

C. An inventory of non-tariff measures and services measures

This section reviews available sources of information on non-tariff measures (NTMs) and services measures, evaluating their relative strengths and weaknesses. It uses available information to establish a number of “stylized facts” regarding the incidence of NTMs and services measures in general. It looks in particular at technical barriers to trade, sanitary and phytosanitary measures and domestic regulation in services.

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Some key facts and findings

- Progress is being made on improving the quality and availability of data on non-tariff measures and services measures, but much remains to be done.
- Available data do not show any clear increasing trend in the overall use of non-tariff measures in the last decade.
- Technical barriers to trade and sanitary and phytosanitary measures appear to have become prominent, according to official WTO information. This is confirmed by survey data from both developing and developed economies.
- Procedural obstacles are a particular source of concern for exporters from developing countries.
- Although there is some evidence that measures restricting trade in services have decreased over time in developed economies, a serious limitation of available data on applied regimes in the services area makes it difficult to distinguish between market access, national treatment and domestic regulation.

This section surveys available sources of information on non-tariff measures (NTMs) and services measures, evaluates their relative strengths and weaknesses, summarizes the content of the principal databases, and uses this information to establish a number of “stylized facts” about these types of measures. This last task turned out to be surprisingly difficult due to significant gaps in data and to numerous shortcomings in the data that do exist. Despite these limitations, the following discussion attempts to capture many key features of the current NTM landscape and to document a number of trends in their use over time. As far as services measures are concerned, the data limitations appear to be even more severe than in the case of NTMs. In particular, the current data on services measures do not allow clear distinctions to be drawn between market access, national treatment (i.e. the principle of giving others the same treatment as one’s own nationals) and domestic regulation issues.

The scarcity of data on non-tariff measures and services measures stems in large part from the nature of these measures, which find their ultimate expression in complex legal documents rather than in easily quantifiable tariff schedules. The universe of NTMs encompasses all measures that affect trade other than tariffs, but since most regulatory action undertaken by governments can at least potentially influence trade, the set of possible NTMs is huge and its borders indistinct. Similar considerations apply to services measures. On the goods side, this section examines the available evidence, with a particular attention to technical barriers to trade (TBT) and sanitary and phytosanitary (SPS) measures (covering food safety and animal and plant health). Traditional quantitative and price-based measures are also discussed, but the fact that TBT/SPS measures are among the most frequently encountered NTMs and raise some of the most difficult challenges from the WTO’s perspective justifies the additional attention paid to these kinds of measures. On the services side, the section takes stock of all measures affecting trade in services, to the extent possible, before focusing on domestic regulation.

Statistics on non-tariff measures and services measures are collected by many different institutions for a variety of purposes. As a result, data are often presented in formats that are not amenable to quantitative analysis, with significant gaps in coverage for particular countries and time periods. When reliable information is available, it may still provide no clue as to how strictly measures are applied, or whether they are applied in a discriminatory manner. Most datasets simply present counts of the number of measures in effect at a particular place and time, but these counts have no natural economic interpretation and say nothing about the restrictiveness of individual measures. For these reasons and others, the available data on NTMs and services measures can only be characterized as sparse and incomplete.

The remainder of the section is organized as follows. Section C.1 reviews the main sources of statistical information on non-tariff measures and services measures, paying particular attention to areas where the data are deficient. Section C.2 extracts a number of stylized facts on NTMs in goods from the principal databases. Section C.3 provides a similar account of stylized facts about services measures. Section C.4 contains concluding remarks.

1. Sources of information on NTMs and services measures

This sub-section presents the main sources of information on non-tariff measures and assesses the coverage and quality of the data they provide. Both internal WTO sources and external non-WTO sources are examined. The following overview highlights the diversity of the sources and of the modes in which the data are collected, distinguishing between notifications, monitoring, specific trade concerns, official data collection or business surveys. A distinction is made between information on NTMs and information on impediments to trade related to NTMs. It also shows that despite this diversity, the data are patchy at best. Each data source sheds light on a small part of the universe. The light it sheds depends on the specific purpose for which the data have been collected as well as on how they have been collected, i.e. whether a measure is simply reported/notified or whether there is a complaint relating to the measure. In any case, considerable caution is warranted in interpreting the available evidence.

(a) WTO internal sources of information

One important source of information on WTO members’ trade policies are their schedules of concessions/commitments. These schedules, however, provide useful information on the policies that members have committed to apply rather than on the policies they actually apply. WTO agreements also include multiple provisions aimed at improving the transparency of policy measures affecting trade. These provisions can be grouped into the following four categories: (a) publication requirements; (b) notification requirements; (c) the Trade Policy Review Mechanism and the monitoring reports; (d) the possibility of raising specific trade concerns in the SPS and TBT committees and in the dispute settlement mechanism (DSM).

(i) *Schedules of concessions/commitments*

The schedules of concessions for goods mostly contain information on members’ tariff commitments but they also cover their commitments regarding the use of a number of non-tariff measures that affect trade in agricultural products as well as their so-called “non-tariff concessions”. The agricultural NTM commitments

include tariff quotas (whereby quantities inside a quota are charged lower import duty rates than those outside) as well as commitments limiting subsidization in agriculture (total Aggregate Measurement of Support (AMS) commitment for domestic support, and budgetary outlays and quantity reduction commitments for export subsidies). As for the non-tariff concessions (Part III), they were either added as part of the Uruguay Round negotiations (but only by a few members) or after the Uruguay Round as part of a country's WTO accession process.¹ Both tariff and non-tariff commitments are also available electronically in the Consolidated Tariff Schedules database. Note that the commitments as compiled in the database are not easily comparable across products and members.²

The schedules of commitments for services set out market access and national treatment commitments. For each service on which a commitment is made, the schedule indicates, under each of the four modes of supply, any limitations on market access or national treatment which the member is allowed to maintain. Limitations not recorded in the schedules in this way are illegal. The schedules thus combine a "positive list" of covered services with a "negative list" of limitations. They guarantee a minimum standard of access; members are always free to grant more favourable levels of market access and national treatment than are specified in their schedules, on a most-favoured nation (MFN) or equal treatment basis, and many do so (see Section D.3).

(ii) Publication requirements and enquiry points

Article X.1 of the General Agreement on Tariffs and Trade (GATT) requires the prompt publication of all trade regulations "in such a manner as to enable governments and traders to become acquainted with them". Several other WTO agreements contain more specific publication requirements. In the TBT Agreement, for instance, Article 2.9.1 requires the publication of a notice when the government envisages introducing a technical regulation which is not based on international standards and may have a significant effect on trade. Similarly, Article 2.11 requires the publication of all technical regulations which have been adopted. Identical provisions also apply to conformity assessment procedures. Besides those publication requirements, the TBT Agreement also includes provisions requiring the establishment of enquiry points able to answer enquiries and provide relevant documents regarding technical regulations, standards and conformity assessment procedures.

The purpose of publication requirements and enquiry points is to contribute to transparency by informing other members in general, and producers in exporting members in particular (see Article X as well as, for instance, Articles 1, 2 and 3 of Annex B of the SPS Agreement). Publication requirements and notifications

(see below) tend to complement each other. The SPS and TBT agreements require the notification of draft regulations to the WTO Secretariat and the publication of the adopted regulations. An important difference between notification and publication requirements is that the former is centralized in the WTO Secretariat while the latter merely involves making information publicly available. Another difference is that while notifications must be transmitted to the WTO in one of the three official languages (English, French or Spanish), publications are in the national language.

(iii) Notifications

The WTO framework contains more than 200 different legal notification requirements, the large majority of which relate to non-tariff measures. Notification requirements under the WTO are highly diverse.³ First, while a vast majority of requirements oblige members to provide information on their own policies, some are "reverse" notifications, which allow members to identify measures imposed by other members. Secondly, notifications differ from each other with regard to how frequently they are required. Most of those covering laws and regulations are one-off requirements, with a separate obligation to notify any changes thereafter. The notifications that provide information on the measures themselves typically take two different forms: they are either ad hoc or (semi-) annual. Thirdly, about half of the notification requirements cover NTMs that typically apply to specific products. In those cases, notification templates generally require members to indicate which products are covered. The other half relates to measures (e.g. laws and regulations) that affect, or could potentially affect, all products (e.g. pre-shipment inspection or customs valuation).

A comparison of the list of notifications with the 2010 version of the International Classification of Non-tariff Measures suggests that notifications cover most of the categories (see Table C.2). The international classification comprises 16 broad categories of measures, of which only three do not seem to be covered at all by WTO notification requirements. Those are finance measures, distribution restrictions and restrictions on post-sales services. All the other categories are at least partly covered (i.e. a number of sub-categories are covered while others are not).

Where notification requirements broadly match NTM categories, however, they do not necessarily cover the measures that could be classified therein. In the case of sanitary and phytosanitary measures, for example, Article 7 and Annex B of the SPS Agreement require governments to notify new SPS regulations which are not based on international standards and have a significant effect on the trade of other members, and to notify those at an early stage, i.e. when amendments can still be introduced. Measures that were in place before the entry into force of the SPS Agreement need not be notified, nor is there an obligation to notify the final measures

when they enter into force. This means that some of the measures in place were not notified and that some of those notified may have been amended before being implemented or even not implemented at all.

Notifications provide an incomplete and sometimes misleading account of the incidence of non-tariff measures.⁴ First, WTO members do not necessarily comply with their notification requirements. While the level of compliance is not easy to measure, a simple count of notifications for selected requirements suggests that at least in some areas, it is relatively low. As discussed in more detail in Section E.4, difficulties faced by members in making their notifications may be part of the reason for the low compliance, but the main explanation is certainly that governments have no incentive to notify, or, worse, may have an incentive not to notify. Secondly, notifications serve various purposes (Bacchetta et al., 2012). Some of them clearly do not aim at providing an exhaustive inventory of all the measures in the area they cover. In the SPS and TBT agreements, for example, notifications serve to allow other members to participate in the formation of new regulations. This explains why there is no requirement to notify measures in place before 1995 (when the agreements came into effect) or final measures. Thirdly, the “quality” of the information provided varies significantly among notifications.⁵ Again, the quality criteria may be debatable, but in many cases, notifications fail to provide precise information on important dimensions of the measures, such as product coverage or the time period during which the measure remains in place.

Only a sub-set of the information collected through notifications is stored in searchable databases.⁶ The WTO Secretariat has developed information management systems to facilitate access to all the information on SPS and TBT measures provided by members through the various existing transparency

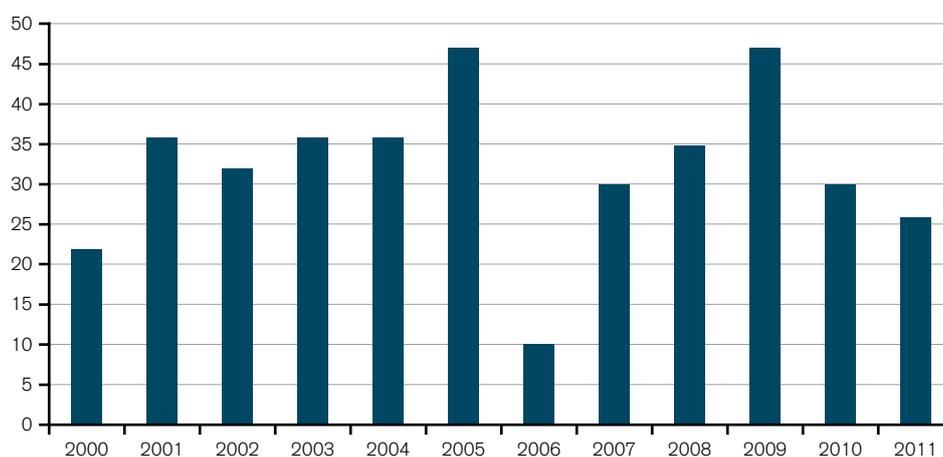
mechanisms. The TBT Information Management System and the SPS Information Management System are “one-stop” systems that allow users to access information on TBT or SPS measures that member governments have notified to the WTO as specific trade concerns raised in the SPS or TBT Committee or through member governments’ enquiry points. The two information management systems are not exactly NTM databases. They are document databases which make it possible to search relevant documents by code, by notifying member, by date, by product or by keyword.

Access to all information from notifications will be substantially improved with the new Integrated Trade Intelligence Portal (I-TIP) which is currently being developed by the WTO Secretariat to provide unified access to all information on trade and trade policy measures available at the WTO.

In services, the transparency-related notification obligation is contained in Article III:3 of the General Agreement on Trade in Services (GATS). It requires WTO members to notify measures that “significantly affect trade” in services covered by their specific commitments. As of end-2011, just over 400 notifications in total had been received.⁷ Figure C.1 shows the number of notifications received per year since 2000.

Considering the high number of sectors with commitments by the 153 WTO members as of end-2011 (on average, developing countries have commitments in more than 50 sectors and developed countries nearly 110 sectors), it seems apparent that the number of notifications received in any given year cannot account for the entire set of measures that should have been notified by members. One difficulty for members regarding the GATS is that the scope of measures to be notified is not necessarily clear, as the GATS provides no further guidance on the

Figure C.1: GATS Article III:3 notifications received, 2000-2011 (number of notifications)



Source: WTO Secretariat.

interpretation of the term “significantly affecting” trade in services. However, as already mentioned, low compliance with the notification requirements is mostly an incentive issue. In committed sectors, members would have no incentive to “incriminate” themselves by notifying measures that somehow violated their commitments. They might also have an interest in being non-transparent about measures that “significantly” liberalized access to committed sectors, as they might be faced with requests to bind any such, not necessarily known, liberalization.

(iv) Trade policy reviews and monitoring reports

Trade policy reviews

The trade policies and practices of all WTO members are subject to periodic review: every two years for the four countries with the largest share of world trade, every four years for the next 16 countries and every six years for the others. The review is carried out by the WTO's Trade Policy Review Body (TPRB) on the basis of two reports: one by the member under review and another by the WTO Secretariat on its own responsibility. In addition to the two reports, the review process includes a questions and answers mechanism. Two months before the review meeting, the reports are circulated among all members who have one month to submit written questions to the member under review. The latter must respond in writing before the meeting.

The report by the WTO Secretariat reviews a broad range of non-tariff measures and is typically in five parts:⁸ economic environment, trade and investment regimes, trade policies and practices by measure, trade policies by sector and Aid for Trade. The chapter on trade policies and practices by measure distinguishes between measures directly affecting imports and those directly affecting exports or those affecting production and trade. Table C.1 lists the measures examined under each of the three headings in the 2011 Trade Policy Review for Cambodia, which has been used for illustrative purposes. Policies affecting trade in services are examined sector by sector.

To prepare its report, the WTO Secretariat uses various sources of information. The starting point is usually the previous report, which can be updated using information from notifications. The Secretariat also sends a questionnaire to the government of the member under review. This questionnaire, which addresses all areas covered in the report, follows a general template but is often customized. To complement the information collected through these institutional channels, other public sources of information are used to identify issues worthy of investigation. Despite considerable efforts, trade policy reviews (TPRs) do not and cannot provide exhaustive coverage of all non-tariff measures in all areas. For example, as already suggested in World Trade Organization (WTO) (2006), information on subsidies in

TPRs is highly variable. Similarly, only a sub-set of services sectors is covered and, in the best possible case, selected domestic regulation is examined.

