. In an ex post review, the outcome with the measure is the current one; the outcome without it must be either simulated or approximated by using "comparators" i.e. somewhat similar markets where the measure is not in place. This comparison can be made formally using econometric methods.

This evaluation is complicated by a methodological issue which stems from what economists call the "theorem of the second best". When an economy is riddled with several distortions, getting rid of one may not necessarily improve welfare. For instance, Datt and Yang (2011) show that when the Government of the Philippines tried to close a tariff-evasion loophole by reducing the threshold below which pre-shipment inspection was not mandatory, importers switched to using the export processing zone to smuggle shipments into the domestic market. As a result, duty collection did not go up but the cost of importing rose, making the domestic economy worse off. Thus, the impact evaluation of an NTM should carefully observe all possible side-effects and interactions before getting to recommendations.

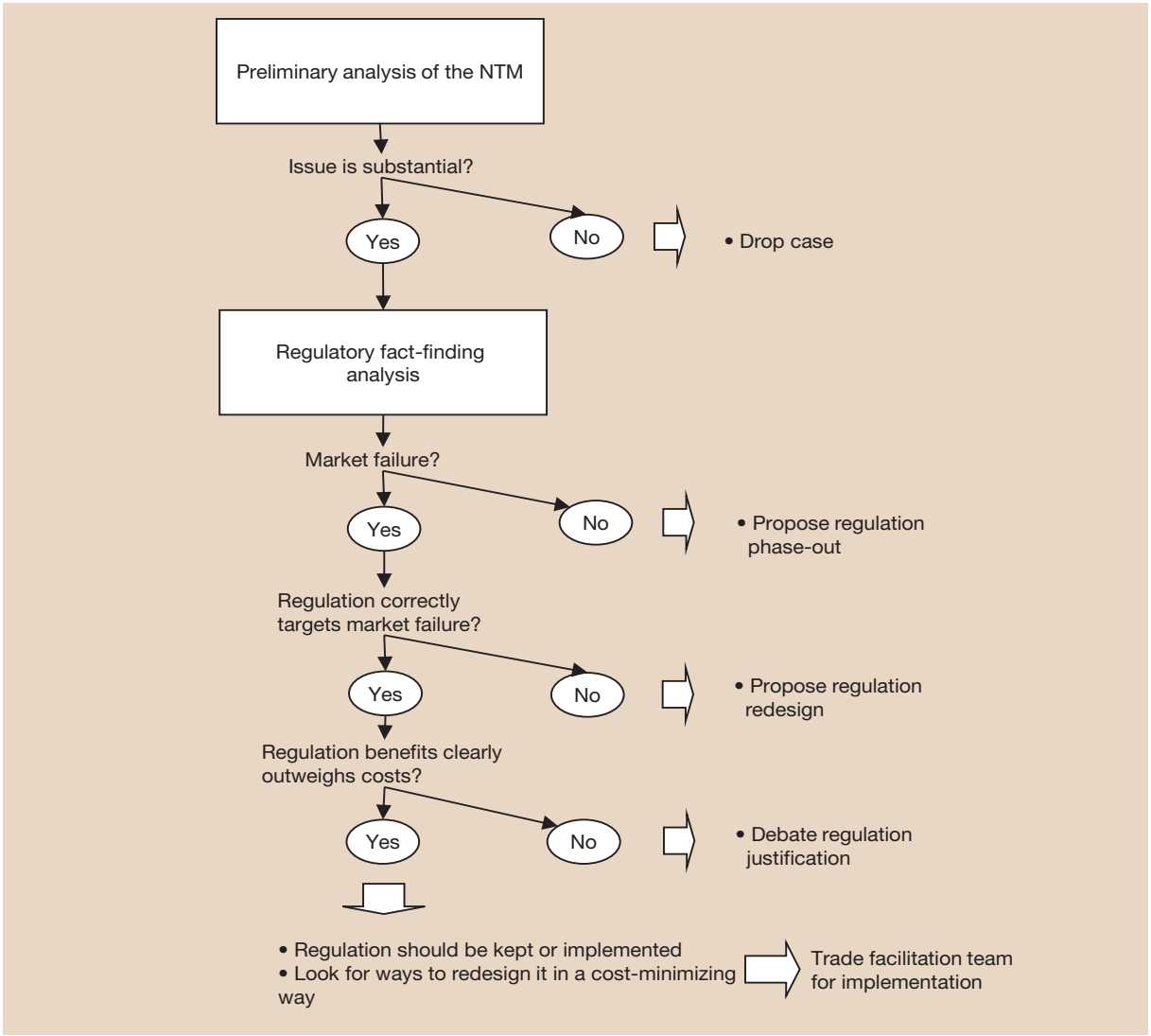
The key questions of an NTM review process can be summarized as follows:

1. Is the measure justified by a market failure?
2. If yes, does the measure efficiently address the market failure (i.e. is it the least distortive instrument)?
3. If yes, is the overall cost-benefit analysis favourable?

The logical sequence of these questions is illustrated in figure 22.

The key issue in assessing the justification of an NTM is whether or not there is a market failure. If the answer is no, the Government should just step out and let markets work efficiently. A market failure is a situation where the pursuit of individual interests fails to lead to the common good. For instance, it may be that suppliers of low-quality products create so much uncertainty in the market that high-quality suppliers are driven out, a classic problem known as the "market for lemons". In general, market failures are characterized by imperfect information or externalities in production or consumption.

Figure 22. The logical flow of an NTM review



Source: adapted from Cadot, Malouche and Saez (2012).

In a trade context, imported products may carry hazards because of faulty regulations in the country where they were produced. If quality testing is too expensive for individual consumers to undertake, the Government may step in by imposing technical regulations applying to all products sold on the domestic market, whether locally produced or imported. Similarly, some varieties of a product may have adverse environmental effects which the Government wants to regulate to overcome a problem of collective action.

Before the Government steps in – i.e. before reviewers jump to the conclusion that a given regulation is justified – a key step is to assess whether market forces are not by themselves likely to generate a solution to the problem. For instance, if quality testing is not feasible for individual consumers, it may be quite feasible for large-scale retailers or distributors; alternatively, high-quality producers may signal their calibre through various mechanisms such as warranties.

Once the case for a market failure is clearly established, the second task consists in assessing precisely where it lies. Efficient regulation should target precisely the market failure (the so-called "targeting principle") in order to minimize the distortion costs imposed on the economy. For instance, the externality may stem from local production of goods using imported intermediates, or it may stem from consumption.

To clarify, consider the production of a consumer product (e.g. household paint) out of toxic intermediates (e.g. chemical pigments). If the problem with the intermediates is that they may affect the health of workers, workplace regulation is called for. If the problem is that their use in a factory may generate toxic effluents, an environmental regulation affecting the production process is called for. In both cases, the type of regulation that is called for is not an NTM. Lastly, if the problem is that their use makes the final product toxic for consumers, a technical regulation on all varieties of the final product sold on the domestic market, whether imported or produced locally, is called for. Failure to target precisely the regulation at the market failure can produce inconsistent and inefficient regulation.

In a recent instance, a regulator faced with that version of the problem (pigments making the paint toxic to final users) reacted by imposing a ban on imports of the toxic pigments while not regulating local sales of paint. As a result, local producers had to switch to more expensive, non-toxic pigments whereas foreign firms could still sell toxic paints, putting local producers at a competitive disadvantage on their own market. In practice, the regulation ended up penalizing domestic producers without protecting consumers.

Once the existence of market failures and the correct targeting have been ascertained, the next task is the cost-benefit analysis. Measurement issues associated with the trade costs of NTMs have been discussed in section II of this study. The question here is how to balance them against the benefits of the regulation in terms of addressing a market failure. Conceptually, the answer can be found in figure 23. The left-hand panel shows the market outcome without a regulation. The horizontal axis measures quantities consumed and the vertical axis measures prices and monetary valuations going away from the origin. The upper part measures positive valuations accruing to consumers from consumption of the good, whereas the lower part measures negative valuations affecting other domestic residents as a result of the consumption of the good by some.

In the upper part, the grey triangle measures consumer surplus, which contributes positively to domestic welfare. In the lower part, the grey rectangle measures the negative externality, which contributes negatively to domestic welfare. The net effect on society of the import of the good is the difference between the two, which, as drawn, is negative. Government intervention is thus called for, because left to themselves, consumers are unlikely to internalize the negative externality imposed on other agents.

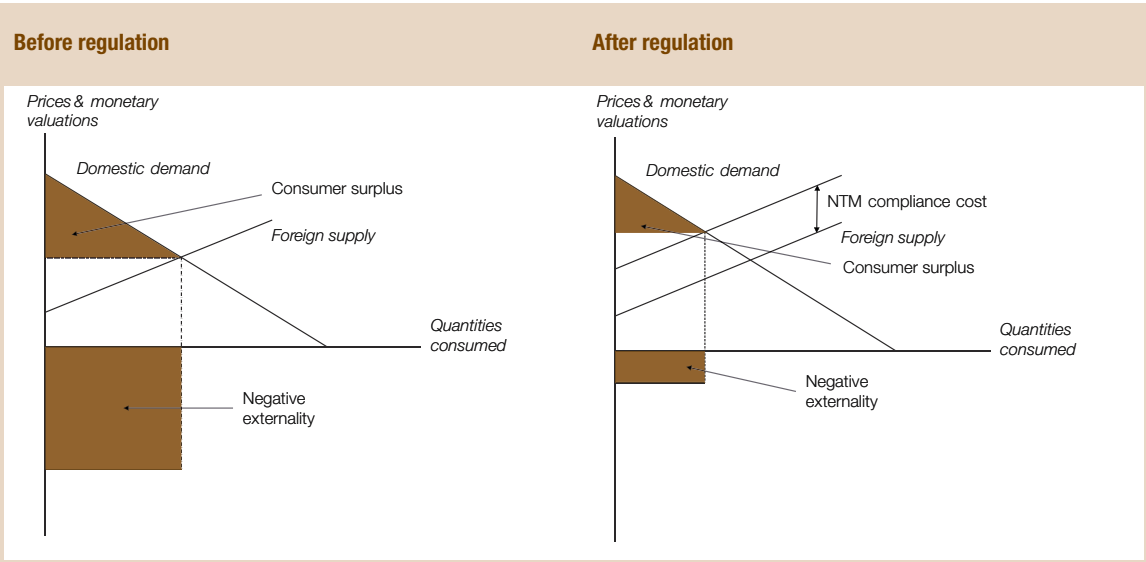
The right-hand panel shows the market outcome after a regulation has been imposed with the following effects: (a) to reduce the negative externality per unit consumed, measured by the height of the rectangle in the left-hand panel; and (b) to raise the unit cost of the good, which reduces its consumption. Thus, the regulation affects the market outcome through two distinct channels. First, it directly reduces the externality by affecting product characteristics; this results from the design of the regulation. Second, it raises the cost of the good (it is assumed that the technical features that reduce the externality are costly, since otherwise foreign producers would have adopted them without being forced to). This reduces consumption, with two effects on welfare: consumer surplus, the upper triangle, is reduced, which affects welfare negatively; but the consumption reduction also further reduces the externality, which is good for welfare. The net effect on welfare can be either

positive or negative, depending on the design of the regulation.