While the information on tariffs and trade used for the reports feeds into the WTO's Integrated Database and is thus accessible electronically, information on non-tariff measures and on measures affecting trade in services is not stored systematically in electronic format and thus is neither easily comparable across WTO members, nor readily usable for quantitative analysis. Similarly, the questions asked and answers received as part of the review process are published as an annex to the minutes of the TPRB meeting but they are not systematically coded and stored in a database. This may change with the new Integrated Trade Intelligence Portal (I-TIP) which will provide access to all information from TPRs. Efforts will be made to codify this information and thereby facilitate quantitative analysis.

Monitoring reports

The WTO publishes two types of monitoring reports. The first type is published twice a year by the WTO Secretariat for the Trade Policy Review Body.⁹ The reports cover trade and trade-related developments in goods and services of all WTO members as well as observers. They monitor changes in both tariffs and

Table C.1: Measures covered by trade policy reviews

Measures directly affecting imports
(i) Customs procedures
(ii) Tariffs and other taxes and charges affecting imports
(iii) Customs valuation
(iv) Pre-shipment inspection
(v) Rules of origin
(vi) Import prohibitions, quotas, and licensing
(vii) Anti-dumping, countervailing duties, safeguard regimes
(viii) Government procurement
(ix) State trading enterprises
(x) Other measures
Measures directly affecting exports
(i) Procedures
(ii) Export taxes
(iii) Export restrictions
(iv) Export subsidies
(v) Export promotion
(vi) Special economic zones
Measures affecting production and trade
(i) Regulatory framework
(ii) Technical barriers to trade
(iii) Sanitary and phytosanitary measures
(iv) Trade-related intellectual property rights

Source: World Trade Organization (WTO) (2011a)

non-tariff measures as well as in a broad range of measures affecting trade in services. The second type of report is published by the WTO Secretariat together with the secretariats of the OECD and UNCTAD following a request by the G20 to monitor trade and investment measures.¹⁰ These reports, which only cover G20 countries, are also issued twice a year.

The sources of information used for the two types of reports are similar. Both reports mostly use information collected through a request for information sent to WTO members, informal reverse notifications and the press. This information is then submitted to the respective members for verification. The data are made available in public reports and stored in spreadsheets, but not in a database. Like all the other information on trade and trade policy collected by the WTO, however, it will be made available through the new Integrated Trade Intelligence Portal (I-TIP) portal.

WTO members have recognized the usefulness of the trade monitoring exercise. There is broad consensus for its continuation and strengthening as well as for the related briefings by the Director-General in international fora such as the G20.¹¹

(v) *Specific trade concerns and disputes*

Specific trade concerns

WTO members have used both the TBT and the SPS committees as fora to discuss issues related to specific measures taken by other members. These are referred to as “specific trade concerns” and relate variously to proposed measures notified to the TBT or SPS committees in accordance with the notification requirements in the relevant agreement, or to measures currently in force. Committee meetings, or informal discussions between members held on the margins of such meetings, afford members the opportunity to review trade concerns in a bilateral or multilateral setting and to seek further clarification.

Specific trade concerns raised by members are a source of potentially interesting information on the effects of non-tariff measures. Specific trade concerns point out particular obstacles faced by exporters from the country raising the concern in a given export market. The information they provide on the effects of NTMs is thus similar to that provided by business surveys. The main difference is that specific trade concerns are channelled through governments. Exporters facing an obstacle may complain to the government, which may or may not raise the issue at the WTO. This means that specific trade concerns may provide a distorted picture of the trade-restrictive or trade-distortive effects of TBT and SPS measures. A number of concerns may never be raised.¹² Moreover, there are no reasons to believe that the ones that get raised are statistically representative of all the TBT/SPS related trade distortions faced by members.

As already mentioned, the TBT Information Management System and the SPS Information Management System allow users to track, and perform searches on, specific trade concerns raised in the TBT or SPS committees but they are not suitable for quantitative analysis. The WTO Secretariat has thus coded all the relevant information on specific trade concerns and created two databases: one on TBT measures and one on SPS measures. The TBT Specific Trade Concerns (STC) Database provides information on the 317 concerns raised in the TBT Committee between January 1995 and June 2011.¹³ The SPS STC Database provides information on the 312 concerns raised between January 1995 and December 2010. Each of these corresponds to a concern raised by one or more members in relation to a measure taken by one of their trading partners. Since some of these measures might have been notified to the WTO, the concern might be related to one or several notifications of the member taking the measure. The main difficulty with the codification was to attribute product codes from the Harmonized System (the system used by participating countries to classify traded goods on a common basis).¹⁴

Disputes

Disputes initiated by members under the WTO dispute mechanism are another source of potentially interesting information on the effects of non-tariff measures. The WTO Secretariat maintains a database on “requests for consultations”, the first step in formally initiating a dispute in the WTO. As of 31 December 2011, the database had information on 427 such requests.¹⁵ These data do not indicate the type of non-tariff measure at issue in the disputes, but the WTO agreement(s) and provision(s) cited in each dispute are listed. Using the latter, it is possible to obtain an estimate of the number of cases involving each type of non-tariff measure. When doing this, however, it is important to bear in mind that for economic and political reasons, a number of NTM-related trade distortions may go unchallenged. As with specific trade concerns, there is no reason to believe that the measures challenged were statistically representative of all the NTM-related trade distortions faced by members.¹⁶

Another problem with this approach is that for any dispute, complainants tend to cite a large number of provisions which have allegedly been breached, while in fact some of the provisions are duplicates or intimately related to other provisions. The GATT, for example, is cited in most disputes because it includes the basic rules that apply to trade in goods. Moreover, even when a complainant brings a dispute under a more specific agreement, such as the TBT Agreement, it may also include claims under the GATT, such as under Article III:4. This means that a simple count of the number of provisions cited in the cases would lead to an over-estimation of the number of NTMs that have been challenged.

Santana and Jackson (2012) propose a methodology to obtain a more precise view of the types of measures that are the subject of WTO dispute settlement by adjusting for the citation to the GATT in disputes where that agreement may have played a secondary role. Using this methodology, they have compiled a dataset on WTO disputes based largely on the database of requests for consultations maintained by the WTO legal division.¹⁷ This dataset is not publicly available, but it is consistent with a database on WTO disputes accessible on the World Bank's website (see below). In their dataset, Jackson and Santana do not "double count" requests for consultations that refer to the GATT when the reference is likely to be of secondary importance to the main claim of violation (i.e. a specialized agreement or another GATT article). They have also restricted coverage to disputes related to trade in goods. This covers a total of 393 disputes out of the 427 filed under the Dispute Settlement Understanding (DSU) as of 31 December 2011.

(b) Non-WTO sources of information

(i) Data collected from official sources

TRAINS and Market Access Map

The most complete collection of publicly available information on non-tariff measures is the Trade Analysis and Information System (TRAINS) developed by the United Nations Conference on Trade and Development (UNCTAD). UNCTAD started collecting NTM information in 1994 and simultaneously developed the TRAINS database.¹⁸ TRAINS provides information on trade, tariffs and NTMs by Harmonized System (HS) tariff line. NTMs were classified according to a customized Coding System of Trade Control Measures, which distinguished six core categories of NTMs. The database includes between one and seven years of NTM information for 86 countries over the period 1992 to 2010. For some countries/years, in particular after 2001, data were collected only for a sub-set of NTM categories. Various sources were used to provide data, including, where available, WTO sources such as notifications.¹⁹ Overall, the coverage is patchy, resulting in blank cells which are difficult to interpret. They can signify missing data or indicate that a particular NTM is not applied to a particular tariff line.

In the early 2000s, it became clear that the TRAINS database required substantial improvement and that the Coding System needed an update to reflect new practices. In 2005, the Secretary General of UNCTAD launched a project aimed at revamping the definition, classification, collection and quantification of non-tariff measures.²⁰ Under the guidance of a Group of Eminent Persons, a multi-agency team composed of experts from all international agencies active in the NTM area started working on the project. In 2009, the multi-agency team proposed an updated and

modified version of the old Coding System including 16 categories (see Table C.2) which brought the classification closer to the regulatory framework.²¹ A pilot project on the collection and quantification of NTMs was carried out by UNCTAD and the International Trade Centre (ITC), with a view to testing the new classification. With the support of two UN regional commissions, UNCTAD and ITC collected NTM information in seven developing countries.²² Based on the lessons learned in the pilot project, the updated NTM classification was finalized and adopted.

The updated classification also introduced the concept of "procedural obstacles", defined as "issues related to the process of application of an NTM, rather than to the measure itself" (United Nations Conference on Trade and Development (UNCTAD), 2010: xvii). An initial list of procedural obstacles was established and tested in a series of interviews with exporting companies carried out as part of the pilot project (see the discussion of business surveys below).²³ On the basis of lessons learned in the pilot project, the initial list of procedural obstacles was revised and expanded.

Table C.3 presents the ten broad categories of procedural obstacles in the list currently used by ITC. The distinction between a non-tariff measure and a procedural obstacle can sometimes be very subtle, and is best illustrated with an example. To import a product, it may be necessary to have a specific certification (an NTM); however, the certification

Table C.2: International classification of non-tariff measures

A	Sanitary and phytosanitary measures
B	Technical barriers to trade
C	Pre-shipment inspection and other formalities
D	Price control measures
E	Licences, quotas, prohibitions and other quantity control measures
F	Charges, taxes and other para-tariff measures
G	Finance measures
H	Anti-competitive measures
I	Trade-related investment measures
J	Distribution restrictions*
K	Restrictions on post-sales services*
L	Subsidies (excluding export subsidies)*
M	Government procurement restrictions*
N	Intellectual property*
O	Rules of origin*
P	Export related measures*

Source: United Nations Conference on Trade and Development (UNCTAD) (2010).

Note: *indicates that no official information is collected by UNCTAD for this category which is only used to collect information from the private sector through surveys and web portals.

authority or testing laboratory can be excessively costly, slow in response or be located in a remote area (procedural obstacles related to the NTM). Information on procedural obstacles can only be collected through surveys or other mechanisms that record complaints.

Following the pilot project phase, ITC, UNCTAD and the World Bank started to collect official data on non-tariff measures.²⁴ Their strategy consisted of hiring local consultants (universities, think tanks or consulting firms) and giving them assistance and guidelines to draw up NTM inventories in collaboration with the ministries and agencies concerned. Relying on outside consultants is intended to address two of the problems that plague self-notification: (i) the wide variety of bodies involved in initiating NTMs; and (ii) the incentives for authorities not to notify in order to avoid exposure. The data collected by consultants are formatted according to international classification by product (at either the tariff-line or HS6 level), together with information on legal sources and enforcing agency, in order to ensure verifiability of the information. The inventories are then approved by national authorities during validation workshops. Finally, the data are verified and added to both the TRAINS and Market Access Map, a database of tariffs and NTMs developed by ITC.

To consolidate cooperation and expand the recent collection efforts, an ambitious multi-agency partnership, Transparency in Trade (TNT), was launched in 2011 by the African Development Bank, ITC, UNCTAD and the World Bank. Using donor financing, the TNT initiative aims at giving a “big push” to data collection, creating a one-stop global information source. It provides a framework through which the four agencies coordinate their data collection efforts to fill key data gaps and work together to strengthen the capacity of institutions in developing countries to collect and report information on trade policies. TNT has four major components: (i) tools (the Market Access Map and the World Bank’s World Integrated Trade Solution portals provide access to the data); (ii) tariff data collection; (iii) non-tariff measures data collection; and (iv) policies affecting

trade in services. Once the first wave of data collection is completed, the challenge facing the TNT partnership will be to move to a more sustainable structure than that provided by donor financing alone.

World Bank Temporary Trade Barriers Database (TTBD)

The World Bank’s Trade Barriers Database (TTBD) website hosts detailed and freely available data on more than 30 different national governments’ use of anti-dumping and countervailing duties since 1980 and of global safeguards since 1995 as well as on China’s use of its specific transitional safeguard.²⁵ The Global Anti-Dumping Database, developed by Chad Bown, with funding from the World Bank, uses original national government documentation to organize information on affected countries, product category (at the HS8 level), type of measure, date of initiation, final imposition of duties, and revocation dates, and even information on the companies involved.

The TTBD website also hosts a public database with information on WTO disputes developed by Henrik Horn and Petros Mavroidis.²⁶ It contains information on all stages of WTO dispute settlement proceedings (e.g. panel reports, appeals, compliance panel reports) for all WTO disputes up to 11 August 2011.

OECD product market regulation

The OECD Economics Department has developed a database consisting of indicators of product market regulation for member states. The aim is to turn qualitative data on laws and regulations that may affect competition into quantitative indicators. The indicators mostly measure regulations that are potentially anti-competitive in areas where competition is viable. With the exception of the foreign direct investment (FDI) restrictiveness index, they do not distinguish between discriminatory and non-discriminatory measures (see Section C.3). The main source of information used for this database is official government responses to the OECD Regulatory Indicators Questionnaire, with only a small fraction of information being drawn from external datasets, thereby guaranteeing a high level of comparability across countries. The indicators are subject to peer review by the national administrations of OECD member countries.

The database proposes several different indicators which have been calculated for various years. First, there is the economy-wide product market regulation (PMR) indicator, which covers domestic regulations both in the manufacturing and services sectors. This has been estimated for 1998 and 2003 for 30 OECD countries (Conway et al., 2005). The economy-wide PMR indicator was subsequently replaced with the integrated PMR indicator, which has been estimated mostly for 2008 for 34 OECD countries (the four additional countries are Chile, Estonia, Israel and

Table C.3: ITC list of procedural obstacles

A	Administrative burdens
B	Information/transparency issues
C	Inconsistent or discriminatory behaviour of officials
D	Time constraints
E	Payment
F	Infrastructural challenges
G	Security
H	Legal constraints
I	Other

Source: International Trade Centre (ITC) (2011).

Slovenia) as well as for Brazil, China, India, Indonesia, Russia and South Africa (Wölfl et al., 2009). The integrated PMR indicator covers general regulatory issues in fields such as public control and price controls, legal and administrative barriers to market entry, and barriers to trade and investment. It also covers some industry-specific regulatory policies, notably in air and rail passenger transport, rail and road freight, telecommunications and retail distribution.

Secondly, in parallel with the PMR indicator, the OECD has developed a set of indicators covering regulation in specific sectors or specific aspects of regulation. The sectoral indicators cover three non-manufacturing sectors, and in particular network industries such as energy (electricity and gas), transport (air, rail and road transport), and communication (post and telecommunications) as well as retail trade and professional services (Conway and Nicoletti, 2006). The energy, transport and communications (ETC) regulation indicator covers measures affecting market entry and public ownership plus vertical integration and market structure, but only in a subset of the seven industries. The retail distribution indicator covers four entry regulations (registration, licences and permits, large outlet restrictions, and protection of incumbents) and two conduct regulations (shop opening hours and price controls). Finally, the professional services indicator covers three market entry and four conduct regulations. The FDI (regulatory) restrictiveness index covers four types of measures: (i) foreign equity restrictions; (ii) screening and prior approval requirements; (iii) rules for key personnel; and (iv) other restrictions on the operation of foreign enterprises (Kalinova et al., 2010). The latest revision of the index covers these four types of measures for all primary sectors (agriculture, forestry, fishing and mining), investments in real estate, five manufacturing sub-sectors and eight services sectors. The FDI restrictiveness indicator is available for 1997, 2003, 2006 and 2010 for 48 countries.