What is important in this conceptual framework is that it highlights a key point: the trade costs discussed in section II above are only half the story. A measure can impose high trade costs, but in so doing avoid even bigger harm to the importing country.

In practice, the measurement of externalities is difficult. Information can be generated through experiments in which subjects are put in situations where their willingness to pay for certain public goods is elicited. The use of such methods in the context of trade-related regulations has been relatively recent (see e.g. Disdier and Marette (2010) and also the references in van Tongeren, Beghin and Marette, (2009)). Willingness to pay for biodiversity has been explored through the auction of "conservation contracts" (see Latacz-Lohmann and Schilizzi (2005) for a survey and also Stoneham et al. (2003) for an application).

Figure 23. Costs and benefits of a regulation



Source: adapted from Beghin et al. (2011).

REFERENCES

Akinci, G and Ladegaard, P (2009). Lessons for reformers: how to launch, implement, and sustain regulatory reforms. Working paper No. 58694. World Bank.

Andriamananjara, S et al. (2004). The effects of non-tariff measures on prices, trade and welfare: CGE implementation of policy-based price comparisons. Office of Economics working paper No. 2004-04.A. U.S International Trade Commission.

Anson, J, Cadot, O and Olarreaga, M (2006). Tariff evasion and customs corruption: does pre-shipment inspection help? *The B.E. Journal of Economic Analysis & Policy.* 0(1):33.

Augier, P, Gasiorek, M and Lai-Tong, C (2004). Rules of origin and the EU-Med partnership: the case of textiles. *The World Economy.* 27(9):1449–1473.

Bacchetta, M, Richtering, J and Santana, R (2012). How much light do WTO notifications shed on NTMs? In: Cadot, O and Malouche, M, eds. *Non-Tariff Measures: A Fresh Look at Trade Policy's New Frontier.* Centre for Economic Policy Research/World Bank. London/Washington, DC.

Baldwin E R (1991). Measuring non-tariff trade policies. In: De Melo, J and Sapir, A, eds. *Trade Theory and Economic Reform*. Basil Blackwell. Oxford.

Beghin J C (2006). Nontariff barriers. Working paper No. 06-WP438. Center for Agricultural and Rural Development. Iowa State University.

Beghin, J C and Bureau, J-C (2001). Quantitative policy analysis of sanitary, phytosanitary and technical barriers to trade. *Economie-Internationale,* issue 87:107–130.

Beghin, J et al. (2011). Measuring costs and benefits of non-tariff measures in agri-food trade. Iowa State University working paper No. 11001.

Bhagwati, J 1988. *Protectionism*. MIT Press. Cambridge MA.

Bown, C P (2008). The WTO and antidumping in developing countries. *Economics & Politics*. 20(2):255–288.

Bown, C P and Tovar, P (2011). Trade liberalization, antidumping and safeguards: evidence from India's tariff reform. *Journal of Development Economics*, vol. 96(1):115–125.

Brenton, P and Özden, C (2005). Trade preferences for apparel and the role of rules of origin – the case of Africa. In: Hoekman, B, Martin, W and Primo Braga, C A, eds. *Trade Preference Erosion: Measurement and Policy Response*. World Bank. Washington, D.C.:401–424.

Cadot, O and de Melo, J (2008). Why OECD countries should reform rules of origin. *World Bank Research Observer*. 23(1):77–105.

Disdier, A-C, Cadot, O and Fontagné, L (2012). North-South standards harmonization and international trade. Discussion paper No. 8767. Centre for Economic Policy Research.

Cadot, O, Dutoit, L and De Melo, J (2009). The elimination of Madagascar's Vanilla Marketing Board, 10 years on. *Journal of African Economies*, vol. 18(3):388–430.

Cadot, O, Maliszewska, M and Saez, S (2011). Non-tariff measures: impact, regulation, and trade facilitation. In: McLinden, G et al., eds. *Border Management Modernization*. World Bank. Washington, D.C.:215–230.

Cadot, O, Malouche, M and Saez, S (2012). *Streamlining NTMs: A Toolkit for Policy Makers*. World Bank, Washington, D.C.

Carrère C and De Melo J (2011). Non-tariff measures: what do we know, what should be done? *Journal of Economic Integration*. 26(1):169–196.

Chemingui, M and Dessus, S (2008). Assessing non-tariff barriers in Syria, *Journal of Policy Modeling*. 30(5):917–928.

Chen, C, Yang, J and Findlay, C (2008). Measuring the effect of food safety standards on China's agricultural exports. *Review of World Economics*. 144(1):83–106.

Chen, M X, Otsuki, T and Wilson, J S (2006). Do standards matter for export success? Policy Research Working Paper Series No. 3809. World Bank.

Chen, M X, Otsuki, T and Wilson, J S (2008). Standards and export decisions: firm-level evidence from developing countries. *Journal of International Trade & Economic Development*, 17(4):501-523.

Czubala, W, Shepherd, B and Wilson, J S (2009). Help or hindrance? The impact of harmonised standards on African exports. *Journal of African Economies*. 18(5):711–744.

Datt, M and Yang, D (2011). Half-baked interventions: staggered pre-shipment inspections in the Philippines and Colombia. In: Cadot, O et al., eds. *Where to Spend the Next Million? Applying Impact Evaluation to Trade Assistance*. World Bank/Centre for Economic Policy Research. Washington, D.C./London:163–182

De Melo, J and Portugal-Perez, A (2008). Rules of origin, preferences and diversification in apparel: African exports to the US and to the EU. Discussion Paper No. 7072. Centre for Economic Policy Research.

Dean, J M et al. (2009). Estimating the price effects of non-tariff barriers. *The B.E. Journal of Economic Analysis and Policy*. 9(1).

Deardorff, A V and Stern, R (1997). Measurement of non-tariff barriers. OECD Economics Department Working Paper No. 179. OECD Publishing.

Deese, W and Reeder, J (2008). Export taxes on agricultural products: recent history and economic modeling of soybean export taxes in Argentina. *Journal of International Commerce and Economics*. 1:185–213.

Devadoss, S (2009). Domestic sale requirement, price supports, export quota, and inefficiencies. *Journal of International Trade & Economic Development*. 18(2):297–309.

Disdier, A-C and Marette, S (2010). The combination of gravity and welfare approaches for evaluating nontariff measures. *American Journal of Agricultural Economics*, vol. 92(3):713–726.

Dutz, M (2000). The use and usefulness of PSI services. In: Rege, V, ed. *Preshipment Inspection: Past Experiences and Future Directions*. Commonwealth Secretariat. London:55-64.

Fassarella, L. M, Pinto de Souza, M J and Burnquist, H L (2011). Impact of sanitary and technical measures on Brazilian exports of poultry meat. Agricultural and Applied Economics Association. Annual meeting, 24–26 July 2011, Pittsburgh, PA.

Felt, M H, Gervais, J P and Larue, B (2010). Market power and import bans: the case of Japanese pork imports. *Agribusiness*. 27(1):47–61.

Ferrantino, M (2006). Quantifying the trade and economic effects of non-tariff measures. OECD Trade Policy Working Paper No. 28. OECD Publishing.

Fox, A, Francois, J F and Londoño-Kent, P (2003). Measuring border costs and their impact on trade flows: the United States-Mexican trucking case. Unpublished manuscript.

Francois, J, van Meijl, H and van Tongeren, F (2005). Trade liberalization in the Doha Development Round. *Economic Policy*. vol. 20(42):349–391.

Fugazza, M and Maur, J-C (2008). Non-tariff barriers in CGE models: how useful for policy? *Journal of Policy Modeling*. 30(3):475–490.

Ganguli, B (2008). The trade effects of Indian antidumping actions. *Review of International Economics*, vol. 16(5):930–941.

Ganslandt M and Markusen, J R (2001). Standards and related regulations in international trade: a modeling approach. In: Maskus, K and Wilson, J, eds. *Quantifying the Impact of Technical Barriers to Trade: Can It Be Done*? University of Michigan Press. Ann Arbor:95–136.

Gebrehiwet, Y, Ngqangweni, S and Kirsten, J F (2007). Quantifying the trade effect of sanitary and phytosanitary regulations of OECD countries on South African food exports. *Agrekon*, vol. 46(1):23–39.

Hertel, T W, ed. (1997). *Global Trade Analysis: Modeling and Applications*. Cambridge University Press, Cambridge.

Hertel, T W, Walmsley, T and Itakura, K (2001). Dynamic effects of the "New Age" free trade agreement between Japan and Singapore. GTAP Working Paper No. 823, Center for Global Trade Analysis, Purdue University.

Hoekman, B and Zarrouk, J (2009). Changes in cross-border trade costs in the Pan-Arab free trade area, 2001-2008. Policy Research Working Paper Series No. 5031. World Bank.

Horn, H, Mavroidis, P C and Sapir, A (2009). Beyond the WTO? An anatomy of EU and US preferential trade agreements. Bruegel Blueprint VII, Brussels.

IFC (2008). Regulatory transformation in Mexico, 1988-2000. World Bank. Washington, D.C.

IFC (2010). Better regulation for growth. Governance frameworks and tools for effective regulatory reform: tools and approaches to review existing regulations. World Bank. Washington, D.C.

Jacobs, S and Ladegaard, P (2010). Regulatory governance in developing countries. World Bank. Washington, D.C.

James, S and Anderson, K (1998). On the need for more economic assessment of quarantine policies. *Australian Journal of Agricultural and Resource Economics*. 42(4):425–444.

Javelosa, J C and Schmitz, A (2006). Costs and benefits of a WTO dispute: Philippine bananas and the Australian market. *Estey Centre Journal of International Law and Trade Policy*. 7(1):58–83.

Kee, H L, Nicita A and Olarreaga M (2009). Estimating trade restrictiveness indices, *Economic Journal*. 119(534):172–199.

Khanal, D R (2011). Rules of origin in GSP schemes and their impact on Nepal's exports: a case study of tea, carpets, pashmina and handicrafts products. Working Paper Series No. 98, Asia-Pacific Research and Training Network on Trade.

Khorana, S (2004). Tariff rate quotas: a market access barrier for developing countries products? The case of Switzerland. University of St Gallen. Switzerland.

Kirk, R 2010. Addressing trade-restrictive non-tariff measures on goods trade in the East African Community. Africa Trade Policy Notes No. 7. World Bank.

Korinek, J and Kim, J (2010). Export restrictions on strategic raw materials and their impact on trade and global supply. OECD Trade Policy Working Paper No. 95.

Lataczc-Lohmann, U and Schilizzi S (2005). Auctions for conservation contracts: a review of the theoretical and empirical literature. Report to the Scottish Executive Environment and Rural Affairs Department.

Leamer, E (1988). Cross-section estimation of the effects of trade barriers. In: Feenstra R, ed. *Empirical Methods for International Trade*. MIT Press. Boston.

Leamer, E (1990). Latin America as a target of trade barriers erected by the major developed countries in 1983. *Journal of Development Economics*. 32(2):337–368.

Leroux, A D and Maclaren, D (2011). The optimal time to remove quarantine bans under uncertainty: the case of Australian bananas. *The Economic Record*. 87(276):140–152.

Lesser, C (2007). Do bilateral and regional approaches for reducing technical barriers to trade converge towards the multilateral trading system? OECD Trade Policy Working Paper No. 58.

Li, X and Carter, C A (2009). The impacts of tariff-rate import quotas on market access. Research paper. Department of Agricultural and Resource Economics, Kansas State University and University of California, Davis.

Lusk, J L and Shogren J F (2007). *Experimental Auctions. Methods and Applications in Economic and Marketing Research*. Cambridge University Press, Cambridge.

Maertens, M and Swinnen, J F M (2009). Trade, standards, and poverty: evidence from Senegal. *World Development*. 37(1):161–178.

Maskus, K, Otsuki, T and Wilson, J S (2005). The costs of compliance with product standards for firms in developing countries: an econometric study. Working Paper No 3590. World Bank. Washington D.C.

Maskus, K, Otsuki, T and Wilson, J S (2001). An empirical framework for analyzing technical regulations and trade. In: Maskus, K, Wilson, J S, eds. *Quantifying the impact of technical barriers to trade: Can it be done?* University of Michigan Press, Ann Arbor:29-58.

Maur, J-C and Shepherd, B (2011). Product Standards. In: Chauffour, J-P and Maur, J-C, eds. *Preferential Trade Policies for Trade Agreements. A Handbook*. Washington, D.C. World Bank:197–216.

McCorriston, S and MacLaren, D (2005a). The trade distorting effect of state trading enterprises in importing countries. *European Economic Review*. 49(7):1693–1715.

McCorriston, S and MacLaren, D (2005b). Single-desk state trading exporters. *European Journal of Political Economy*. 21(2):503-524.

McCorriston, S and MacLaren, D (2007). Do state trading exporters distort trade? *European Economic Review*. 51(1):225–246.

Moenius, J (2004). Information versus product adaptation: the role of standards in trade. Mimeo. University of Redlands.

Nicita, A (2008). Avian influenza and the poultry trade. Policy Research Working Paper Series No. 4551. World Bank.

Nogués, J J (2008). The domestic impact of export restrictions: the case of Argentina. Position paper. International Policy Council.

Otsuki, T, Wilson, J S and Sewadeh, M (2001). A race to the top? A case study of food safety standards and African exports. Policy Research Working Paper Series No. 2563. World Bank.

Peterson, E B et al. (2004). An economic assessment of removing the partial U.S. import ban on fresh Mexican Hass avocados. Paper given at the annual meeting of the American Agricultural Economics Association, 1-4 August 2004. Denver, Colorado.

Piermartini, R (2004). The role of export taxes in the field of primary commodities. World Trade Organization paper.

Piermartini, R and Budetta, M (2011). A mapping of regional rules on technical barriers to trade. In: Estevadeordal, A, Suominen, K and Teh, R, eds. *Regional Rules in the Global Trading System*, Cambridge University Press, Cambridge:250–315.

Reyes, J D (2011). International harmonization of product standards and firm heterogeneity in international trade. Policy Research Working Paper Series No. 5677. World Bank.

Roberts, D, Josling, T E and Orden, D (1999). A framework for analyzing technical trade barriers in agricultural markets. Technical Bulletin No.1876. United States Department of Agriculture Economic Research Service.

Shepherd, B (2007). Product standards, harmonization, and trade: evidence from the extensive margin. Policy Research Working Paper Series No. 4390. World Bank.

Sithamaparam, A G and Devadason, E S (2011). Do non-tariff measures in the EU, Japan and the ASEAN matter for export consignments from Malaysia? Available at http://ssrn.com/abstract=1950131 or http://dx.doi.org/10.2139/ssrn.1950131.

Stoneham, G et al. (2003). Auctions for conservation contracts: an empirical examination of Victoria's BushTender trial. *Australian Journal of Agricultural and Resource Economics*. 47(4):477–500.

Tilton, M (1998). Japanese group boycotts and closed government procurement procedures as barriers to trade. Paper for a public symposium organized by the U.S. International Trade Commission. Summarized in: *The Economic Implications of*

Liberalizing APEC Tariff and Non-tariff Barriers to Trade. USITC publication 3101.

UNCTAD (2010). Non-Tariff Measures: Evidence from Selected Developing Countries and Future Research Agenda (UNCTAD/DITC/TAB/2009/3). New York and Geneva.

Van Tongeren, F, Beghin, J and Marette, S (2009). A cost-benefit framework for the assessment of non-tariff measures in agro-food trade. OECD Food, Agriculture and Fisheries working paper No. 21. OECD Publishing.

Van Tongeren, F et al. (2010). Case studies of costs and benefits of non-tariff measures: cheese, shrimp and flowers. OECD Food, Agriculture and Fisheries Working Papers No 28. OECD Publishing.

Vandenbussche, H and Zanardi, M (2010). The chilling trade effects of antidumping proliferation. *European Economic Review* (forthcoming).

Walkenhorst, P and Yasui, T (2005). Benefits of trade facilitation: a quantitative assessment. In: Dee, P and Ferrantino, M eds. *Quantitative Measures for Assessing the Effect of Non-tariff Measures and Trade Facilitation*. APEC Secretariat and World Scientific Publishing Co. Pte. Ltd, Singapore161–192.

Wilson, J S, Otsuki, T and Majumdsar, B (2003). Balancing food safety and risk: do drug residue limits affect international trade in beef? *Journal of International Trade & Economic Development*, vol. 12(4):377–402.

Wong, S A (2007). The effects of SPS and TBT measures on banana and pineapple trade in Ecuador. ESPAE Graduate School of Management report for the International Centre for Trade and Sustainable Development.

Xiong, B and Beghin, J C (2010). Aflatoxin redux: does European aflatoxin regulation hurt groundnut exporters from Africa? Annual meeting, Agricultural and Applied Economics Association, 25–27 July, 2010. Denver, Colorado.

Yeats, A J (1991). Can preshipment inspection offset noncompetitive pricing of developing countries' imports? The evidence from Madagascar. Policy Research Working Paper Series No. 610. World Bank.

ANNEX

CLASSIFICATION OF NON-TARIFF MEASURES

A. SANITARY AND PHYTOSANITARY MEASURES

Measures that are applied to protect human or animal life from risks arising from additives, contaminants, toxins or disease-causing organisms in their food; to protect human life from plant- or animal-carried diseases; to protect animal or plant life from pests, diseases, or disease-causing organisms; to prevent or limit other damage to a country from the entry, establishment or spread of pests; and to protect biodiversity. These include measures taken to protect the health of fish and wild fauna, as well as of forests and wild flora.

Note that measures for environmental protection (other than as defined above), to protect consumer interests, or for the welfare of animals are not covered by SPS.

Measures classified under A1 through A6 are technical regulations while those in A8 are their conformity assessment procedures.

A1 Prohibitions/restrictions of imports for SPS reasons

Prohibition and/or restriction of the final products to be imported are classified in this chapter. Restrictions on the tolerance limits on residues or use of certain substances contained in the final products are classified under A2 below.

A11 Temporary geographic prohibitions for SPS reasons

Prohibition of imports of specified products from countries or regions due to infectious/contagious diseases: Measures included in this category are typically more of an ad hoc and time-bound nature.

Example: *Imports of poultry from areas affected by avian flu or cattle from foot-and-mouth disease-affected countries are prohibited.*

A12 Geographical restrictions on eligibility

Prohibition of imports of specified products from specific countries or regions due to lack of evidence of sufficient safety conditions to avoid sanitary and phytosanitary hazards: The restriction is imposed automatically until the country proves employment of satisfactory sanitary and phytosanitary measures to provide a certain level of protection against hazards that is considered acceptable.