Compared with other indicators of services measures, the family of OECD regulation indicators has a number of advantages. First, the information summarized by the indicators is “objective”, in the sense that it is based on rules, regulations and market conditions rather than on perceptions captured through surveys. Secondly, these indicators provide the broadest coverage of sectors and areas, and the longest time series currently available to compare product market regulation across countries. As discussed in more detail in Section C.3, the PMR indicators cover a wide array of measures relevant to the services sector but they do not match the GATS categories of measures (market access and national treatment limitations; and domestic regulation). Moreover, they are only available for a relatively small group of mostly rich countries.²⁷

(ii) *Business concerns*

Most of the sources discussed so far are sources of official information, whether notified to the WTO or collected from governmental sources. Official information has a number of distinct advantages. First, it is generally reliable. It can be linked back to a legal text and, at least for the WTO sources, it is approved by governments. Secondly, in most cases it is collected in a systematic way.²⁸ However, it also has a few disadvantages, foremost among them that the data are generated/reported by the countries imposing the non-tariff measures. Some of these countries may want to avoid attracting attention to their adoption of new NTMs, or they may simply not deem them worthy of reporting, in which case the incidence of NTMs for individual countries and in aggregate measures could be understated. Furthermore, while evidence suggests that how NTMs are applied or administered can become a “procedural barrier to trade”, governments have absolutely no incentive to document obstacles relating to the specific way in which measures are applied.

Questions relating to procedural obstacles may be better addressed using business surveys or information on firms' own perceptions of the difficulties they face doing business in various markets. Data on exporter perceptions provide a valuable complement to data from official sources because they help identify those measures that are perceived as impediments to trade. These sorts of data, however, reflect firms' judgments and may be subject to various biases. Businesses may exaggerate procedural obstacles – or, on the contrary, minimize them – depending on the circumstances. They may also be unable to identify the specific policies of concern, or may misidentify them. Moreover, surveys, because of problems related to sample size and self-selection of respondents, do not always guarantee rigorous and significant results.²⁹ Similarly, with websites where exporters can file complaints, self-selection leads to a biased statistical sample.

Two sources of business data are presented in this sub-section and used in the next sub-section since they deal directly with non-tariff measures. The first is a set of 11 business surveys conducted by ITC in developing countries. The second is the CoRe NTMs (compilation of reported NTMs) Database compiled by Martinez et al. (2009), which incorporates information from the United States Trade Representative's National Trade Estimate Reports on Foreign Trade Barriers and the European Union's Market Access – Trade Barriers database. These two sources give an overview of barriers faced by firms from two of the largest developed economies. Other business surveys focusing on “ease of doing business” indicators are not discussed here (even though they may contain relevant information) since they require more attention to make sure the correct measures are identified.³⁰

ITC business surveys

Since the end of the pilot project in 2009 (see sub-section 1(b)(i) above), the ITC has carried out large-scale company surveys on non-tariff measures in more than a dozen developing and least-developed countries on all continents.³¹ The surveys cover at least 90 per cent of the total export value of each participating country (excluding minerals and arms).³² The economy is divided into 13 sectors, and all sectors accounting for more than 2 per cent of total exports are included in the survey. Both exporting and importing companies are covered. The survey methodology involves a two-step approach.

In the first step, companies that experience burdensome non-tariff measures are identified through phone conversations with all the companies in the sample. The second step then consists of face-to-face interviews with the companies that reported difficulties with NTMs in the phone conversations. A trained interviewer helps respondents identify the relevant regulation, the nature of the problem, the affected products (six-digit level of the Harmonized System), the partner country exporting or importing the product and the country applying the regulation (partner, transit or home country). The ITC does not implement the survey, but guides and supports a local survey company and experts in doing this. Upon finalizing the survey, its results are presented and discussed at a dissemination workshop, which brings together all national stakeholders and fosters a dialogue on NTM issues.

Compilation of NTMs reported by US and EU exporters

Over the last decade, the Office of Economics of the United States International Trade Commission (USITC) has been engaged in compiling a unified database using the EU's Market Access – Trade Barriers Database and the National Trade Estimate Report on Foreign Trade Barriers issued by the United States Trade Representative (USTR), as well as the WTO's trade policy reviews. The first version of the USITC NTM database dates back to 2002 and is described in Manifold (2002) and Donnelly and Manifold (2005). It was later updated by Martinez et al. (2009).

The EU's Market Access – Trade Barriers Database provides a snapshot of non-tariff barriers faced outside of the EU by exporters from EU members. It is based on complaints registered by EU exporters and processed by the European Commission. The database has 32 sectors and seven main categories of measures: tariffs and duties, trade defence instruments, non-tariff barriers, investment-related barriers, intellectual property rights-related barriers, other (export-related) measures and services-specific measures. Each of those categories is further divided into a number of sub-categories. Non-tariff barriers, for instance, are sub-divided into: registration, documentation and customs; quantitative

restrictions and related measures; competition issues; standards, sanitary and other technical measures; government procurement; subsidies; other non-tariff measures; and sanitary and phytosanitary measures. The USITC database does not include tariffs and trade defence instruments and EU data are reclassified according to the USITC classification.

The National Trade Estimate (NTE) Report on Foreign Trade Barriers is issued annually by the USTR. Its primary focus is on foreign barriers to US exports. The NTE is not a simple business survey. It is based upon information compiled within the USTR, the Department of Commerce and the Department of Agriculture and other US government agencies. It is supplemented with information provided in response to a notice published in the Federal Register (the official journal of the US Government), and with information from members of the private sector trade advisory committees and US embassies abroad. While each country is reviewed in a different way, the discussion typically focuses on individual measures by sector.

Global Trade Alert

In 2009, the Centre for Economic Policy Research (CEPR) teamed up with independent research institutes from around the world to create the Global Trade Alert (GTA) initiative.³³ Their objective was to increase the information available on state measures that may affect trading partners' commercial interests, broadly defined as imports, exports, foreign investments (including intellectual property), and foreign employees. CEPR believed that a combination of peer pressure plus up-to-date, comprehensive information would help avoid the historic mistakes of protectionism of previous eras. In addition to tracking government measures taken during the current global economic downturn, the GTA provides researchers and government officials with information on new patterns of state intervention that are problematic from the perspective of maintaining open borders.

Regional nodes, a network of independent research institutes and trade experts from all over the globe, are responsible for monitoring state measures introduced in their own region (and elsewhere). The GTA initiative also encourages third parties to submit measures for scrutiny, and welcomes dialogue with implementing jurisdictions concerning the measures they have introduced. The Evaluation Group, consisting of the leaders of the regional nodes and chaired by the representative of the network hub (CEPR), is responsible for assessing this information and deciding whether to publish it on the GTA website. The GTA does not confine itself to the measures that are covered by the existing body of WTO agreements. Nor does the initiative pronounce on the WTO legality of a measure or whether a measure is "protectionist".

2. Stylized facts about NTMs related to trade in goods

Currently available databases on non-tariff measures, despite the shortcomings discussed above, can be used to address important questions about trade in goods, including whether such measures have increased over time, how important SPS and TBT measures are compared with other types of NTMs, and how firms perceive the obstacles they face in international markets. This sub-section poses several such questions about NTMs and provides answers in the form of descriptive statistics in order to establish a number of stylized facts about NTMs. Only with a reliable set of facts can researchers hope to make progress in addressing more fundamental questions about NTMs.

(a) Is there evidence of an increasing medium- to long-term trend in NTMs?

To grasp the general trends in non-tariff measures since the mid-1990s, information was first collected from the UNCTAD TRAINS database.³⁴ Panel (a) of Figure C.2 presents the average share of product lines and share of trade value affected by NTMs for all countries for which information has been collected. As explained in more detail in Box C.1, these are inventory-based measures of the intensive margin (value of trade) and the extensive margin (number of lines affected) of trade covered by NTMs, respectively. The shares of lines and trade value covered by NTMs have increased between 1996-2000 and 2001-04, but there is no evidence of a further increase for the 2005-08 period.³⁵

It is well known that the TRAINS database suffers from inconsistent data collection across years. To address this problem, in Panel (b) of Figure C.2 the same information is presented for selected Latin American countries with the most complete NTM information in the database.³⁶ The qualitative results

are similar to the ones in Panel (a): the shares of lines and trade value covered by NTMs have increased between 1996-2000 and 2001-04, but there is no evidence of a further increase since the mid-2000s.

Beyond the well-known data limitations, the absence of conclusive evidence of an increasing use of non-tariff measures may be due to different trends of specific NTMs. The focus of this report is, however, on TBT/SPS measures. WTO internal sources of information on notifications and specific trade concerns can be used to display the trends in TBT/SPS measures since 1995. Figure C.3 shows the number of notifications to the WTO and the number of notifying countries since 1995 for both SPS and TBT measures. Both series exhibit upward trends.³⁷

As a caveat, it should be emphasized that WTO members do not have the obligation to notify all measures imposed, but only the new ones being introduced (see Section C.1). Moreover, the mechanism underlying such trends (increasing number of measures or increased compliance with WTO obligations) cannot be clearly identified.

The evidence of an upward trend in the number of SPS and TBT measures notified is supported by complaint-based information contained in the Specific Trade Concerns Database. In Figure C.4, the left axis represents the number of SPS concerns initiated and resolved per year.³⁸ The right axis represents the cumulative number of concerns. It is useful to distinguish between new and resolved concerns because new concerns may signal an increasingly adverse effect of measures or an increasing participation of countries in the specific trade concerns mechanism.³⁹ The rate at which concerns are resolved conveys (partial) information on the effectiveness of the mechanism. The figure shows that both the number of concerns initiated and the number of concerns resolved fluctuate widely between 1995 and 2010. However, due to the fact that the former number is larger than the latter in all years

Figure C.2: Shares of product lines and trade value covered by NTMs, 1996-2008 (percentage)

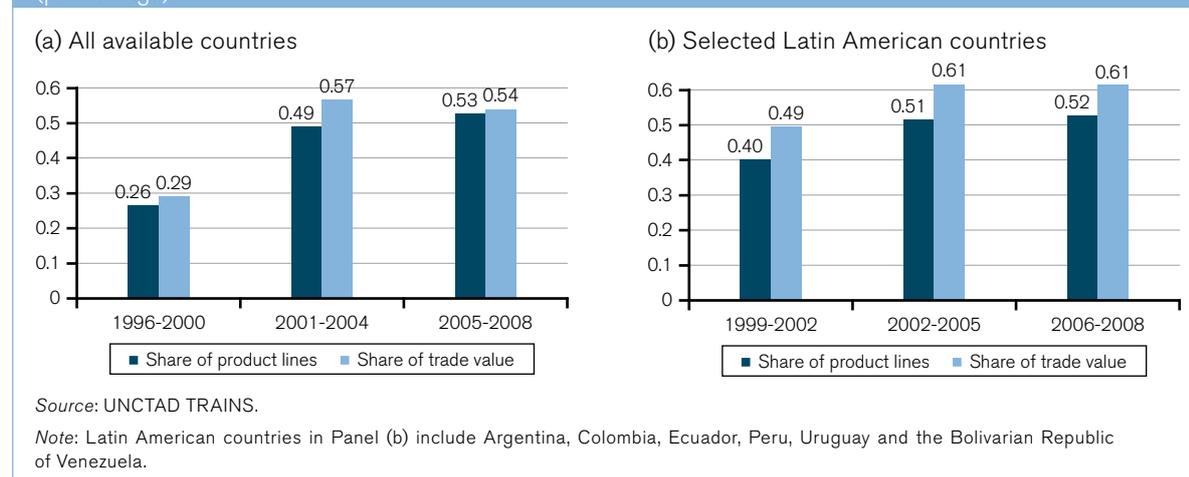
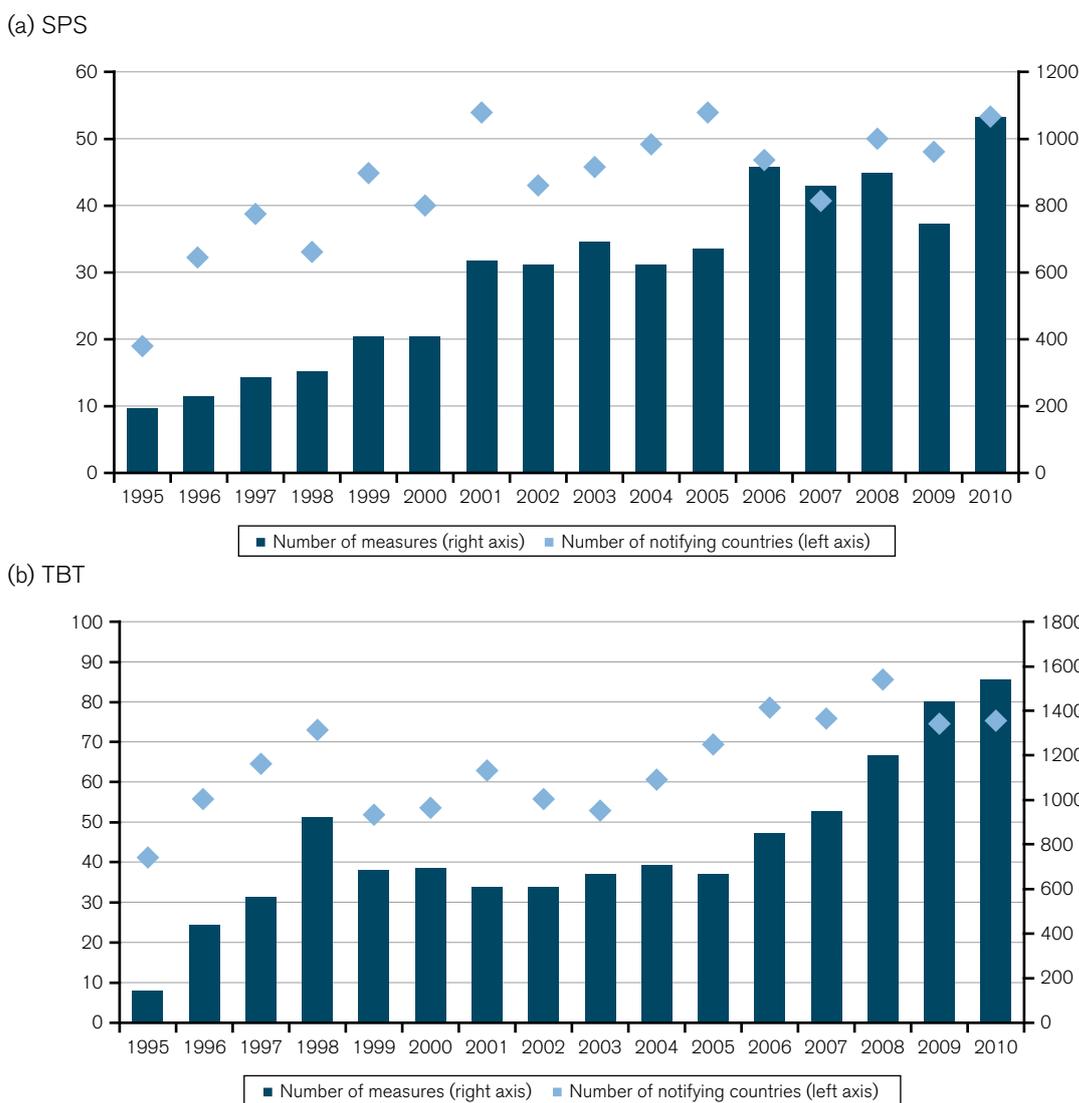


Figure C.3: SPS and TBT notifications, 1995-2010
(number of notifying countries and number of notified measures per year)



Source: WTO I-TIP database.

except 2004, the cumulative number of SPS concerns increases over time.

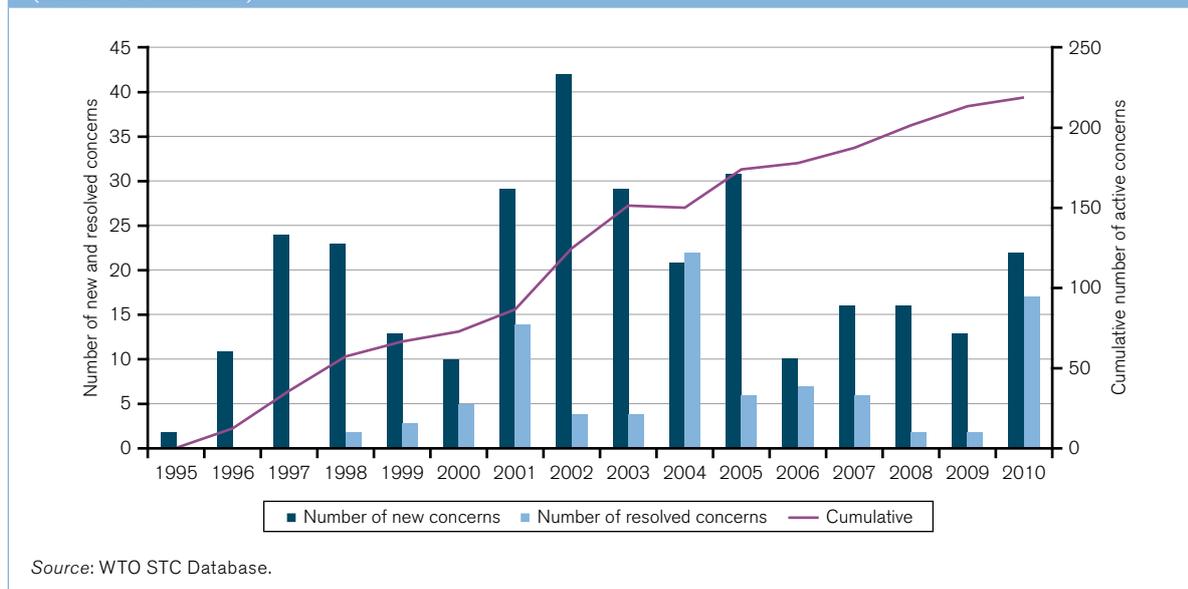
A total of 312 SPS specific trade concerns were raised between 1995 and 2010. Ninety-five (30 per cent) were reported as resolved by WTO members to the SPS Committee. Eighteen (6 per cent) were reported as partially resolved – meaning, for instance, that trade may have been allowed for selected products or by some of the members using the measure in question. No solutions were reported for the remaining 215 trade concerns (64 per cent). However, it is possible that some of these concerns were resolved without the SPS Committee being made aware of these developments. Therefore, the number of resolved concerns in Figure C.4 should be taken as a lower estimate. Table C.4 below documents the fact that disputes citing SPS measures have not increased over time, either as an annual total or as a share of all disputes. This

suggests that the specific trade concerns mechanism may be functioning better than the rising number of disputes and notifications in this area would suggest.

In the case of TBT specific trade concerns, only information on initiation of concerns, but not on their termination, is available. The data, shown in Figure C.5, indicate an upward trend in initiations (but with reductions between 1998 and 1999; 2002 and 2005; and 2009 and 2010).

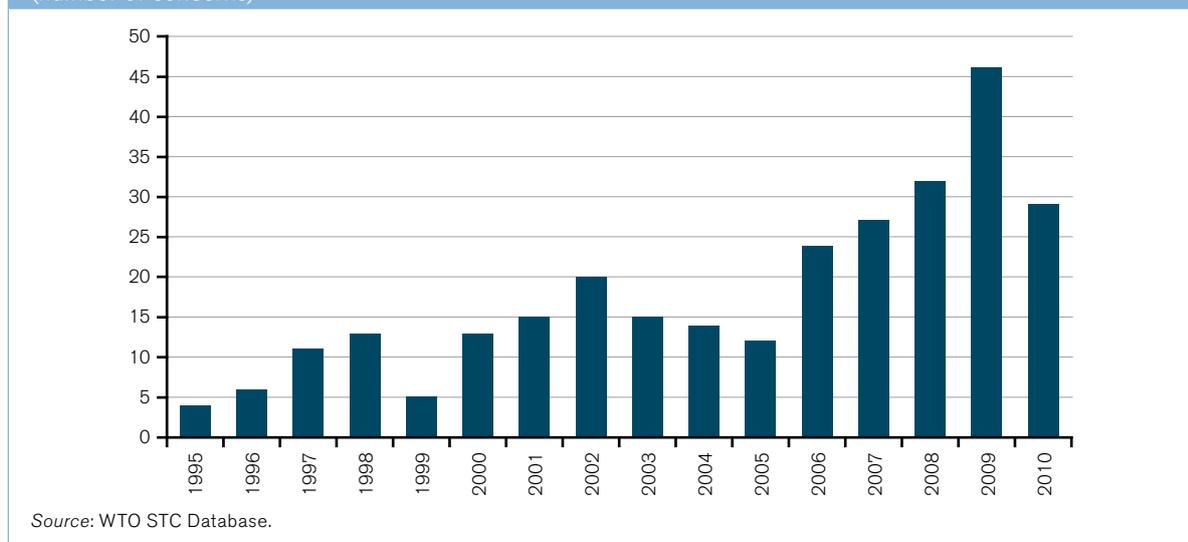
Consistent with the measures-based information from notifications, there is also some indication that an increasing number of countries is involved in raising specific trade concerns or maintaining TBT/SPS measures subject to STCs (see Figure C.6).⁴⁰ A key element is that developing countries are becoming important users of the system – an issue that will be explored in more detail in Section C.2(c).

Figure C.4: New and resolved SPS specific trade concerns, 1995-2010 (number of concerns)



Source: WTO STC Database.

Figure C.5: New TBT specific trade concerns, 1995-2010 (number of concerns)



Source: WTO STC Database.

Because the number of “resolved” concerns is based on an assumption in the case of TBT, the descriptive statistics on TBT are to be interpreted with some caution. Moreover, no direct comparison can be made between SPS concerns (upper panel) and TBT concerns (lower panel).

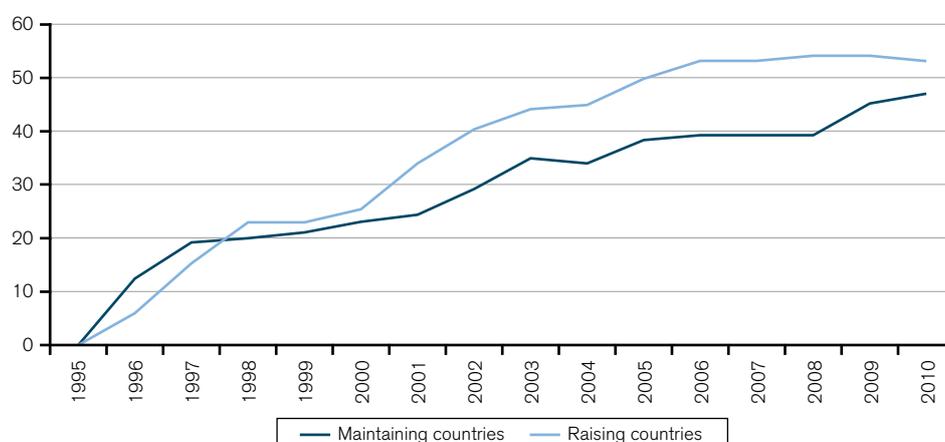
The specific trade concerns data can also provide information on the amount of trade affected by TBT/SPS concerns. Firstly, Figure C.7 shows the average amount of trade per concern initiated. The figure shows that, on average, the import value of an initiated trade concern has been quite stable since 1995, with the exception of two peaks at the end of each decade. In the case of SPS concerns, the peaks occurred in 1997-98 and in 2008. As for TBT concerns, there was a peak in 1999-2000 and another smaller one in 2010.⁴¹

These peaks are due to the filing of concerns involving a wide set of HS2 lines between two or more major trading countries. In the case of the SPS peaks, the first is mainly due to two separate concerns, one on pharmaceutical products raised by the United States, Switzerland, Brazil, Canada, Australia and others against the European Union in 1997, and another on dairy products raised by the European Union against Poland in 1998. The SPS peak in 2008 is mainly due to a complaint by the United States and China, among other countries, against Japan on meat, dairy and most vegetable products.

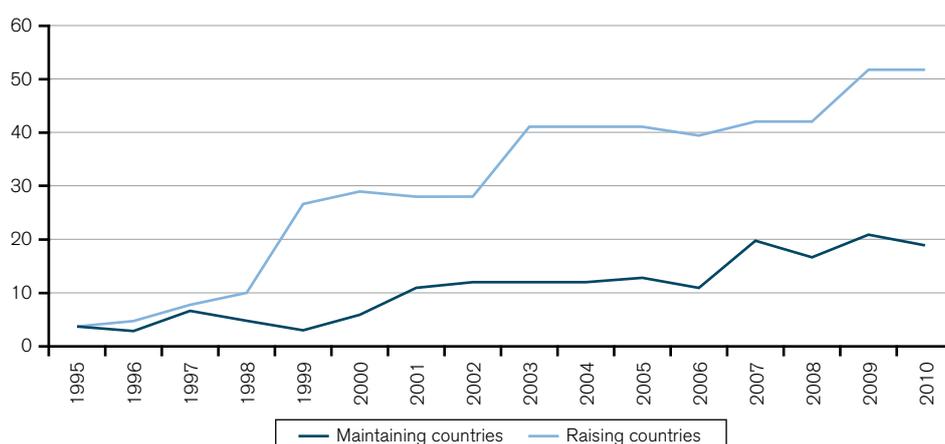
For TBT concerns, the earlier peak is also a “double peak” spanning the years 1999 and 2000. In 1999, a TBT concern was raised against the European Union by a large set of countries including the United States, China and Japan, involving a wide range of sectors

Figure C.6: Maintaining and raising countries in specific trade concerns, 1995-2010
(number of countries)

(a) SPS



(b) TBT



Source: WTO I-TIP database.

Note: In the TBT dataset, a concern is assumed to be "resolved" if not raised again for two or more years. A "raising" country is the one which complains about a TBT/SPS measure imposed by a "maintaining" country in the relevant WTO committee.

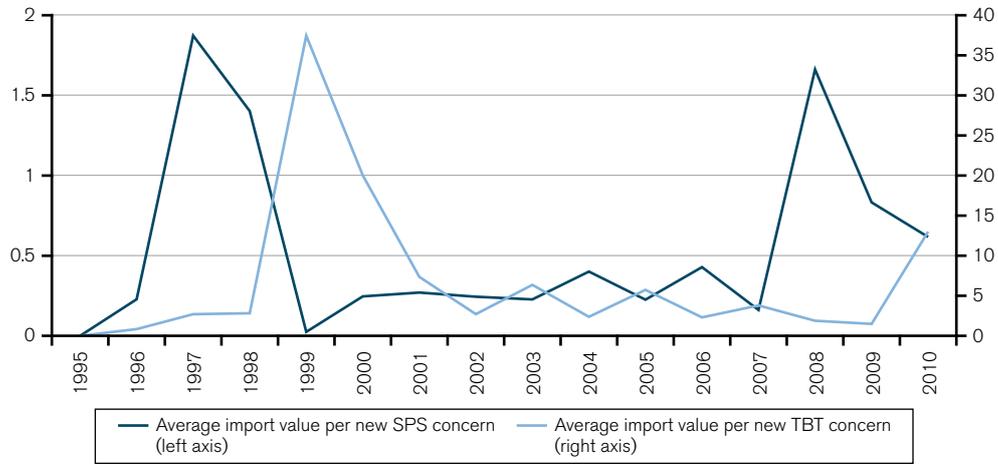
including miscellaneous chemical products, various metals, electrical machinery and toys. Another concern was raised in 2000 by the United States, Canada, Japan and others against the European Union on electrical machinery and instruments. Finally, a TBT peak in 2010 was mainly due to a concern raised by the European Union against the United States, involving a wide set of sectors, including chemicals and plastics.

Secondly, inventory-based measures of the incidence of non-tariff measures, namely frequency and coverage ratios, have been calculated (see Box C.1 for methodology). In this case, too, a specific trade concern in TBT is assumed to be "resolved" if, after its initiation, it is not raised again for two years; no direct comparison can be made between SPS concerns (see Figure C.8(a)) and TBT concerns (see Figure C.8(b)), especially on the absolute amount of trade covered. The

general message is, however, that frequency and coverage ratios are increasing (although not evenly), indicating that SPS and TBT measures subject to specific trade concerns are affecting an increasing number of product lines and an increasing amount of trade.⁴²

Evidence from disputes on trends in TBT/SPS measures is inconclusive. According to Santana and Jackson (2012), the number of disputes citing the SPS and TBT agreements fell between 1995 and 2011, but the drop was consistent with the overall decline in the number of disputes during this period (see Table C.4). Requests for consultations related to SPS measures fell from 18 in 1995-2000 to seven in 2007-11, but the share of SPS cases in the total number of disputes increased to 11 per cent from 9 per cent between these two periods. Disputes citing the TBT Agreement numbered 24 in the earlier period and just eight in the

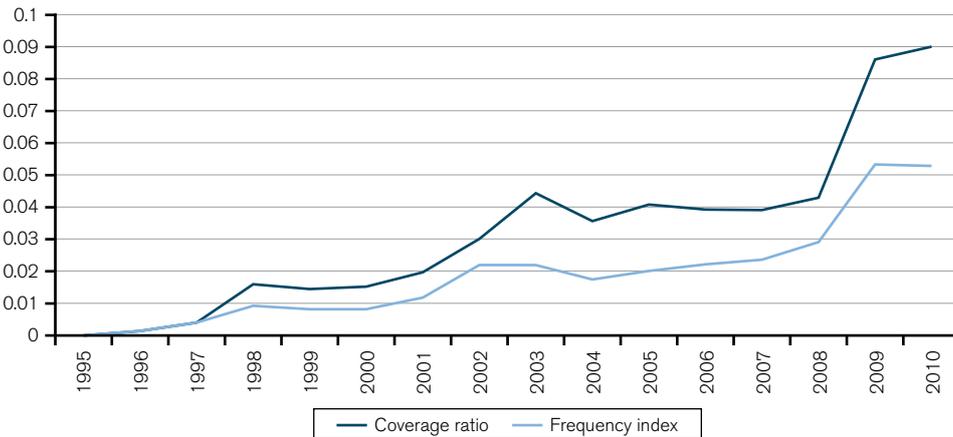
Figure C.7: Average value of initiated SPS and TBT concerns, 1995-2010 (US\$ billion)



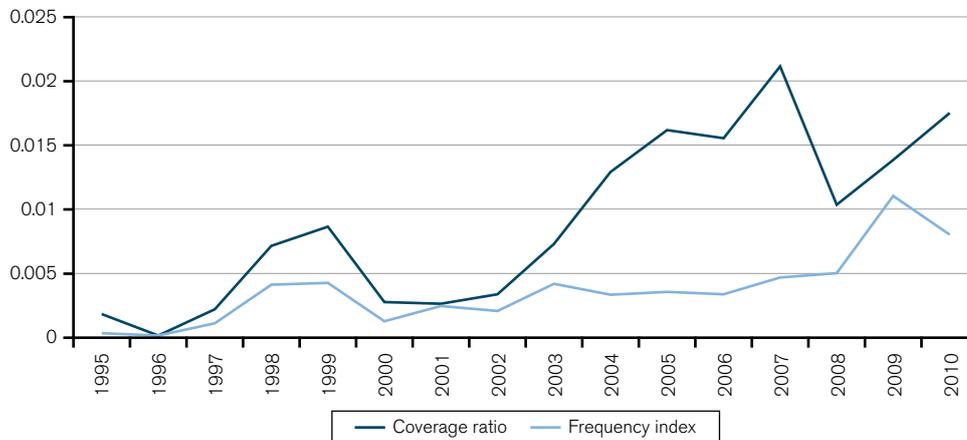
Source: WTO STC Database.