Eligible countries are put on a “positive list”. Imports from other countries are prohibited. The list may include authorized production establishments within the eligible country.

Example: *Imports of dairy products from countries that have not proven satisfactory sanitary conditions are prohibited.*

A13 Systems approach

An approach that combines two or more independent SPS measures on a same product: The combined measures can be composed of any number of interrelated measures, as well as their conformity assessment requirements and applied at all stages of production.

Example: *An import programme establishes a package of measures that specifies specific pest-free production location, pesticides to be used, harvesting techniques as well as post-harvest fumigation, combined with inspection requirement at entry point: hazard analysis and critical control point (HACCP) requirements.*

A14 Special authorization requirement for SPS reasons

A requirement that importers should receive authorization, permits or approval from a relevant government agency of the destination country for SPS reasons: In order to obtain the authorization, importers may need to comply with other related regulations and conformity assessments.

Example: *An import authorization from the Ministry of Health is required.*

A15 Registration requirements for importers

The requirement that importers should be registered before they can import certain products: To register, importers may need to comply with certain requirements, provide documentation and pay registration fees.

Example: *Importers of a certain food item need to be registered at the Ministry of Health.*

A19 Prohibitions/restrictions of imports for SPS reasons, not elsewhere specified(n.e.s.)

A2 Tolerance limits for residues and restricted use of substances

A21 Tolerance limits for residues of or contamination by certain (non-microbiological) substances

A measure that establishes a maximum residue limit (MRL) or tolerance limit of substances such as fertilisers, pesticides, and certain chemicals and metals in food and feed, which are used during their production process but are not their intended ingredients: It includes a permissible maximum level (ML) for non-microbiological contaminants. Measures related to microbiological contaminants are classified under A4 below.

Examples: *(a) MRL is established for insecticides, pesticides, heavy metals and veterinary drug residues; (b) POPs and chemicals generated during processing; (c) residues of dithianon in apples and hop.*

A22 Restricted use of certain substances in foods and feeds and their contact materials

Restriction or prohibition on the use of certain substances contained in food and feed. It includes the restrictions on substances contained in the food containers that might migrate to food.

Examples*: (a) Certain restrictions exist for food and feed additives used for colouring, preservation or sweeteners; (b) For food containers made of polyvinyl chloride plastic, vinyl chloride monomer must not exceed 1 mg per kg.*

A3 Labelling, marking and packaging requirements

A31 Labelling requirements

Measures defining the information directly related to food safety, which should be provided to the consumer: Labelling is any written, electronic or graphic communication on the consumer packaging or on a separate but associated label.

Examples: *(a) Labels that must specify the storage conditions such as "5 degree C maximum"; (b) potentially dangerous ingredients such as allergens, e.g. "contains honey not suitable for children under one year of age".*

A32 Marking requirements

Measures defining the information directly related to food safety, which should be carried by the packaging of goods for transportation and/or distribution.

Example: *Outside transport container must be marked with instructions such as handling for perishable goods, refrigeration needs, or protection from direct sunlight, etc.*

A33 Packaging requirements

Measures regulating the mode in which goods must be or cannot be packed, or defining the packaging materials to be used, which are directly related to food safety.

Example: *Use of PVC films for food packaging is restricted.*

A4 Hygienic requirements

Requirements related to food quality, composition and safety, which are usually based on hygienic and good manufacturing practices (GMPs), recognized methods of analysis and sampling: The requirements may be applied on the final product (A41) or on the production processes (A42).

A41 Microbiological criteria of the final product

Statement of the microorganisms of concern and/or their toxins/metabolites and the reason for that concern, the analytical methods for their detection and/or quantification in the final product: Microbiological limits should take into consideration the risk associated with the microorganisms, and the conditions under which the food is expected to be handled and consumed. Microbiological limits should also take account of the likelihood of uneven distribution of microorganisms in the food and the inherent variability of the analytical procedure.

Examples: *Liquid eggs should be pasteurized or otherwise treated to destroy all viable Salmonella microorganisms.*

A42 Hygienic practices during production

Requirements principally intended to give guidance on the establishment and application of microbiological criteria for foods at any point in the food chain from primary production to final consumption: The safety of foods is principally assured by control at the source, product design and process control, and the application of good hygienic practices during production, processing (including labelling), handling, distribution, storage, sale, preparation and use.

Example: *Milking equipment on the farm should be cleaned daily with a specified detergent.*

A49 Hygienic requirements, n.e.s.

A5 Treatment for elimination of plant and animal pests and disease-causing organisms in the final product (e.g. post-harvest treatment)

Various treatments that can be applied during production or as a post-production process, in order to eliminate plant and animal pests or disease-causing organisms in the final product.

A51 Cold/heat treatment

Requirement of cooling/heating of products below/above certain temperature for a certain period of time to kill targeted pests, either prior to, or upon arrival to the destination country. Specific facilities on land or ships could be requested. In this case, containers should be equipped properly to conduct cold/heat treatment and should be equipped with temperature sensors.

Example: *Citrus fruits must undergo cold (disinfection) treatment to eliminate fruit flies.*

A52 Irradiation

Requirement to kill or devitalize microorganisms, bacteria, viruses, or insects that might be present in food and feed products by using irradiated energy (ionizing radiation).

Example: *This technology may be applied on meat products, fresh fruits, spices and dried vegetable seasonings.*

A53 Fumigation

A process of exposing insects, fungal spores or other organisms to the fumes of a chemical at a lethal strength in an enclosed space for a given period of time. A fumigant is a chemical, which at a required temperature and pressure can exist in the gaseous state in sufficient concentration to be lethal to a given pest organism.

Example: *Use of acetic acid is mandatory as a post-harvest fumigant to destroy fungal spores on peaches, nectarines, apricots and cherries; methyl bromide for fumigating cut flowers and many other commodities.*

A59 Treatment for elimination of plant and animal pests and disease-causing organisms in the final product, n.e.s.

A6 Other requirements on production or post-production processes

Requirement on other (post-) production processes not classified above. It also excludes those specific measures under ***A2: Tolerance limits for residues and restricted use of substances*** (or its subcategories).

A61 Plant-growth processes

Requirements on how a plant should be grown in terms of conditions related to temperature, light, spacing between plants, water, oxygen, mineral nutrients, etc.

Example: *Seeding rate and row spacing of soybean plants are specified to reduce the risk of frogeye leaf spots.*

A62 Animal-raising or -catching processes

Requirements on how an animal should be raised or caught because of SPS concerns.

Example: *Cattle should not be fed with feeds containing offal of cows suspected of BSE.*

A63 Food and feed processing

Requirements on how food or feed production should take place in order to satisfy sanitary conditions for the final products.

Example: *New equipment or machinery for handling or processing feed in or around an establishment producing animal feed shall not contain polychlorinated biphenils (PCBs).*

A64 Storage and transport conditions

Requirements on certain conditions under which food and feed, plants and animals should be stored and/or transported.

Example: *Certain foodstuffs should be stored in a dry place, or below a certain temperature.*

A69 Other requirements on production or post-production processes, n.e.s

A8 Conformity assessment related to SPS

Requirement for verification that a given SPS condition has been met. It could be achieved by one or combined forms of inspection and approval procedure, including procedures for sampling, testing and inspection; evaluation, verification and assurance of conformity; accreditation and approval, etc.

A81 Product registration requirement

Product registration requirement in the importing country.

Example: *Requirements and guidelines for the registration of a pesticide and its compounds, e.g. for minor crops/minor use. The measure may include provisions describing types of pest control*

products that are exempt from registration and procedures detailing the registration process, including provisions relating to distribution, import, sampling and detention.

A82 Testing requirement

A requirement for products to be tested against a given regulation, such as MRL: This measure includes the cases where there is sampling requirement.

Example: *A test on a sample of orange imports is required to check against the maximum residue level of pesticides.*

A83 Certification requirement

Certification of conformity with a given regulation that is required by the importing country but may be issued in the exporting or the importing country.

Example: *Certificate of conformity for materials in contact with food (containers, papers, plastics, etc.) is required.*

A84 Inspection requirement

Requirement for product inspection in the importing country. It may be performed by public or private entities. It is similar to testing, but it does not include laboratory testing.

Example: *Animals or plant parts must be inspected before entry is allowed.*

A85 Traceability requirements

Disclosure requirement of information that allows following a product through the stages of production, processing and distribution.

A851 Origin of materials and parts

Disclosure of information on the origin of materials and parts used in the final product.

Example: *For vegetables, disclosure of information on the location of the farm, name of the farmer or fertilisers used may be required.*

A852 Processing history

Disclosure of information on all stages of production: may include their locations, processing methods and/or equipment and materials used.

Example*: For meat products, disclosure of information on their slaughter house, as well as food-processing factory, may be required.*

A853 Distribution and location of products after delivery

Disclosure of information on when and how the goods have been distributed from the time of their delivery to distributors until they reach the final consumer.

Example: *For rice, disclosure of information on the location of its temporary storage facility may be required.*

A859 Traceability requirements, n.e.s.

A86 Quarantine requirement

Requirement to detain or isolate animals, plants or their products on arrival at a port or place for a given period in order to prevent the spread of infectious or contagious disease, or contamination.

Example: *Live dogs must be quarantined for two weeks before entry into the territory is authorized. Plants need to be quarantined to terminate or restrict the spread of harmful organisms.*

A89 Conformity assessment related to SPS, n.e.s.

A9 SPS measures, n.e.s.

B TECHNICAL BARRIERS TO TRADE

Measures referring to technical regulations, and procedures for assessment of conformity with technical regulations and standards, excluding measures covered by the SPS Agreement.

A technical regulation is a document which lays down product characteristics or their related processes and production methods, including the applicable administrative provisions, with which compliance is mandatory. It may also include or deal exclusively with terminology, symbols, packaging, marking or labelling requirements as they apply to a product, process or production method. A conformity assessment procedure is any procedure used, directly or indirectly, to determine that relevant requirements in technical regulations or standards are fulfilled; it may include, inter alia, procedures for sampling, testing and inspection; evaluation, verification and assurance of conformity; registration, accreditation and approval as well as their combinations.

Measures classified under B1 through B7 are technical regulations while those under B8 are their conformity assessment procedures. Among the technical regulations, those in B4 are related to production processes, while others are applied directly to products.

B1 Prohibitions/restrictions of imports for objectives set out in the TBT agreement

Such prohibitions/restrictions may be established for reasons related, inter alia, to national security requirements; the prevention of deceptive practices; protection of human health or safety, animal or plant life or health, or the environment. Restrictions on the tolerance limits on residues or use of certain substances contained in the final products are classified under B2 below.

B11 Prohibition for TBT reasons

Import prohibition for reasons set out in B1.

Example: *Imports are prohibited for hazardous substances including explosives, certain toxic substances covered by the Basel Convention such as aerosol sprays containing CFCs, a range of HCFCs and BFCs, halons, methyl chloroform and carbon tetrachloride.*

B14 Authorization requirement for TBT reasons

Requirement that the importer should receive authorization, permits or approval from a relevant government agency of the destination country, for reasons such as national security, environment protection, etc.

Example: *Imports must be authorized for drugs, waste and scrap, and firearms, etc.*

B15 Registration requirement for importers for TBT reasons

Requirement that importers should be registered in order to import certain products. To register, importers may need to comply with certain requirements, documentation and registration fees. It also includes the cases when the registration of establishments producing certain products is required.

Example: *Importers of sensitive products such as medicines, drugs, explosives, firearms, alcohol, cigarettes, game machines, etc., may be required to be registered in the importing country.*

B19 Prohibitions/restrictions of imports for objectives set out in the TBT agreement, n.e.s.

B2 Tolerance limits for residues and restricted use of substances

B21 Tolerance limits for residues of or contamination by certain substances

A measure that establishes a maximum level or tolerance limit of substances, which are used during their production process but are not their intended ingredients.

Example: *Salt level in cement, or sulphur level in gasoline, must be below specified amount.*

B22 Restricted use of certain substances

Restriction on the use of certain substances as components or material to prevent the risks arising from their use.

Examples: *(a) Restricted use of solvents in paints, (b) maximum level of lead allowed in consumer paint.*

B3 Labelling, marking and packaging requirements

B31 Labelling requirements

Measures regulating the kind, colour and size of printing on packages and labels and defining the information that should be provided to the consumer. Labelling is any written, electronic, or graphic communication on the packaging or on a separate but associated label, or on the product itself. It may include requirements on the official language to be used as well as technical information on the product, such as voltage, components, instruction on use, safety and security advice.

Example: *Refrigerators need to carry a label indicating its size, weight and electricity consumption level.*

B32 Marking requirements

Measures defining the information for transport and customs that the transport/distribution packaging of goods should carry.

Example: *Handling or storage conditions according to type of product, typically signs such as "FRAGILE" or "THIS SIDE UP". must be marked on the transport container.*

B33 Packaging requirements

Measures regulating the mode in which goods must be or cannot be packed, and defining the packaging materials to be used.

Example: *Palletized containers or special packages need to be used for the protection of sensitive or fragile products.*

B4 Production or post-production requirements

B41 TBT regulations on production processes

Requirement on production processes not classified under SPS above. It also excludes those specific measures under ***B2: Tolerance limits for residues and restricted use of substances*** (or its subcategories).

Example: *Use of environmentally friendly equipment is mandatory.*

B42 TBT regulations on transport and storage

Requirements on certain conditions under which products should be stored and/or transported.

Example: *Medicines should be stored below a certain temperature.*

B49 Production or post-production requirements, n.e.s.

B6 Product identity requirement

Conditions to be satisfied in order to identify a product with a certain denomination (including biological or organic labels).

Example: *In order for a product to be identified as "chocolate", it must contain a minimum of 30% cocoa.*

B7 Product-quality or -performance requirement

Conditions to be satisfied in terms of performance (e.g. durability, hardness) or quality (e.g. content of defined ingredients).

Example: *Door must resist a certain minimum high temperature.*

B8 Conformity assessment related to TBT

Requirement for verification that a given TBT requirement has been met: This could be achieved by one or combined forms of inspection and approval procedure, including procedures for sampling, testing and inspection; evaluation, verification and assurance of conformity; accreditation and approval.

B81 Product registration requirement

Product registration requirement in the importing country.

Example: *Only the registered drugs and medicine may be imported.*

B82 Testing requirement

A requirement for products to be tested against a given regulation, such as performance level – includes sampling requirement.

Example: *A testing on a sample of motor vehicle imports is required against the required safety compliance and its equipment, etc.*

B83 Certification requirement

Certification of conformity with a given regulation: required by the importing country but may be issued in the exporting or the importing country.

Example: *Certificate of conformity for electric products is required.*

B84 Inspection requirement

Requirement for product inspection in the importing country – may be performed by public or private entities. It is similar to testing, but does not include laboratory testing.

Example: *Textile and clothing imports must be inspected for size and materials used before entry is allowed.*

B85 Traceability information requirements

Disclosure requirement of information that allows following a product through the stages of production, processing and distribution .

B851 Origin of materials and parts

Disclosure of information on the origin of materials and parts used in the final product.

Example: *Manufactures of automobiles must keep the record of the origin of the original set of tyres for each individual vehicle*.

B852 Processing history

Disclosure of information on all stages of production: may include their locations, processing methods and/or equipment and materials used.

Example: *For wool apparel products, disclosure of information on the origin of the sheep, location of the textile factory as well as the identity of the final apparel producer may be required.*

B853 Distribution and location of products after delivery

Disclosure of information on when and/or how the goods have been distributed during any time after the production and before the final consumption.

Example: *Before placing imported cosmetic products on the EU market, the person responsible must indicate to the competent authority of the Member State where the products were initially imported, the address of the manufacturer or the address of the importer.*

B859 Traceability requirements, n.e.s.

B89 Conformity assessment related to TBT, n.e.s.

B9 TBT measures, n.e.s.

C PRE-SHIPMENT INSPECTION AND OTHER FORMALITIES

C1 Pre-shipment inspection

Compulsory quality, quantity and price control of goods prior to shipment from the exporting country, conducted by an independent inspecting agency mandated by the authorities of the importing country.

Example: *A pre-shipment inspection of textile imports by a third party for verification of colours and types of materials is required.*

C2 Direct consignment requirement

Requirement that goods must be shipped directly from the country of origin, without stopping at a third country.

Example: *Goods imported under a preferential scheme such as GSP must be shipped directly from the country of origin in order to satisfy the scheme's rules of origin condition. (i.e. to guarantee that the products have not been manipulated, substituted or further processed in any third country of transit).*

C3 Requirement to pass through specified port of customs

Obligation for imports to pass through a designated entry point and/or customs office for inspection, testing, etc.

Example: *DVD players need to be cleared at a designated customs office for inspection.*

C4 Import-monitoring and -surveillance requirements and other automatic licensing measures

Administrative measures which seek to monitor the import value or volume of specified products.

Example: *An automatic import licence is required as an administrative procedure for textile and apparel prior to importation.*

C9 Other formalities, n.e.s.

D CONTINGENT TRADE-PROTECTIVE MEASURES

Measures implemented to counteract particular adverse effects of imports in the market of the importing country, including measures aimed at unfair foreign trade practices, contingent upon the fulfilment of certain procedural and substantive requirements.

D1 Antidumping measure

A border measure applied to imports of a product from an exporter. These imports are dumped and are causing injury to the domestic industry producing a like product, or to third countries' exporters of that product. Dumping takes place when a product is introduced into the commerce of an importing country at less than its normal value, generally where the export price of the product is less than the comparable

price, in the ordinary course of trade, for the like product when destined for consumption in the exporting country. Antidumping measures may take the form of antidumping duties, or of price undertakings by the exporting firms.

D11 Antidumping investigation

An investigation initiated and conducted either following a complaint by the domestic industry producing a like product or (in special circumstances) self-initiated by importing country authorities to determine whether dumping of a product is occurring and injuring national producers (or a third country's exporters) of the like product. Provisional duties may be applied during the investigation.

Example: *An antidumping investigation was initiated by the European Union in respect of imports of steel wire rod from country A.*

D12 Antidumping duty

A duty levied on imports of a particular good originating from a specific trading partner to offset injurious dumping found to exist via an investigation. Duty rates are generally enterprise-specific.

Example: *An antidumping duty of between 8.5 to 36.2% has been imposed on imports of biodiesel products from country A.*

D13 Price undertaking

An undertaking by an exporter to increase its export price (by not more than the amount of the dumping margin) to avoid the imposition of antidumping duties. Prices can be negotiated for this purpose, but only after a preliminary determination that dumped imports are causing injury.

Example: *An antidumping case involving flat-rolled products of grain oriented silicon-electrical steel resulted in the manufacturer undertaking to raise its export price.*

D2 Countervailing measure

A border measure applied to imports of a product to offset any direct or indirect subsidy granted by authorities in an exporting country where subsidized imports of that product from that country are causing injury to the domestic industry producing the like product in the importing country. Countervailing measures may take the form of countervailing duties, or of undertakings by the exporting firms or by authorities of the subsidizing country.

D21 Countervailing investigation

An investigation initiated and conducted either following a complaint by the domestic industry producing the like product or (in special circumstances) self-initiated by the importing country authorities to determine whether the imported goods are subsidized and are causing injury to national producers of the like product.

Example: *A countervailing investigation was initiated by Canada in respect of imports of oil country tubular goods from country A.*

D22 Countervailing duty

A duty levied on imports of a particular product to offset the subsidies granted by the exporting country on the production or trade of that product, where an investigation has found that the subsidized imports are causing injury to of the domestic industry producing the like product.