Figure C.8: Coverage ratio and frequency index of STCs aggregated by year, 1995-2010

(a) SPS



(b) TBT



Source: WTO I-TIP database.

Note: In the TBT dataset, a concern is assumed to be "resolved" if not raised again for two or more years.

latter one, but their share in total disputes was roughly the same in both periods, at 12 per cent. The percentage of disputes mentioning TBT measures fell to 4.5 per cent during the 2001-06 period before

returning to 12 per cent, so while there are some signs of a recent rise in this area, there is no indication of a longer-term trend.

Box C.1: Methodology for constructing indices from UNCTAD TRAINS and STC databases

The UNCTAD TRAINS database, as described in Appendix C.1, contains information on non-tariff measures by country and sector for HS6 product lines (a six-digit sub-heading in the Harmonized System classification) and year. Following Bora et al. (2002), for a given country c in a given year t , the share of import lines that are subject to NTMs is defined as follows:

$$SIL = \frac{\sum_i D_i M_i}{\sum_i M_i}$$

In the formula, i indexes HS6 products, D_i is a dummy variable taking value equal to one if an NTM is in place and M_i is a dummy variable equal to one if there are imports of product i .⁴³ The share of import values affected by NTMs is defined as follows:

$$SIV = \frac{\sum_i D_i V_i}{\sum_i V_i}$$

where V_i is the value of imports at the HS6 level and tariff line level and D_i is as above.

Simple averages over countries for each of the years are used. Thus, each year's share of import lines and share of trade value represents the average of a different sample of countries. However, the results with Latin American countries in Figure C.2 are based on a set of countries with information on the same years. Information on the countries to which the NTMs apply was not included. Therefore, the trade partner was chosen to be the world.

The STC Database contains bilateral information at the HS4 sector disaggregation (a four-digit heading in the Harmonized System classification level). The coverage ratio and the frequency index were computed using the following formulae:

$$CR_{c,HS2,t} = \frac{\sum_j \sum_{HS4 \in HS2} \text{imports under NTM}_{c,j,t,HS4}}{\sum_{HS4 \in HS2} \text{imports}_{c,j,t,HS4}}$$

$$FI_{c,HS2,t} = \frac{\sum_j \sum_{HS4 \in HS2} \text{number of positive imports flows under NTM}_{c,j,t,HS4}}{\sum_{HS4 \in HS2} \text{total number of positive imports flows}_{c,j,t,HS4}}$$

where c indexes maintaining countries, j indexes raising countries and t indexes time. In other words, CR is the share of trade under a complaint over total trade for country c , in sector $HS2$ (a two-digit chapter in the Harmonized System classification level) at time t . This is an inventory-based measure of the intensive margin of trade covered by NTMs. FI is the share of the number of product codes covered by a certain NTM over the total number of product codes for which import flows are positive. It is an inventory-based measure of the extensive margin of trade under NTMs. Note that the set of j countries is not the world, but rather the set of raising countries per specific trade concern. This is very different from the TRAINS data. Given this difference, it is not surprising that the shares of trade and lines covered computed from the TRAINS data is larger than the coverage ratios and frequency indexes computed from the STCs data.⁴⁴

For the descriptive statistics used in Section C.2, we average CR and FI across sectors within maintaining country c and time t , and then over all maintaining countries in year t . The former average is weighted by the HS2 sector import share in total imports of c . The latter is a simple average. The end result is a time-varying coverage ratio and frequency index.⁴⁵

It should be emphasized that these indexes are inventory-based measures that do not necessarily capture the trade restrictiveness of a measure, but just how much trade is affected by it (Section D.1 is concerned with the methods used to compute the trade restrictiveness of NTMs). When interpreting them, one has to take into account the issue of endogeneity. For the coverage ratio (or the share of import values affected), the problem is that the value of imports in a given product line is negatively affected by the NTMs imposed on it. For the frequency index (or the share of import lines affected), this endogeneity problem is attenuated, unless the measure eliminates trade altogether. However, this measure is less indicative of the overall and relative importance of the NTM.

Table C.4: Agreements cited in disputes related to trade in goods, 1995-2011
(percentage and number)

	1995-2000	2001-2006	2007-2011	1995-2011
Anti-dumping	16.0	29.1	29.2	22.6
Agriculture	19.1	14.9	13.8	16.8
Textiles and clothing	7.7	0.7	0.0	4.1
Customs valuation	4.6	2.2	4.6	3.8
GATT (adjusted) ^a	55.7	59.0	53.8	56.5
Government procurement	2.1	0.0	0.0	1.0
Import licensing	13.4	6.0	1.5	8.9
Rules of origin	1.5	1.5	3.1	1.8
Subsidies and countervailing measures	19.6	25.4	24.6	22.4
Safeguards	6.2	17.2	6.2	9.9
Sanitary and phytosanitary measures	9.3	9.0	10.8	9.4
Technical barriers to trade	12.4	6.0	12.3	10.2
Trade-related investment measures	8.2	4.5	6.2	6.6
Total number of disputes in goods	194	134	65	393

Source: WTO Secretariat estimates.

Note: Although there were 427 requests for consultations filed under the Dispute Settlement Understanding as of 31 December 2011, this table focuses on 393 disputes in goods, i.e. it excludes 25 disputes with claims mainly involving TRIPS and nine disputes with claims mainly involving the GATS.

^aThis table follows the methodology of Santana and Jackson (2012) to eliminate duplicate citations of the GATT.

- (b) Are TBT/SPS measures more prevalent than other types of non-tariff measures?

(i) *Evidence from official sources*

Recent analysis by the United Nations Conference on Trade and Development (UNCTAD) (2012), using newly collected data on non-tariff measures in 30 developing countries plus the European Union and Japan suggests a significant prevalence of TBT and SPS measures over other NTMs. Together, they cover more products and trade value than “hard measures”, such as price and quantity control measures. This analysis, using the new classification of NTMs discussed in Section C.1, includes separate sub-categories allowing TBT and SPS measures to be distinguished. The former are more prevalent than the latter – a fact that is in line with the descriptive evidence on the number of measures notified to the WTO (see Figure C.3). In particular, the average country imposes TBT measures on about 30 per cent of products and trade and SPS measures on about 15 per cent of products and trade.⁴⁶

(ii) *Evidence from business surveys*

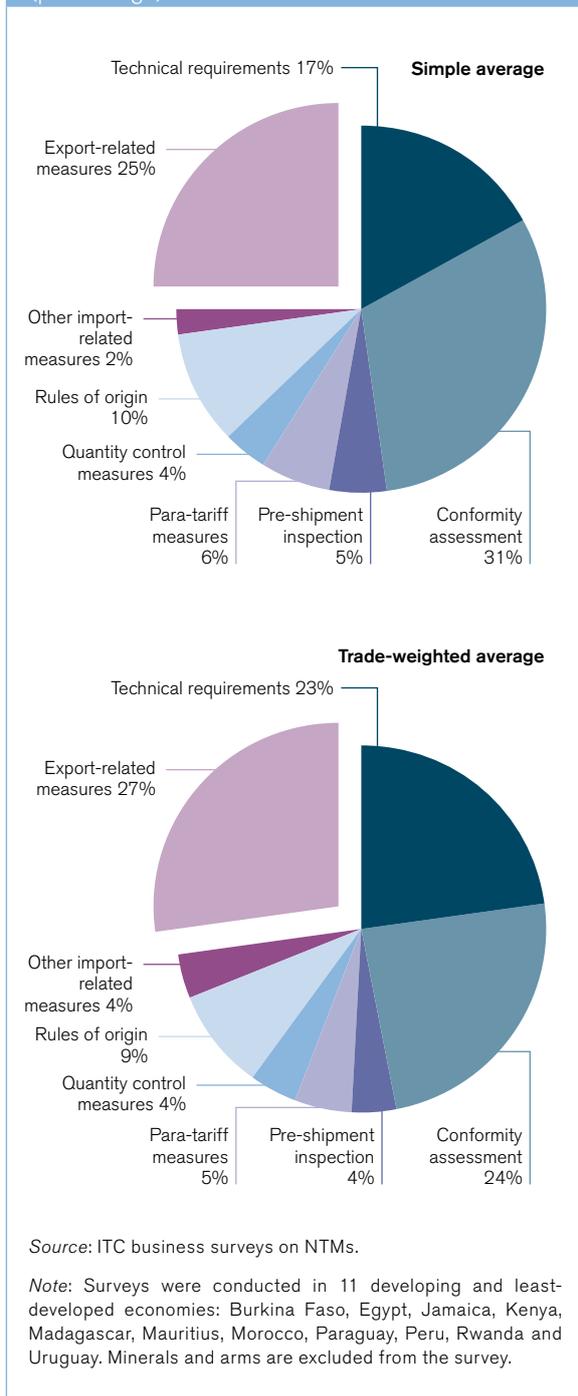
The ITC business surveys provide further evidence of the predominance of TBT/SPS measures in non-tariff measures, or at least in those NTMs perceived as burdensome by firms in the 11 developing and least-developed countries where surveys have been conducted. The data classification used in the surveys is similar but not identical to the multi-agency classification outlined in Table C.2 and Table C.3. TBT and SPS measures are not shown separately in the ITC surveys due to the difficulty of distinguishing these measures from survey responses, but taken together

they correspond to the sum of the categories “technical requirements” and “conformity assessment”. Reports of burdensome NTMs include both measures applied by importing countries and measures imposed by the home country. The former are referred to as “import-related measures” while the latter are classified as “export-related measures”.

Figure C.9 shows the breakdown of reported non-tariff measures by type of measure averaged over the 11 countries surveyed to date. Since some countries are larger than others, a simple average (i.e. the arithmetic mean) may give undue weight to smaller countries at the expense of larger ones. However, using a trade-weighted average (taking the value of each country’s exports in 2010 as weights) does not appear to have a major impact on shares.

The share of technical requirements in total non-tariff measures is somewhat smaller when the simple average is used (17 per cent) than when the trade-weighted average is used (23 per cent), but the reverse is true for conformity assessment (31 per cent compared with 24 per cent). The sum of these two categories is roughly the same in either case (around 48 per cent), which means that TBT/SPS measures comprise nearly half of all NTMs, including export-related measures. Their share in import-related measures is even higher at around 64 per cent, regardless of the weighting structure. Of all “challenging” NTMs reported by exporting companies, about 75 per cent are applied by partner countries and 25 per cent by home countries. Around 10 per cent of firms report a negative impact on their business from rules of origin, whereas other measures are seen as less challenging.

Figure C.9: Burdensome NTMs by type of measure, 2010 (percentage)



The ITC data can be further broken down by sub-category of non-tariff measures. These are shown in Figure C.10 for TBT/SPS measures (i.e. technical requirements plus conformity assessment). Product certification, which is perceived as burdensome by 37 per cent of reporting firms, is the most frequently cited type of measure in this group. It is followed by product testing at 9 per cent, and inspection requirement at 8 per cent. Together, these three NTM sub-types are responsible for more than half of all firm complaints about TBT/SPS measures.

Complying with product certification requirements in export markets can entail significant costs for exporting firms. Some recent numerical examples of these costs are summarized in Section D, Box D.5. These examples relate to costs confronting firms exporting from the United States, but product certification may pose an even greater challenge for exporters located in developing and least-developed economies, since they may have fewer financial and institutional resources to draw upon than firms in developed countries.

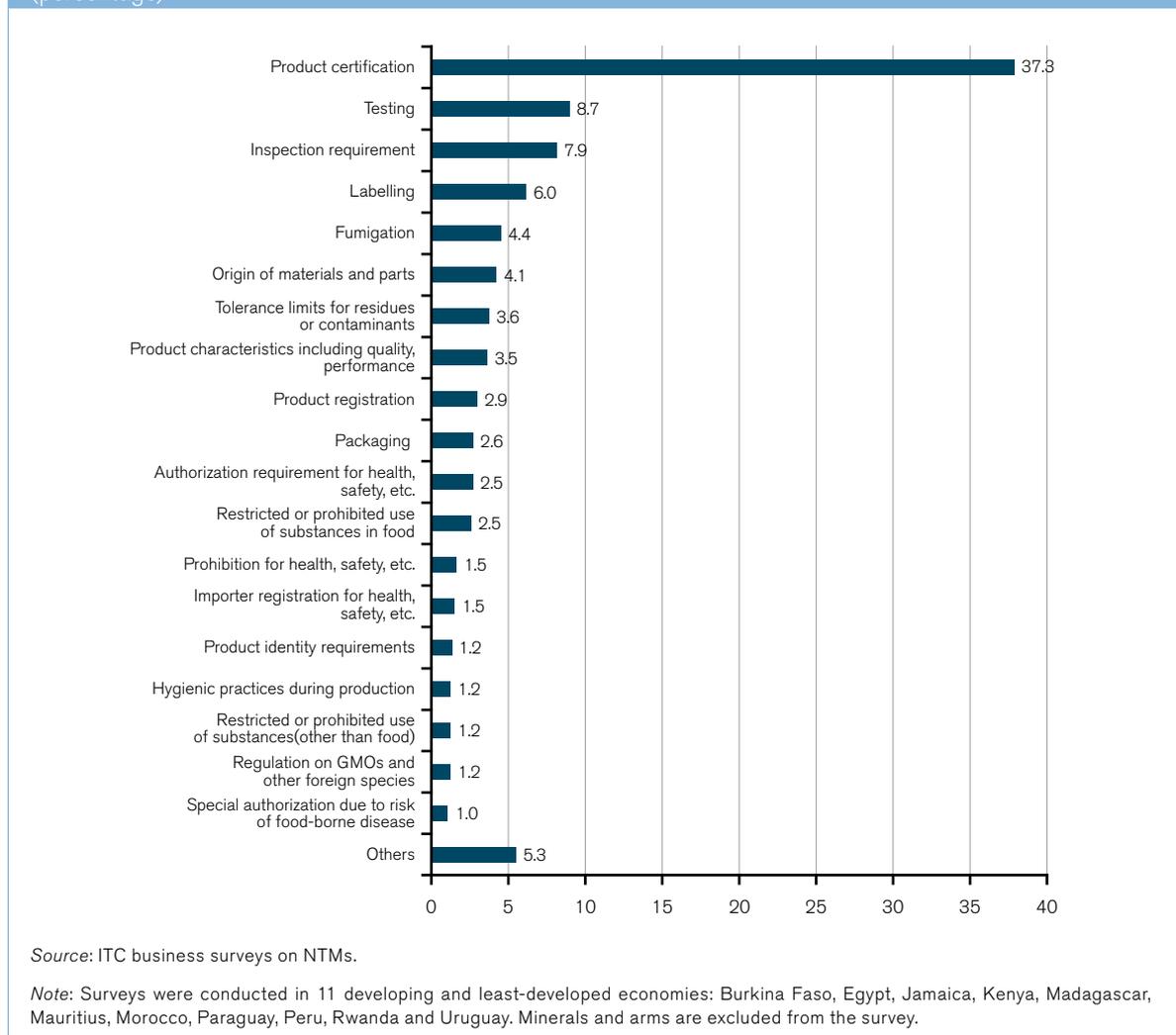
Problems relating to home country certification of exports are nearly as extensive for firms as certification in destination countries, as can be seen in Figure C.11. The export-related measures most frequently cited by firms are certification requirements (26 per cent), export inspection (23 per cent) and obtaining export licences/permits (13 per cent). Together, these three categories account for more than 60 per cent of firm complaints about export-related measures.