Example: *A countervailing duty of 44.71% has been imposed by Mexico on imports of dynamic random access memory (DRAM) semiconductors from country A.*

D23 Undertaking

Either an undertaking by an exporter to increase its export price (by not more than the amount of the subsidy), or an undertaking by the authorities of the subsidizing country to eliminate or limit the subsidy or take other measures concerning its effects, to avoid the imposition of countervailing duties. Undertakings can be negotiated only after a preliminary determination that subsidized imports are causing injury.

Example: *A countervailing duty investigation involving palm oil and margarine for puff pastry from country A resulted in the government of country A undertaking to fully eliminate the subsidy on that product.*

D3 Safeguard measures

D31 General (multilateral) safeguard

A temporary border measure imposed on imports of a product to prevent or remedy serious injury caused by increased imports of that product and to facilitate adjustment. A country may take a safeguard action (i.e., temporarily suspend multilateral concessions) in respect of imports of a product from all sources where an investigation has established that increased imports of the product are causing or threatening to cause serious injury to the domestic industry that produces like or directly competitive products. Safeguard measures can take various forms, including increased duties, quantitative restrictions, and others (*e.g.* tariff-rate quotas, price-based measures, special levies, etc.).[37]

D311 Safeguard investigation

An investigation conducted by the importing country authorities to determine whether the goods in question are being imported in such increased quantities and under such conditions as to cause or threaten to cause serious injury to national producers of like or directly competitive products.

Example: *Country A has initiated a safeguard investigation on imports of certain motorcycles.*

D312 Safeguard duty

A temporary duty levied on imports of a particular product to prevent or remedy serious injury from increased imports (as established in an investigation), and to facilitate adjustment. Where the expected duration of the measure is more than one year, it must be progressively liberalized during the period of application.

Example: *A safeguard duty of three years' duration has been imposed on imports of "Gamma Ferric Oxide". The level will be 15% during the first year, 10% during the second year, and 5% during the third year.*

D313 Safeguard quantitative restriction

A temporary quantitative restriction on imports of a particular product to prevent or remedy serious injury from increased imports (as established in an investigation) and to facilitate adjustment. Rules apply regarding the overall level and the allocation of the quota. Where the expected duration of the measure is more than one year, it must be progressively liberalized during the period of application.

Example: *A quantitative safeguard measure (quota) of three years' duration has been implemented on imports of certain steel products. The total level will be 10,000 tons the first year, 15,000 tons the second year and 22,000 tons the third year.*

D314 Safeguard measure, other form

A safeguard measure in a form other than a duty or quantitative restriction (which could include measures combining duties and quantitative elements), applied to prevent or remedy serious injury from increased imports (as established in an investigation) and to facilitate adjustment. Where the expected duration of the measure is more than one year, it must be progressively liberalized during the period of application.

[37] Although quantitative restrictions are prohibited by the WTO Agreements, under the Agreement on Safeguards, safeguard measures in this form are permitted, subject to certain conditions.

***Example**: A safeguard measure of two years' duration is imposed on imports of dishwashers. During the first year, a safeguard measure of $50 per unit will be applied to all imported dishwashers with a c.i.f. price below $500 per unit. During the second year, the safeguard measure will not apply to the first 20,000 units of imports, regardless of the prices of those units.*

D32 Agricultural special safeguard

An agricultural special safeguard allows the imposition of an additional tariff in response to a surge in imports or a fall in import prices. The specific trigger levels for volume or price of imports are defined at the country level. In the case of the volume trigger, the additional duties only apply until the end of the year in question. In the case of price triggers, the additional duty is imposed on a shipment by shipment basis.

D321 Volume-based agricultural special safeguard

In this type of safeguard, an additional duty may be applied if the volume of imports of designated agricultural product exceeds a defined trigger quantity.

***Example:** An additional duty equal to one third the current applied duty is applied to imports of milk when the volume of imports exceeds the trigger volume of 861 tons.*

D322 Price-based agricultural special safeguard

In this type of safeguard, an additional duty may be applied if the import price of a designated agricultural product falls below a defined trigger price.

***Example:** An additional duty of 2.79 Php/kg is applied to a shipment of frozen meat and offal of fowls of the species Gallus domesticus when the c.i.f. import price of that shipment is 20% below the trigger price of 93 Php/kg.*

D39 Safeguard, n.e.s.

This category could include, e.g., special safeguard mechanisms applicable to imports of a product under regional trade arrangements, protocols of accession, or other agreements.

E NON-AUTOMATIC LICENSING, QUOTAS, PROHIBITIONS AND QUANTITY-CONTROL MEASURES OTHER THAN FOR SPS OR TBT REASONS

Control measures generally aimed at restraining the quantity of goods that can be imported, regardless of whether they come from different sources or one specific supplier. These measures can take the form of non-automatic licensing, fixing of a predetermined quota, or through prohibitions.[38] All measures introduced for SPS and TBT reasons are classified in chapters A and B above.

E1 Non-automatic import-licensing procedures other than authorizations for SPS or TBT reasons

An import-licensing procedure introduced, for reasons other than SPS or TBT reasons, where approval is not granted in all cases. The approval may either be granted on a discretionary basis or may require specific criteria to be met before it is granted.

E11 Licensing for economic reasons

E111 Licensing procedure with no specific ex ante criteria

Licensing procedure where approval is granted at the discretion of the issuing authority: may also be referred to as a discretionary licence.

[38] Most quantity control measures are formally prohibited by the GATT 1994, but can be applied under specifically determined circumstances (e.g. article XI of GATT 1994; Agreement on Safeguards.).

Example: *Imports of textile products are subject to a discretionary licence.*

E112 Licensing for specified use

Licensing procedure where approval is granted only for imports of products to be used for pre-specified purpose: normally granted for use in operations generating anticipated benefit in important domains of the economy.

Example: *A licence to import high-energy explosives is granted only if it is used for the mining industry.*

E113 Licensing linked with local production

Licensing only for imports of products with linkage to local production, including the local production level of the same product, except for such licensing classified as trade-related investment measures defined under Chapter I.

Example: *A license to import gasoline is granted only if domestic supply is insufficient.*

E119 Licensing for economic reasons, n.e.s.

E12 Licensing for non-economic reasons

E121 Licensing for religious, moral or cultural reasons

Control of imports by licence for religious, moral or cultural reasons.

Example: *Imports of alcoholic beverages are permitted only by hotels and restaurants.*

E122 Licensing for political reasons

Control of imports by licence for political reasons.

Example: *Imports of all products from a given country are subject to an import license.*

E129 Licensing for non-economic reasons, n.e.s.

E2 Quotas

Restriction of importation of specified products through the setting of a maximum quantity or value that is authorized for import: No imports are allowed beyond those maximums.

E21 Permanent

Quotas of a permanent nature (i.e. they are applied throughout the year, without a known date of termination of the measure) where the importation can take place any time of the year.

E211 Global allocation

Permanent quotas where no condition is attached to the country of origin of the product.

Example: *A quota of 100 tons of fish where the importation can take place any time of the year and there is no restriction on the country of origin of the product.*

E212 Country allocation

Permanent quotas where a fixed volume or value of the product must originate in one or more countries.

Example: *A quota of 100 tons of fish that can be imported any time of the year, but where 75 tons must originate in country A and 25 tons in country B.*

E22 Seasonal quotas

Quotas of a permanent nature (i.e. they are applied every year, without a known date of termination of the measure), where the importation must take place during a given period of the year.

E221 Global allocation

Seasonal quotas where no condition is attached to the country of origin of the product.

***Example**: An annual quota of 300 tons of seaweed where the importation must take place between March and June and there is no restriction on the country of origin of the product.*

E222 Country allocation

Seasonal quotas where a fixed volume or value of the product must originate in one or more countries.

***Example:** An annual quota of 300 tons of seaweed where the importation must take place during winter and 60 tons must originate in country A, and 40 tons in country B.*

E23 Temporary

Quotas that are applied for on a temporary basis (e.g. they are only applied for one or two years), whether or not they are also seasonal in nature.

E231 Global allocation

Temporary quotas where no condition is attached to the country of origin of the product.

***Example**: An annual quota of 1,000 tons of fish and fish meat that will only be applied for three years where there is no restriction on the country of origin of the product.*

E232 Country allocation

Temporary quotas where a fixed volume or value of the product must originate in one or more countries.

***Example**: An annual quota of 1,000 tons of fish and fish meat that will only be applied for three years, where the imports must take place during the summer, and 700 tons must originate in country A, 200 tons must originate in country B and the remainder can originate in any country.*

E3 Prohibitions other than for SPS and TBT reasons

Prohibition on the importation of specific products for reasons other than SPS (A1) or TBT (B1) reasons.

E31 Prohibition for economic reasons

E311 Full prohibition (import ban)

Prohibition without any additional condition or qualification

***Example:** Imports of motor vehicle with cylinder under 1500cc are not allowed, to encourage domestic production.*

E312 Seasonal prohibition

Prohibition of imports during a given period of the year: This is usually applied to certain agricultural products while the domestic harvest is in abundance.

***Example:** Imports of strawberries are not allowed from March to June each year.*

E313 Temporary prohibition, including suspension of issuance of licences

Prohibition set for a given fixed period of time unrelated to a specific season: usually for urgent matters not covered under the safeguard measures above.

***Example:** Imports of certain fish are prohibited with immediate effect until the end of the current season.*

E314 Prohibition of importation in bulk

Prohibition of importation in a large-volume container: Importation is only authorized if the product is packed in a small retail container, which increases per unit cost of imports.

***Example:** Import of wine is allowed only in a bottle of 750 ml or less.*

E315 TProhibition of products infringing patents or other intellectual property rights

Prohibition of copies or imitations of patented or trademarked products.

Example: *Import of imitation brand handbags is prohibited.*

E316 Prohibition of used, repaired or remanufactured goods

Prohibition to import goods that are not new.

Example: *Prohibition to import used cars.*

E319 Prohibition for economic reasons, n.e.s.