As noted in Section C.1, the ITC surveys are based on interviews with firms in a small number of developing economies, and as a result the responses do not represent the concerns and experiences of businesses in developed countries. The three largest developed economies (the United States, the European Union and Japan) all collect data and issue reports on trade barriers facing their exporters in foreign markets, but in general these figures are not publicly available in a format that is amenable to empirical analysis. This situation has been partly remedied by researchers at the US International Trade Commission, Martinez et al. (2009), whose CoRe NTM database merges business surveys from the United States and the European Union with information from WTO trade policy reviews using a single (idiosyncratic) data classification. Figure C.12 makes use of this database, but it excludes the WTO figures in order to focus solely on the concerns of developed economy exporters.

Data for the United States are sourced from the US National Trade Estimate (NTE) while figures for the European Union come from the EU's Market Access Database. Strictly speaking, the US NTE is not a survey, but rather a report based on the findings of several US government agencies and embassies abroad, as well as from private firms. However, the figures should still provide important insight into the priorities of American exporters.

The top five problems facing US exporters are import-related measures (24 per cent), investment measures (20 per cent), standards and testing (12 per cent), SPS measures (10 per cent) and intellectual property rights (9 per cent). The leading concerns of EU firms are SPS measures (35 per cent), standards and testing (16 per cent), anti-competitive practices (9 per cent), intellectual property rights (7 per cent) and import-

Figure C.10: TBT/SPS import-related measures by sub-type, 2010 (percentage)



related measures (6 per cent). The sum of “SPS measures” and “standards and testing” in Figure C.12 should be roughly equivalent to TBT/SPS measures as defined in Section A.1. TBT/SPS measures appear to be a major concern for the European Union, representing more than half (52 per cent) of all issues reported by EU exporters. However, the equivalent share for the United States is much lower, at 22 per cent. Reasons for this disparity are unclear, but it could be attributable to differences in methodology between the US NTE data and the EU’s Market Access Database.

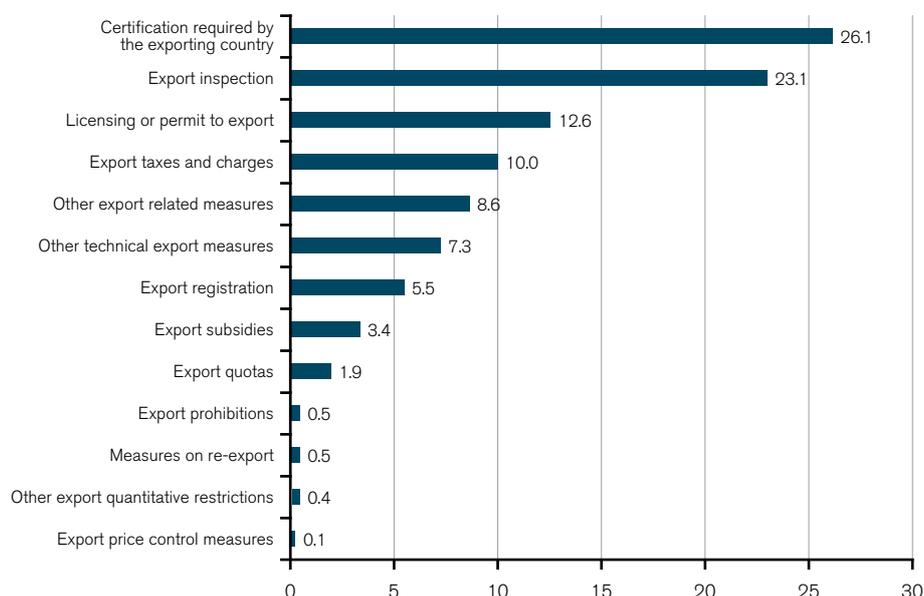
An important difference between the ITC surveys and the US/EU reports is the relatively high importance attached to intellectual property rights by the large developed economies. According to the CoRe NTM data, intellectual property rights account for 9 per cent of complaints from US exporters and 7 per cent of complaints from EU firms. On the other hand, just 0.3 per cent of firms reporting burdensome NTMs in the ITC surveys cited intellectual property as a problem.

The data on disputes in Table C.4 show that requests for consultations citing the SPS and TBT agreements respectively represented 11 per cent and 12 per cent of all cases over the last five years. Although these shares are not exactly small, other agreements were cited more often, including GATT-adjusted (54 per cent), anti-dumping (29 per cent), subsidies/countervailing measures (25 per cent) and the Agreement on Agriculture (14 per cent). This could lead one to conclude that firms’ complaints about TBT/SPS measures do not necessarily translate into government action at the level of the multilateral trading system. On the other hand, it could also be taken as evidence that the specific trade concern mechanism may be resolving complaints before they develop into fully-fledged trade disputes.

- (c) Is there any difference in NTM use between developed and developing economies?⁴⁷

The STC Database sheds light on the type of countries most involved in the mechanism. Figure C.13 presents

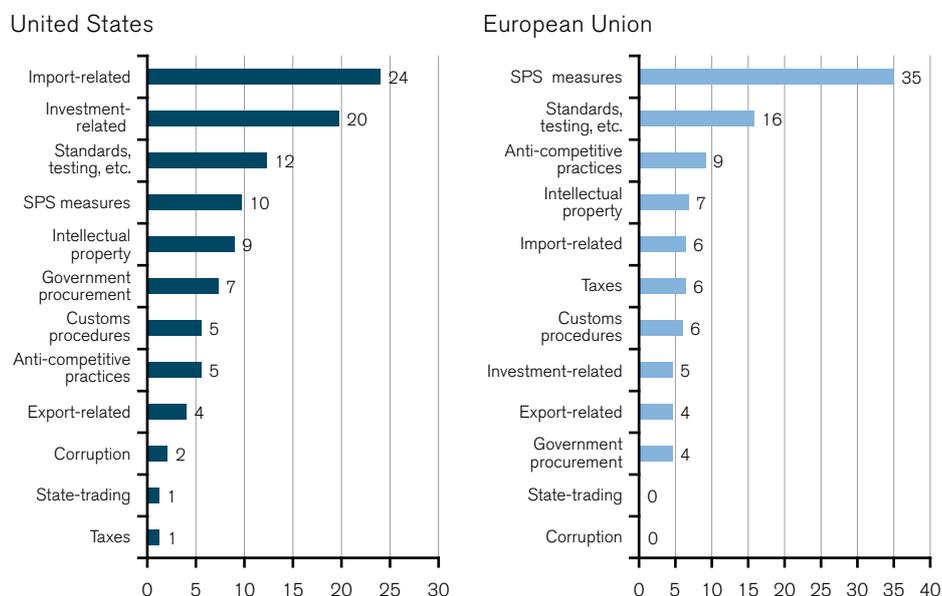
Figure C.11: NTMs applied by home country on exports by sub-type, 2010 (percentage)



Source: ITC business surveys on NTMs.

Note: Surveys were conducted in 11 developing and least-developed economies: Burkina Faso, Egypt, Jamaica, Kenya, Madagascar, Mauritius, Morocco, Paraguay, Peru, Rwanda and Uruguay. Minerals and arms are excluded from the survey.

Figure C.12: Non-tariff measures facing US and EU exporters, 2009 (percentage)

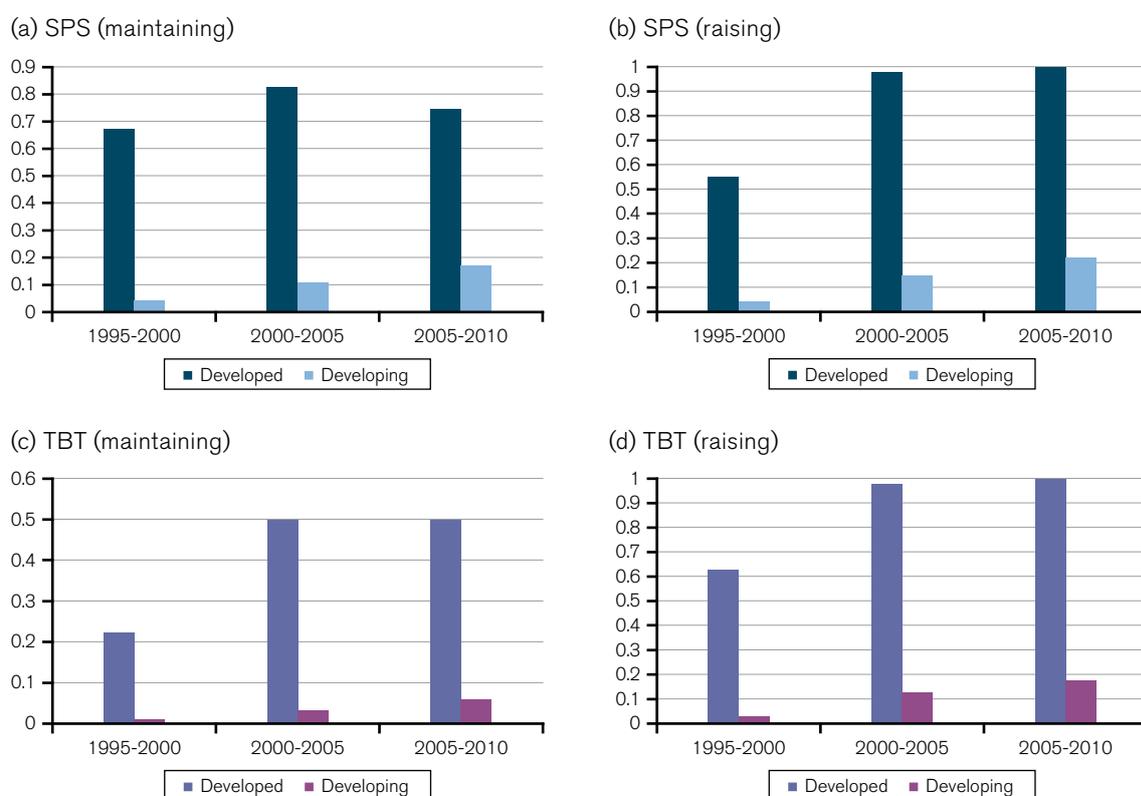


Source: Martinez et al. (2009).

the number of “maintaining” and “raising” countries by income group, calculated as their share in the total number of countries in the respective income group.⁴⁸ The results are clear-cut: developed countries participate more in the specific trade concerns mechanism than developing countries. Moreover,

econometric analysis shows that the amount of trade covered by concerns (coverage ratio and frequency index) is higher when the maintaining country is developed than when the maintaining country is developing, both for SPS and for TBT measures subject to specific trade concerns.⁴⁹ However, the

Figure C.13: Number of STC “maintaining” and “raising” countries as a share of the total number of countries by level of development, 1995-2010 (percentage)



Source: WTO STC Database.

Note: In the TBT dataset, a concern is assumed to be “resolved” if not raised again for two or more years. A “raising” country is the one which complains about a TBT/SPS measure imposed by a “maintaining” country in the relevant WTO committee.

participation of developing countries has steadily increased over the years, not only as raising countries but also as maintaining countries.

The ITC business surveys also find greater use of TBT/SPS measures by developed economies. Figure C.14 shows the share of TBT/SPS measures (i.e. technical requirements plus conformity assessment) in import-related non-tariff measures, broken down by level of development. According to this figure, around three-quarters of burdensome NTMs reported by firms relate to TPT/SPS measures when the importing country is developed, whereas this share falls to around half when the importing country is developing.

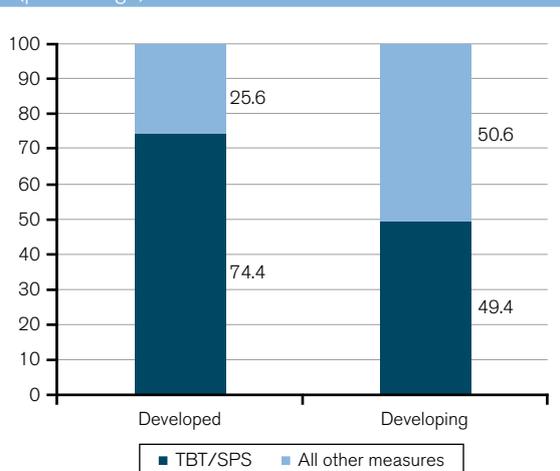
Other survey-based evidence suggests that intra-regional trade between African countries may be subject to a very different set of non-tariff measures. In support of efforts to establish a tri-partite free trade area between the Common Market for Eastern and Southern Africa (COMESA), the East African Community (EAC) and the Southern African Development Community (SADC), an online reporting system has been set up to register complaints about

NTMs and to seek resolution through a consultation process. Kalenga (2012) reviews complaints submitted to the online system between 2008 and 2011 and finds that administrative procedures are the most common source of problems for traders, while TBT/SPS measures play a minor role (see Table C.5). “Customs and administrative entry procedures” were cited in 41 per cent of complaints and “Other procedural problems” were mentioned in another 24 per cent of cases, for a combined total of 65 per cent. SPS and TBT measures were only responsible for 7 per cent and 5 per cent of complaints, respectively, for a total of 12 per cent. This combined share is the same as the share for “Specific limitations”, a category that includes quantitative restrictions and prohibitions. It is difficult to draw strong conclusions from such a small and possibly non-representative sample, but the data do suggest that TBT/SPS measures are much less widely used than other measures between African countries.

(d) Does the incidence of NTMs vary across sectors?

As discussed in Section B, there are good reasons to expect the use of non-tariff measures to vary

Figure C.14: Burdensome NTMs applied by partner countries by level of development, 2010 (percentage)



Source: ITC business surveys on NTMs.

Note: Surveys were conducted in 11 developing and least-developed economies: Burkina Faso, Egypt, Jamaica, Kenya, Madagascar, Mauritius, Morocco, Paraguay, Peru, Rwanda and Uruguay. Minerals and arms are excluded from the survey.

significantly across sectors. Indeed, NTMs appear to affect certain sectors disproportionately, but the extent of the impact is sensitive to the way that sectors are defined. Unfortunately, there is considerable scope for confusion due to the existence of multiple competing statistical definitions. For example, at least three definitions of agricultural products are widely used: the definition from the WTO Agreement on Agriculture (AOA), the definition that appears in the WTO's statistical publications based on the Standard International Trade Classification (SITC), and the first 24 chapters of the Harmonized System (HS) trade nomenclature.