E32 Prohibition for non-economic reasons

E321 Prohibition for religious, moral or cultural reasons

Prohibition of imports for religious, moral or cultural reasons not established in technical regulations.

Example: *Imports of books and magazines displaying pornographic pictures are prohibited.*

E322 Prohibition for political reasons (embargo)

Prohibition of imports from a country or group of countries, applied for political reasons.

Example: *Imports of all goods from country A are prohibited in retaliation to that country's testing of nuclear bombs.*

E329 Prohibition for non-economic reasons, n.e.s.

E5 Export-restraint arrangement

An arrangement by which an exporter agrees to limit exports in order to avoid imposition of restrictions by the importing country, such as quotas, raised tariffs or any other import controls.[39] The arrangement may be concluded at either the government or industry level.

E51 Voluntary export-restraint arrangements (VERs)

Arrangements made by government or industry of an exporting country to voluntarily limit exports in order to avoid imposition of mandatory restrictions by the importing country. Typically, VERs are a result of requests made by the importing country to provide a measure of protection for its domestic businesses that produce substitute goods.

E511 Quota agreement

A VER agreement that establishes export quotas.

Example: *A bilateral quota on export of motor vehicles from country A to country B was established to avoid sanction by the latter.*

E512 Consultation agreement

A VER agreement that provides for consultation with a view to introducing restrictions (quotas) under certain circumstances.

Example: *An agreement was reached to restrict export of cotton from country C to country D in case the volume of export exceeds $2 million tons in the previous month.*

E513 Administrative cooperation agreement

A VER agreement that provides for administrative cooperation with a view to avoiding disruptions in bilateral trade.

[39] Such arrangements are formally prohibited by the WTO Agreements.

Example: *An agreement was reached between country E and country F to cooperate to prevent a sudden surge in exports.*

E59 Export-restraint arrangements, n.e.s.

E6 Tariff-rate quotas (TRQ)

A system of multiple tariff rates applicable to a same product: The lower rates apply up to a certain value or volume of imports, and the higher rates are charged on imports which exceed this amount.

Example: *Rice may be imported free of duty up to the first 100,000 tons, after which it is subject to a tariff rate of $1.5 per kg.*

E61 WTO-bound TRQs, included in WTO schedules (concessions and commitments under WTO negotiations)

E611 Global allocation

WTO-bound TRQs where no condition is attached to the country of origin of the product.

Example*: A WTO TRQ provides for duty-free import of milk and cream up to 2,000 tons with no condition attached to the country of origin.*

E612 Country allocation

WTO-bound TRQs where a fixed volume or value of the product must originate in one or more countries.

Example*: A WTO TRQ of 200,000 tons of poultry with an in-quota duty of 12% is available, and half of the quantity must originate from country A.*

E62 Other TRQs included in other trade agreements.

E621 Global allocation

Non-WTO TRQs where no condition is attached to the country of origin of the product.

Example*: A non-WTO TRQ is available for 40,000 tons of beef with no condition attached to the country of origin.*

E622 Country allocation

Non-WTO bound TRQs where a fixed volume or value of the product must originate in one or more countries.

Example*: Fresh bananas from country A can be imported duty free up to 4,000 tons.*

E9 Quantity control measures, n.e.s.

F PRICE-CONTROL MEASURES, INCLUDING ADDITIONAL TAXES AND CHARGES

Measures 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 tariffs measures that increase the cost of imports in a similar manner, i.e. by fixed percentage or by a fixed amount. They are also known as para-tariff measures.

F1 Administrative measures affecting customs value

Setting of import prices by the authorities of the importing country by taking into account the domestic prices of the producer or consumer. It could take the form of establishing floor- and ceiling-price limits; or reverting to determined international market values. There may be different price setting, such as minimum import prices or prices set according to a reference.

F11 Minimum import prices

Pre-established import price below which imports cannot take place.

Example: *A minimum import price is established for fabric and apparel.*

F12 Reference prices

Pre-established import price which authorities of the importing country use as reference to verify the price of imports.

Example: *Reference prices for agricultural products are based on the farm-gate price, which is the net value of the product when it leaves the farm, after marketing costs have been subtracted.*

F19 Other administrative measures affecting the customs value, n.e.s.

F2 Voluntary export-price restraints (VEPRs)

An arrangement in which the exporter agrees to keep the price of the goods above a certain level:[40] A VEPR process is initiated by the importing country and is thus considered as an import measure.

Example: *The export price of video cassette tapes is set higher in order to defuse trade friction with major importing countries.*

F3 Variable charges

Taxes or levies aimed at bringing the market prices of imported products in line with the prices of corresponding domestic products:[41] Primary commodities may be charged per total weight, while charges on processed foodstuffs can be levied in proportion to the primary product contents in the final product. These charges include:

F31 Variable levies

A tax or levy whose rate varies inversely with the price of imports to keep a stable price in the home country: applied mainly to primary products and may be called flexible import fee.

Example: *The target price for a seed is $700 per ton; since the world price is $500, there is a levy for $200. If the world price changed to $600, the levy would change to $100.*

F32 Variable components

A tax or levy whose rate includes an ad valorem component and a variable component: These charges are applied mainly to processed products where the variable part is applied on the primary products or ingredients included the final product. It may be called compensatory element.

Example: *A tariff rate on sugar confectionary is set as "25% plus $25 per kg of contained sugar minus the price per kg of sugar".*

F39 Variable charges n.e.s

F4 Customs surcharges

An ad hoc tax levied solely on imported products in addition to customs tariff to raise fiscal revenues or to protect domestic industries.

Example: *Customs surcharge, surtax or additional duty.*

F5 Seasonal duties

Duties applicable at certain times of the year, usually in connection with agricultural products.

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[40] These measures are prohibited by the WTO Agreements. Under the Agreements on Antidumping and on Subsidies and Countervailing Measures, however, measures in the form of price undertakings are permitted under certain conditions. See D13 and D23 for examples.

[41] These measures are prohibited by the WTO Agreement on Agriculture, article 4.

Example: *Imports of fresh perry pears, in bulk from 1 August to 31 December may enter free of duty, while in other months, seasonal duties applied.*

F6 Additional taxes and charges levied in connection to services provided by the government

Additional charges, which are levied on imported goods in addition to customs duties and surcharges and which have no internal equivalents.[42] They include:

F61 Custom-inspection, -processing and -servicing fees

F62 Merchandise-handling or -storing fees

F63 Tax on foreign exchange transactions

F64 Stamp tax

F65 Import licence fee

F66 Consular invoice fee

F67 Statistical tax

F68 Tax on transport facilities

F69 Additional charges, n.e.s.

F7 Internal taxes and charges levied on imports

Taxes levied on imports that have domestic equivalents.[43]

F71 Consumption taxes

A tax on sales of products which are generally applied to all or most products.

Example: *Sales tax, turnover tax (or multiple sales tax), value added tax.*

F72 Excise taxes

A tax imposed on selected types of commodities, usually of a luxurious or non-essential nature. This tax is levied separately from, and in addition to, the general sales taxes.

Example: *Excise tax, tax on alcoholic consumption, cigarette tax.*

F73 Taxes and charges for sensitive product categories

Charges that include emission charges, (sensitive) product taxes and administrative charges: The latter charges are meant to recover the costs of administrative control systems.

Example: *CO_2 emission charge on motor vehicles.*

F79 Internal taxes and charges levied on imports, n.e.s.

F8 Decreed customs valuations

Value of goods determined by a decree for the purpose of imposition of customs duties and other charges: This practice is presented as a means to avoid fraud or to protect domestic industry. The decreed value de facto transforms an ad valorem duty into a specific duty.

Example: *the so-called "valeur mercuriale" in Francophone countries.*

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[42] It should be noted that article VIII of GATT states that fees and charges other than customs duties and internal taxes "shall be limited in amount to the approximate cost of services rendered and shall not represent an indirect protection to domestic products or a taxation of imports or exports for fiscal purposes".

[43] Article III of the GATT Agreement allows internal taxes to be applied to imports; however, these taxes should not be higher than those applied to similar domestic products.

F9 Price-control measures, n.e.s

G FINANCE MEASURES

Finance measures are intended to regulate the access to and cost of foreign exchange for imports and define the terms of payment. They may increase import costs in the same manner as tariff measures.

G1 Advance payment requirement

Advance payment requirements related to the value of the import transaction and/or related import taxes: These payments are made at the time an application is lodged, or when an import licence is issued. They can consist of:

G11 Advance import deposit

A requirement that the importer should deposit a percentage of the value of the import transaction before receiving the goods: No interest is paid on the deposits.

Example: *Payment of 50% of the transaction value is required three months before the expected arrival of the goods to the port of entry.*

G12 Cash margin requirement

A requirement to deposit the total amount of the transaction value in a foreign currency, or a specified part of it, in a commercial bank, before the opening of a letter of credit.

Example: *Deposit of 100% of the transaction value is required at the designated commercial bank.*

G13 Advance payment of customs duties

A requirement to pay all or part of the customs duties in advance: No interest is paid on these advance payments.

Example: *Payment of 100% of the estimated customs duty is required three months before the expected arrival of the goods to the port of entry.*

G14 Refundable deposits for sensitive product categories

A requirement to pay a certain deposit which is refunded when the used product or its container is returned to a collection system.

Example: *A $100-deposit is required for each refrigerator, which will be refunded when brought in for recycling after use.*

G19 Advance payment requirements, n.e.s.

G2 Multiple exchange rates

Varying exchange rates for imports, depending on the product category: Usually, the official rate is reserved for essential commodities, while the other goods must be paid at commercial rates or occasionally by buying foreign exchange through auctions.[44]

Example: *Only the payment for infant food and staple food imports may be made at the official exchange rate.*

G3 Regulation on official foreign exchange allocation

G31 Prohibition of foreign exchange allocation

No official foreign exchange allocations are available to pay for imports.

Example: *Foreign exchange is not allocated for imports of luxury products such as motor vehicles, TV sets, jewellery, etc.*

[44] The use of multiple exchange rates is formally prohibited by the GATT 1994.

G32 Bank authorization

A requirement to obtain a special import authorization from the central bank.

Example: *For imports of motor vehicles, a central bank permit is required in addition to the import licence.*

G33 Authorization linked with non-official foreign exchange

Licence granted only if non-official foreign exchange is used for the import payment.

G331 External foreign exchange

Licence granted only for imports related to technical assistance projects and other sources of external foreign exchange.

Example: *Imports of construction materials are allowed only if payments may be made through the foreign direct investment fund.*

G332 Importers' own foreign exchange

Licence granted if the importer holds foreign exchange in an overseas bank.

Example: *Imports of textile materials are authorized only if the importer can pay directly to the exporter with foreign exchange obtained export activity abroad.*

G339 Licence linked with non-official foreign exchange, n.e.s.

G39 Regulation on official foreign exchange allocation, n.e.s.

G4 Regulations concerning terms of payment for imports

Regulations related to conditions of payment of imports and the obtaining and use of credit (foreign or domestic) to finance imports.

Example: *No more than 50% of the transaction value can be paid in advance of the arrival of goods to the port of entry.*

G9 Finance measures, n.e.s.

H MEASURES AFFECTING COMPETITION

Measures to grant exclusive or special preferences or privileges to one or more limited group of economic operators.

H1 State-trading enterprises, for importing; other selective import channels

H11 State-trading enterprises, for importing

Enterprises (whether or not State-owned or -controlled) with special rights and privileges not available to other entities, which influence through their purchases and sales the level or direction of imports of particular products (See also P21).

Example*: A statutory marketing board with exclusive rights to control imports of certain grains, a canalizing agency with an exclusive right to distribute petroleum, a sole importing agency or importation reserved for specific importers regarding certain categories of goods.*

H19 Other selective import channels, n.e.s.

H2 Compulsory use of national services

H21 Compulsory national insurance

A requirement that imports must be insured by a national insurance company.

H22 Compulsory national transport

A requirement that imports must be carried by a national shipping company.

H29 Compulsory national service, n.e.s.

H9 Measures affecting competitions, n.e.s.

I TRADE-RELATED INVESTMENT MEASURES[45, 46]

I1 Local content measures

Requirements to purchase or use certain minimum levels or types of domestically produced or sourced products, or restrictions on the purchase or use of imported products based on the volume or value of exports of local products.

Example: *In the production of automobiles, locally produced components must account for at least 50% of the value of the components used.*

I2 Trade-balancing measures

Restrictions on the importation of products used in or related to local production, including in relation to the amount of local products exported; or limitations on access to foreign exchange used for such importation based on the foreign exchange inflows attributable to the enterprise in question.

Example*: A company may import materials and other products only up to 80% of its export earnings of the previous year.*

I9 Trade-related investment measures, n.e.s

J DISTRIBUTION RESTRICTIONS

Distribution of goods inside the importing country may be restricted. It may be controlled through additional license or certification requirements.[47]

J1 Geographical restriction

Restriction to limit the sales of goods to certain areas within the importing country.

Example*: Imported beverages may only be sold in cities having a facility to recycle the containers.*

J2 Restriction on resellers

Restriction to limit the sales of imported products by designated retailers.

Example: *Exporters of motor vehicles need to set up their own retail points, as existing car dealers in the destination country belong exclusively to car producers in that country.*

K RESTRICTIONS ON POST-SALES SERVICES

Measures restricting producers of exported goods to provide post-sales service in the importing country.

Example: *After-sales servicing on exported TV sets must be provided by a local service company of the importing country.*

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[45] Subject to certain exceptions, the measures listed in I1-I2 are inconsistent with the TRIMs Agreement (respectively, the obligations of national treatment under article III and general elimination of QRs under article XI of GATT 1994). See Illustrative List annexed to the TRIMs Agreement.

[46] Trade-related investment measures in the form of export restrictions are included in category P1.

[47] These restrictions are closely related to regulations of distribution services.

L SUBSIDIES (excluding export subsidies under P7)

Financial contribution by a government or public body, or via government entrustment or direction of a private body (direct or potential direct transfer of funds: e.g. grant, loan, equity infusion, guarantee; government revenue foregone; provision of goods or services or purchase of goods; payments to a funding mechanism), or income or price support, which confers a benefit and is specific (to an enterprise or industry or group thereof, or limited to a designated geographical region).

Example: *The government provides producers of chemicals a one-time cash grant to replace antiquated production equipment.*

Note: This category is to be further subdivided after further study on the subject.

M GOVERNMENT PROCUREMENT RESTRICTIONS

Measures controlling the purchase of goods by government agencies, generally by preferring national providers.

Example*: A government office has a traditional supplier of its office equipment requirement, in spite of higher prices than similar foreign suppliers.*

N INTELLECTUAL PROPERTY

Measures related to intellectual property rights in trade: Intellectual property legislation covers patents, trademarks, industrial designs, layout designs of integrated circuits, copyright, geographical indications and trade secrets.

Example: *Clothing with unauthorized use of trademark is sold at much lower price than the authentic products.*

O RULES OF ORIGIN

Rules of origin cover laws, regulations and administrative determinations of general application applied by government of importing countries to determine the country of origin of goods. Rules of origin are important in implementing trade policy instruments such as antidumping and countervailing duties, origin marking and safeguard measures.

Example: *Machinery products produced in a country are difficult to fulfil the rules of origin to qualify for the reduced tariff rate of the importing country, as the parts and materials originate in different countries.*

P EXPORT-RELATED MEASURES

Export-related measures are measures applied by the government of the exporting country on exported goods.

P1 Export-license, -quota, -prohibition and other quantitative restrictions[48]

Restrictions to the quantity of goods exported to a specific country or countries by the government of the exporting country for reasons such as a shortage of goods in the domestic market, regulating domestic prices, avoiding antidumping measures or for political reasons.[49]

P11 Export prohibition

Prohibition of exports of certain products.

Example: *Export of corn is prohibited because of a shortage in domestic consumption.*

[48] Trade-related investment measures in the form of export restrictions are included in this category.

[49] All of these measures are formally prohibited by GATT 1994, but may be applied under specific situations identified in article XI of GATT 1994.

P12 Export quotas

Quotas that limit value or volume of exports.

Example: *An export quota of beef is established to guarantee adequate supply in the domestic market.*

P13 Licensing- or permit requirements to export

A requirement to obtain a licence or a permit by the government of the exporting country to export products.

Example: *Exports of diamond ores are subject to licensing by the Ministry.*

P14 Export registration requirements

A requirement to register products before being exported (for monitoring purposes).

Example: *Pharmaceutical products need to be registered before being exported.*

P19 Export quantitative restrictions, n.e.s.

P2 State-trading enterprises, for exporting; other selective export channels

P21 State-trading enterprises, for exporting

Enterprises (whether or not State-owned or -controlled) with special rights and privileges not available to other entities, which influence through their purchases and sales the level or direction of exports of particular products (See also H1).

Example*: An export monopoly board, to take advantage of terms of sale abroad; a marketing board, to promote for export on behalf of a large number of small farmers.*

P29 Other selective export channels, n.e.s.

P3 Export price-control measures

Measures implemented to control the prices of exported products.

Example*: Different prices for exports are applied from the same product sold in the domestic market (dual pricing schemes).*

P4 Measures on re-export

Measures applied by the government of the exporting country on exported goods which have originally been imported from abroad.

Example: *Re-export of wines and spirits back to the producing county is prohibited. The practice is common in cross-border trade to avoid imposition of domestic excise tax in the producing country.*

P5 Export taxes and charges

Taxes collected on exported goods by the government of the exporting country: they can be set either on a specific or an ad valorem basis.

Example: *An export duty on crude petroleum is levied for revenue purposes.*

P6 Export technical measures

Export regulations referring to the technical specification of products and conformity assessment systems thereof:

P61 Inspection requirement

Control over the quality or other characteristics of products for export.

Example: *Exports of processed food products must be inspected for sanitary conditions.*

P62 Certification required by the exporting country

Requirement by the exporting country to obtain sanitary, phytosanitary or other certification before the goods are exported.

Example: *Export of live animals must carry individual health certificates.*

P69 Export technical measures, n.e.s.

P7 Export subsidies

Financial contribution by a government or public body, or via government entrustment or direction of a private body (direct or potential direct transfer of funds: e.g. grant, loan, equity infusion, guarantee; government revenue foregone; provision of goods or services or purchase of goods; payments to a funding mechanism), or income or price support, which confers a benefit and is contingent in law or in fact upon export performance (whether solely or as one of several conditions), including measures illustrated in annex I of the Agreement on Subsidies and Countervailing Measures and measures described in the Agreement on Agriculture.

Example: *All manufacturers in country A are exempt from income tax on their export profits.*

P8 Export credits

P9 Export measures, n.e.s.

QUESTIONNAIRE

NON-TARIFF MEASURES TO TRADE:
Economic and Policy Issues for Developing Countries

Readership Survey

Since 1999, the Trade Analysis Branch of the Division on International Trade in Goods and Services, and Commodities of UNCTAD has been carrying out policy-oriented analytical work aimed at improving the understanding of current and emerging issues in international trade and development. In order to improve the quality of the work of the Branch, it would be useful to receive the views of readers on this and other similar publications. It would therefore be greatly appreciated if you could complete the following questionnaire and return to:

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This publication by the UNCTAD secretariat is an effort to improve existing knowledge on relevant issues related to non-tariff measures, with particular attention to those more relevant for developing countries. A better understanding of non-tariff measures will help policymakers to formulate appropriate policy responses and direct the necessary technical and financial resources to where they are needed. It will also contribute to more balanced international trade agreements and improved multilateral dialogue on trade policy issues. I am confident that this study will assist UNCTAD member States to strengthen their capacity to conduct more efficient trade policies for development.

Supachai Panitchpakdi, Secretary-General of UNCTAD

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