The AOA definition is the narrowest as it reflects negotiating concerns rather than analytical requirements. The SITC-based WTO definition is the

broadest, but it is poorly suited to empirical research since tariffs are generally defined in terms of the HS classification. Chapters 1 to 24 of the HS classification represent a reasonable compromise between an intuitive understanding of what constitutes agricultural products and analytical tractability. For this reason, it is adopted as our standard definition, with non-agricultural products defined negatively as all other products. This should not be confused with non-agricultural products as used in on-agricultural market access (NAMA) negotiations, which are defined as all non-AOA products. The main difference between these definitions is the treatment of fish and fish products, which are taken to be agricultural products in this report but are treated as non-agricultural products in AOA/NAMA. Neither the AOA nor the HS definition includes wood, which may be highly relevant to the SPS Agreement since wood products have been known to harbour invasive species that can be highly damaging to the importing country.⁵⁰

Using the STC Database, one can get a sense of the type of sectors most affected by specific trade concerns. A first distinction is between the agriculture and non-agricultural sectors. Concerns about SPS measures overwhelmingly affect the agriculture sector (251 of the 267 specific trade concerns for which an HS sector could be identified, that is 94 per cent).⁵¹ For TBT measures, out of the 283 specific trade concerns for which an HS sector could be identified, 82 (29 per cent) are in agriculture and 184 (65 per cent) in other sectors.⁵² However, econometric analysis shows that the coverage ratio and the frequency index of TBT measures subject to specific trade concerns are higher in agricultural sectors than non-agricultural ones.⁵³

For both SPS and TBT measures, frequency indexes and coverage ratios are lower in sectors characterized by a higher incidence of intermediate products.⁵⁴ As argued in Section B, the theory of trade agreements under offshoring predicts that, in the presence of trade

Table C.5: Complaints about NTMs in COMESA-EAC-SADC, 2008-11 (number and percentage)

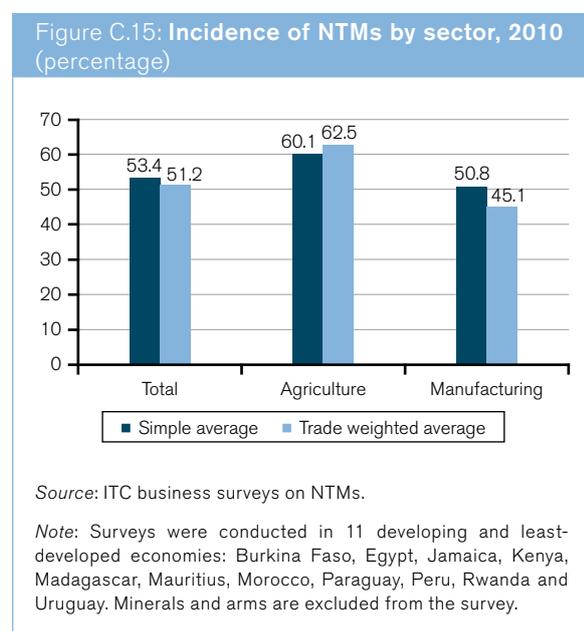
	Number of complaints	Share in total
1: Government participation in trade and restrictive practices tolerated by governments	37	10
2: Customs and administrative procedures	151	41
3: Technical barriers to trade (TBT)	19	5
4: Sanitary and phytosanitary (SPS) measures	24	7
5: Specific limitations	43	12
6: Charges on imports	7	2
7: Other procedural problems	87	24
Total	368	100

Source: COMESA-EAC-SADC online NTM complaint system, Kalenga (2012).

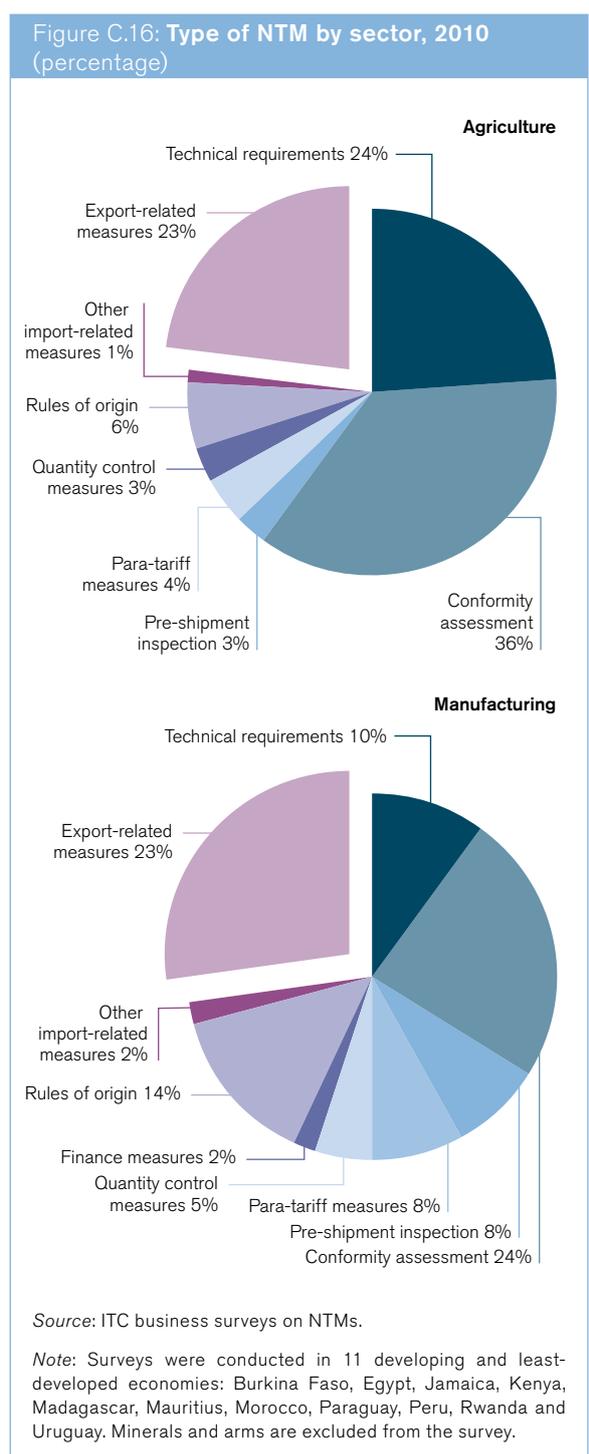
in intermediate inputs and bilateral price bargaining between foreign suppliers and domestic buyers, the level of the behind-the-border non-tax regulatory policies applied to foreign exports is set higher than would be efficient, because of rent-shifting (i.e. shifting profits from the foreign to the domestic producer) (Staiger, 2012).⁵⁵ The regressions of the incidence of TBT/SPS measures on the sectoral share of intermediate products do not constitute a rigorous test of the theory of trade agreements under offshoring. Such a test would require detailed data on the intensity of intermediate products and the amount of bilateral bargaining. However, the result that the amount of trade covered by specific trade concerns is lower in intermediate-intensive sectors seems to indicate that motivations other than rent-shifting may drive the use of TBT/SPS measures in these sectors (see Section E.4 for a detailed discussion).

Evidence that agricultural products are disproportionately affected by non-tariff measures is echoed in the ITC business surveys and illustrated by Figure C.15, which shows the incidence of burdensome NTMs by sector of the reporting firms.⁵⁶ In total, about 53 per cent of businesses said they were negatively affected by NTMs or related obstacles to trade, but this share was higher for businesses in the agricultural sector (60 per cent) and lower among manufacturing firms (51 per cent). These shares were calculated by taking the simple average over the 11 available countries in the ITC surveys, but the contrast between agriculture and manufacturing is somewhat stronger when averages are weighted by exports in each sector. In this case, the incidence of NTMs in agriculture was 63 per cent, whereas it was only 45 per cent for manufacturing.

Not only is the incidence of non-tariff measures higher in the agricultural sector, but different types of



measures are also used compared with the manufacturing sector. Figure C.16 shows the distribution of NTMs by type of measure in agriculture and manufacturing. Exporters of agricultural products report more problems related to TBT/SPS measures (i.e. technical requirements plus conformity assessment) than exporters of manufactured goods (59 per cent for the former, 34 per cent for the latter). On the other hand, pre-shipment inspection, para-tariff measures⁵⁷ and rules of origin (i.e. laws, regulations and administrative procedures which determine a product's country of origin) are comparatively more



challenging for exporters of non-agricultural products. Export-related measures seem to present fewer problems for agricultural exporters than for manufacturers, since the share of these measures in all reported NTM cases is 4 percentage points lower in the agricultural sector (23 per cent) than in manufacturing (27 per cent).

Data on disputes from Santana and Jackson (2012) also point to a higher incidence of TBT/SPS measures in agricultural products (AOA definition) than in non-

agricultural products (see Table C.6). SPS and TBT measures were both cited in 28 per cent of disputes during the 2007-11 period, whereas disputes involving non-agricultural products only mentioned the TBT Agreement 3 per cent of the time and the SPS Agreement not at all. This 28 per cent share in citations was greater than for any other agreement other than the General Agreement on Tariffs and Trade (GATT), which was mentioned in 60 per cent of cases after adjustment to eliminate duplicate citations. TBT/SPS citations in agriculture-related disputes have

Table C.6: Agreements cited in disputes related to trade in agricultural and non-agricultural products^a (percentage and number)

	1995-2000	2001-2006	2007-2011	1995-2011
Agricultural products (AoA definition)				
Anti-dumping	12.3	11.1	12.0	11.8
Agriculture	45.6	31.5	24.0	36.0
Textiles and clothing	1.8	0.0	0.0	0.7
Customs valuation	7.0	1.9	8.0	5.1
General Agreement on Tariffs and Trade (GATT)	59.6	61.1	60.0	60.3
Import licensing	24.6	9.3	0.0	14.0
Rules of origin	1.8	0.0	8.0	2.2
Subsidies and countervailing measures	7.0	20.4	16.0	14.0
Safeguards	8.8	18.5	0.0	11.0
Sanitary and phytosanitary measures	17.5	20.4	28.0	20.6
Technical barriers to trade	17.5	7.4	28.0	15.4
Trade-related investment measures	7.0	5.6	0.0	5.1
Total number of agriculture disputes	57	54	25	136
Non-agricultural products (NAMA)				
Anti-dumping	22.0	42.6	47.1	33.2
Agriculture	0.0	1.5	0.0	0.5
Textiles and clothing	12.0	1.5	0.0	6.4
Customs valuation	2.0	0.0	0.0	1.0
GATT (adjusted) ^b	47.0	54.4	41.2	48.5
Government procurement	2.0	0.0	0.0	1.0
Import licensing	2.0	2.9	2.9	2.5
Rules of origin	2.0	2.9	0.0	2.0
Subsidies and countervailing measures	25.0	30.9	20.6	26.2
Safeguards	7.0	19.1	11.8	119.0
Sanitary and phytosanitary measures	6.0	0.0	0.0	3.0
Technical barriers to trade	13.0	4.4	2.9	8.4
Trade-related investment measures	12.0	4.4	5.9	8.4
Total number of non-agriculture disputes	100	68	34	202

Source: WTO Secretariat estimates.

Note: Although there were 427 requests for consultations filed under the Dispute Settlement Understanding as of 31 December 2011, this table focuses on 393 disputes in goods, i.e. it excludes 25 disputes with claims mainly involving TRIPS and nine disputes with claims mainly involving the GATS.

^aThe breakdown by agriculture/non-agriculture is based on Santana and Jackson (2012). The table excludes 55 disputes involving "generic or mixed" products.

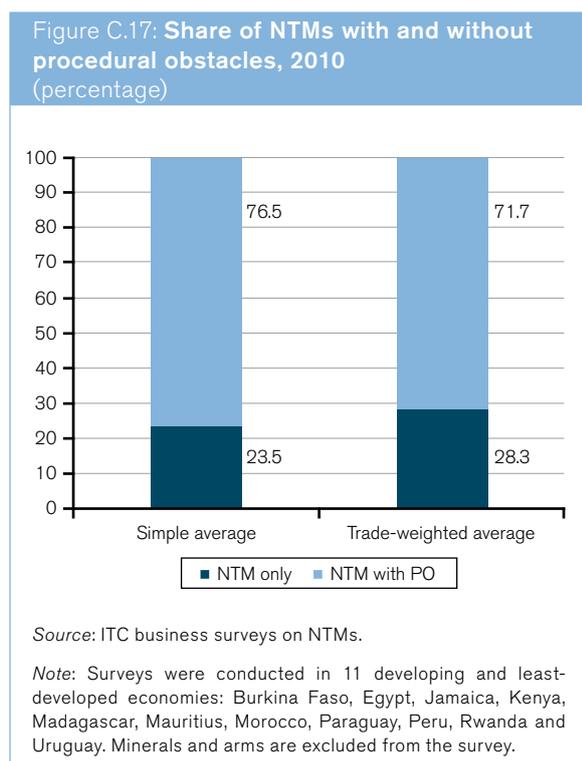
^bThis table follows the methodology of Santana and Jackson (2012) to eliminate duplicate citations of the GATT.

also increased over time, rising from 18 per cent in 1995-2001 to 28 per cent in 2007-11.

(e) What kinds of procedural obstacles are associated with NTMs?

Non-tariff measures pose many challenges for exporting firms, but more often than not it is the manner of implementation rather than the measure itself that causes problems for businesses. As noted in Section C.1, these implementation issues are referred to as “procedural obstacles” in the new multi-agency data classification on NTMs. For example, a country could have very high standards for imported goods, making it difficult for exporters to comply with these standards. On the other hand, exporters that managed to comply with the regulations might still have problems demonstrating their compliance, or else might face long delays before their goods are admitted into the importing country. In the first case, an exporter could perceive the NTM itself to be the main impediment to trade, whereas in the second case they might view the procedural obstacle as the source of their difficulty.

In practice, data on procedural obstacles can only be collected through surveys such as the ITC business surveys. Figure C.17 shows shares of reported non-tariff measures in the ITC surveys with and without procedural obstacles associated with them. The average share of procedural obstacles is 77 per cent if we take the simple average over the 11 countries where surveys have been conducted. The use of a trade-weighted average reduces this share slightly to 72 per cent.



The types of procedural obstacles that businesses report are shown in Figure C.18. The most commonly mentioned obstacle is “time constraints”, including delays related to regulations and short deadlines for submitting documentation. This accounts for 35 per cent of reported obstacles, followed by “high/informal payments” at 22 per cent, and “administrative burdens” at 17 per cent. There are smaller shares for other reported procedural obstacles.

The incidence of procedural obstacles varies widely across different types of non-tariff measures (see Figure C.19). For example, nearly 80 per cent of firms reporting burdensome conformity assessment measures also encountered procedural obstacles. On the other hand, the incidence of procedural obstacles in technical requirements was just 55 per cent. Procedural obstacles were reported less frequently for government procurement restrictions (0 per cent), subsidies (also 0 per cent) and price control measures (25 per cent), including anti-dumping and countervailing measures. They occurred most frequently in measures related to intellectual property (100 per cent) and export-related measures (88 per cent).

(f) How have NTMs evolved since the global financial crisis?

The sharp declines in global trade and output that followed the financial crisis in 2008-09 raised fears of a re-run of the 1930s, when protectionism exacerbated and prolonged the Great Depression. Efforts by the WTO and others to monitor trade policy developments in the aftermath of the crisis initially found that most countries had managed in 2009-10 to avoid the worst

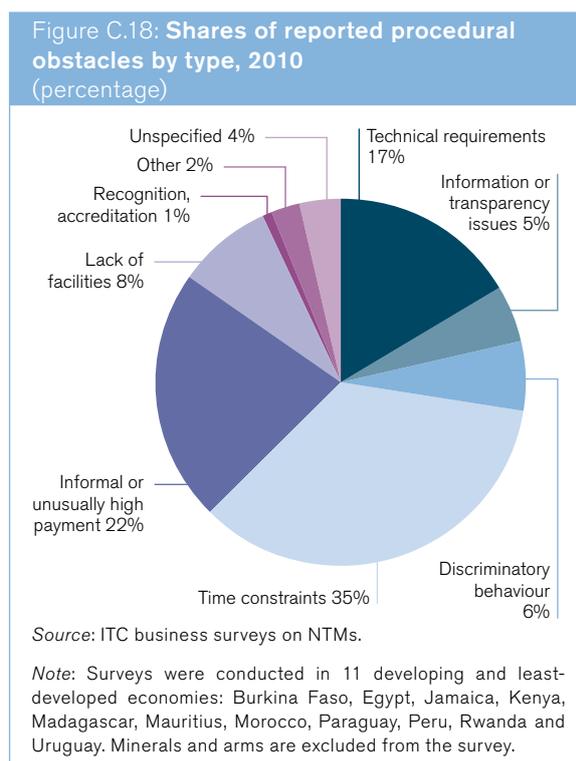
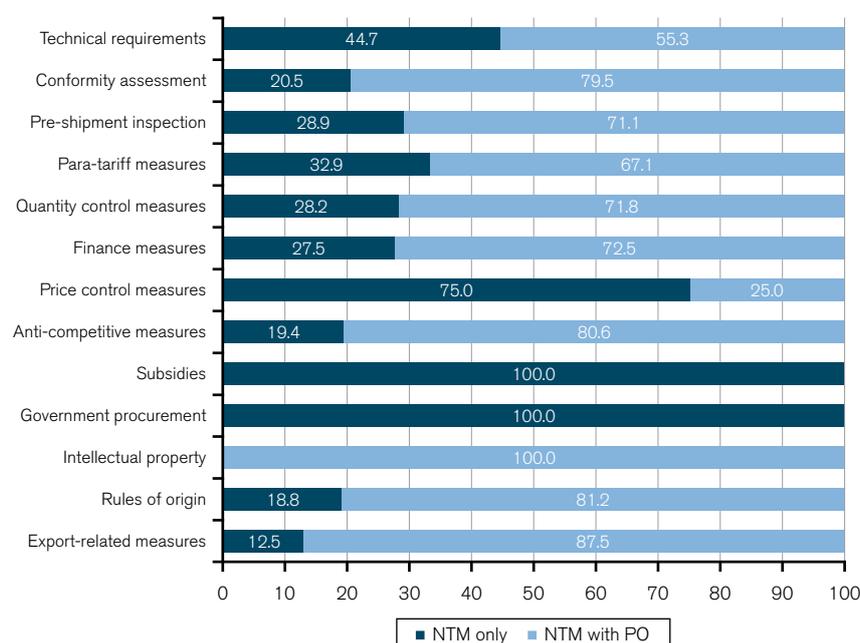


Figure C.19: Shares of NTMs with and without procedural obstacles by type of NTM, 2010 (percentage)



Source: ITC business surveys on NTMs.

Note: Surveys were conducted in 11 developing and least-developed economies: Burkina Faso, Egypt, Jamaica, Kenya, Madagascar, Mauritius, Morocco, Paraguay, Peru, Rwanda and Uruguay. Minerals and arms are excluded from the survey.

forms of protectionism, but developments in 2011 point to increasing trade friction and a rise in the number of restrictive trade measures. To the extent that trade policy has become more restrictive recently, it appears that most of the increase is due to non-tariff measures.

Table C.7 summarizes evidence from WTO monitoring reports since 2008. The number of new restrictive measures rose from 53 in 2008 to 346 in 2009 at the height of the crisis. New restrictive measures then fell back to 306 in 2010 but increased again to 344 in the first 10 months of 2011. The number of liberalizing measures was slightly greater than the number of restrictive ones in 2010, which suggests little or no change in the overall level of protectionism that year. However, there was a net increase in the number of restrictive measures in 2011, as liberalizing actions fell to 304 from 323 in the previous year, while restrictive ones rose to 344 from 306.

Only 8 per cent of restrictive measures introduced in 2008 were tariffs, but this share rose to 16 per cent in 2009, then to 20 per cent in 2010 before falling back to 19 per cent in the first ten months of 2011. Table C.7 excludes TBT and SPS measures, so the tariff share is somewhat exaggerated. SPS and TBT measures are intentionally not tracked in WTO monitoring reports in order to avoid having to make any judgment as to whether such measures are justified on public policy grounds.

In the aftermath of the crisis, countries immediately resorted to trade “remedies”, such as anti-dumping actions and countervailing duties, as evidenced by a sharp increase in the number of restrictive measures from 38 in 2008 to 196 in 2009, but this later fell to 132 in 2010 and to 104 in 2011. In 2010, the number of restrictive trade remedies was roughly equal to the number of liberalizing measures, bringing their net contribution to the stock of restrictive trade measures close to zero, while in 2011 liberalizing actions outnumbered restrictive ones.

One notable feature of Table C.7 is the spike in the number of restrictive non-tariff measures from 30 in 2010 to 81 in 2011. At the same time, the number of liberalizing NTMs fell from 23 to 13. The recent increase in restrictive measures is attributable to a number of developments, including stricter import controls and licensing requirements in some countries, as well as import prohibitions imposed on some Japanese goods following the Fukushima nuclear accident in March 2011. Some of the main countries imposing the new measures in 2011 were Indonesia, India and Argentina.

Evidence from the WTO's monitoring reports leads us to conclude that the use of non-tariff measures has risen relative to tariffs since the financial crisis, although there are exceptions for individual countries. In every year since 2008, new restrictive non-tariff measures have outnumbered liberalizing actions. Meanwhile, the number of liberalizing tariff measures

Table C.7: Trade and trade-related measures, 2008-2011
 (number of new measures)

	2008 ^a		2009		2010		2011 ^b	
	Restrictive	Liberalizing	Restrictive	Liberalizing	Restrictive	Liberalizing	Restrictive	Liberalizing
Trade Remedy	38	30	196	127	132	134	104	118
Anti-dumping	31	29	133	95	97	106	79	107
Countervailing	2	1	23	12	11	8	12	6
Safeguards	5	0	40	20	24	20	13	5
Border	10	12	117	68	98	145	154	137
Tariff	4	11	57	43	61	122	66	124
Tax	0	0	0	0	7	0	7	0
Non-tariff barrier ^c	6	1	60	25	30	23	81	13
Export	2	3	13	10	47	19	66	35
Duty	2	3	4	6	19	3	15	7
Quota	0	0	0	0	3	3	12	6
Ban	0	0	1	1	14	9	23	14
Other	0	0	8	3	11	4	16	8
Other	3	1	20	12	29	25	20	14
Total	53	46	346	217	306	323	344	304

^aCovers the period from October to December 2008.

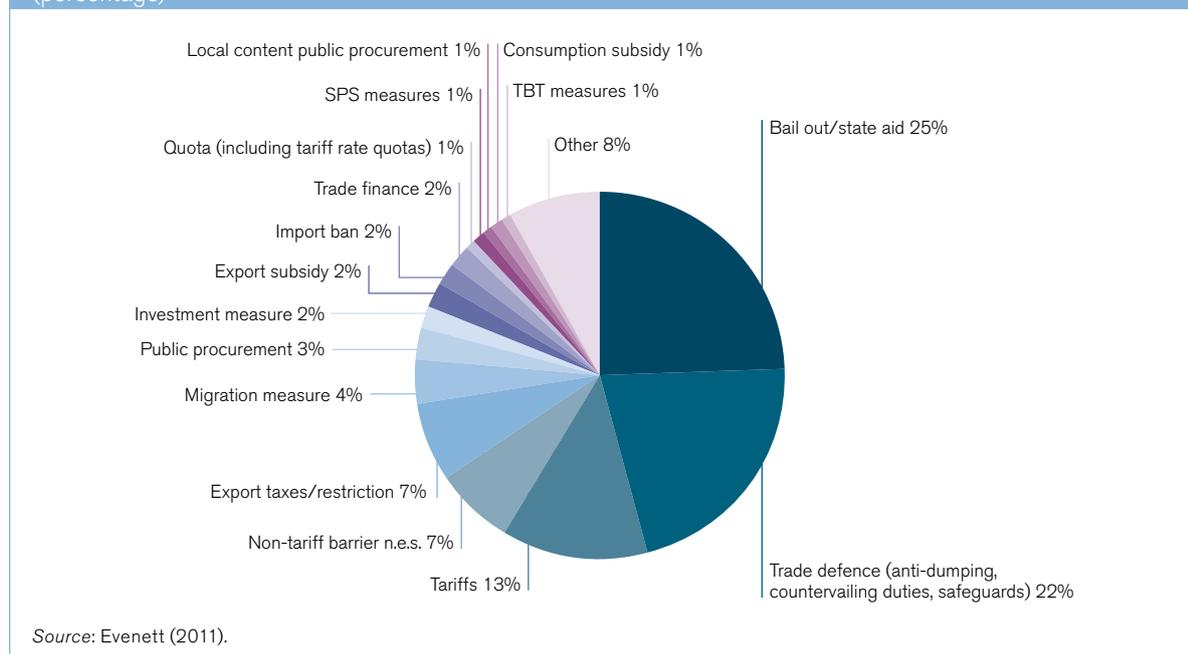
^bUp to mid-October 2011.

^cExcluding SPS and TBT measures.

Source: WTO Secretariat Monitoring Reports.

has been greater than the number of restrictive tariff measures in every period except 2009. Regarding the relative importance of tariffs and NTMs, data from the Global Trade Alert are largely consistent with the

findings of WTO monitoring reports. According to the Ninth GTA Report, tariffs accounted for just 13 per cent of all new, clearly restrictive trade measures introduced since 2009 (see Figure C.20).⁵⁸

 Figure C.20: Composition of new restrictive trade measures, 2008-2011
 (percentage)


3. Services measures

This sub-section discusses trends in services measures. As mentioned in Section C.1, the WTO's internal sources of information on services measures include notifications and GATS schedules of commitments. GATS Article III.3 notifications, which potentially cover all measures relevant to the Agreement, are plagued with very low compliance rates. Schedules of market access and national treatment commitments provide information on bound policies, but the regimes that are actually applied are often more liberal.⁵⁹ Such WTO internal sources of information are of very limited use when assessing services measures applied by WTO members. Therefore, this sub-section considers non-WTO sources of information, asking whether they help to shed light on the trends in services measures.

A serious limitation of the current data on services measures is that they allow to a very limited extent the distinction between market access and national treatment measures and domestic regulation. This distinction is important because these topics raise different issues: improving market contestability (through low barriers to entry and exit) and reducing discrimination, and improving the governance of non-discriminatory regulation, respectively. Moreover, the available information on domestic regulation is limited in coverage and time frame and, in most cases, it only includes relatively poor proxies.

International organizations, such as the Organisation for Economic Cooperation and Development (OECD) and the World Bank, are currently running projects to produce Services Trade Restrictiveness Indexes (STRIs). STRIs were first estimated by the Australia Productivity Commission (APC), but only for a cross-section of countries (no time series information is available). The STRI produced by the APC cannot therefore be used to analyse trends over time. The

indexes produced by the World Bank and the OECD have not been made publicly available, yet. For this reason, a discussion of STRIs is restricted to the methodology (see Box C.2).

(a) What are the trends in services measures?

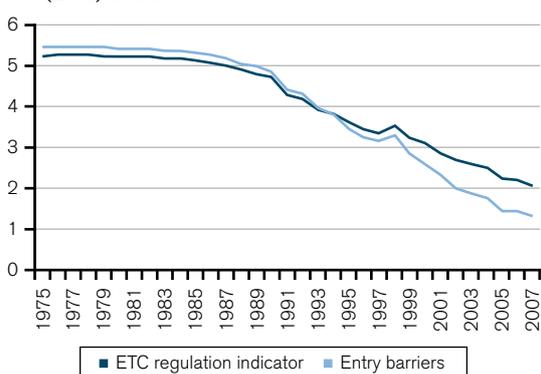
As discussed in Section C.1, the main available source of internationally comparable information on services measures is the Product Market Regulations (PMR) data from the OECD. The PMR indicators include information on economy-wide laws and regulations that are potentially anti-competitive in areas where competition is viable. The sub-set of the Non-Manufacturing Regulation (NMR) indicators, in turn, only covers specific services. NMR indicators also measure regulations that curb efficiency-enhancing competition (Conway and Nicoletti, 2006).

As documented by Wölfl et al. (2009), there has been a downward trend in the regulatory barriers to competition, measured by the PMR, in OECD countries since the late 1990s.⁶⁰ Regulatory barriers to competition have also decreased in network services sectors, such as energy, transport and communications since the mid-1970s, as shown in Panel (a) of Figure C.21. For professional services, too, there has been a downward trend in overall regulation (averaged across all professions) over time, as shown in Panel (b) of Figure C.21.⁶¹

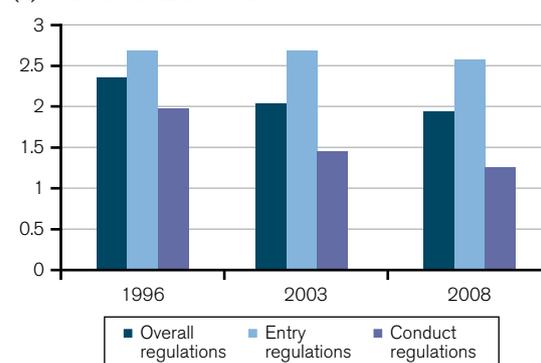
It is not possible to establish a link between the types of indicators discussed above and the GATS categories of market access (Article XVI), national treatment (Article XVII) and domestic regulation (Article VI.4). As an illustration, consider the NMR indicators for professional services. Entry regulations include licensing limitations (that are market access limitations covered by GATS Article XVI), education requirements (that are domestic regulation covered by GATS

Figure C.21: Time trend of NMR indicators in selected services sectors (number of regulations)

(a) Energy, transport and communications (ETC) sectors



(b) Professional services



Source: OECD NMR dataset.

Article VI.4) and quotas/economic needs tests for foreign providers (that are at the same time limitations to market access and national treatment, respectively covered by GATS Articles XVI and XVII). The indicator for conduct regulation covers anti-competitive regulations on prices and fees, advertising, form of business and inter-professional cooperation. While regulations on the form of business are market access

limitations covered by GATS Article XVI, the other regulations are more generally covered by the GATS under Article I as “measures affecting trade in services”. A downward trend of product market regulation in services may reflect a reduction in limitations to market access or national treatment, but it may also be due to changes in the stringency of domestic regulation.

Box C.2: Trade restrictiveness indexes for services

The Australian Productivity Commission (APC) pioneered the estimation of a Services Trade Restrictiveness Index (STRI) (Findlay and Warren, 2000). The APC compiled information on measures in the 1990s that potentially restricted trade in services, covering a wide range of sectors across countries. Most of the information was based on the texts of regulations, but some sectors also include information from outcome measures and the *de facto* implementation of regulations. In constructing the index, the APC distinguished between measures affecting market entry (fixed costs) and those affecting the post-entry operations of a firm (variable costs). Within each category, measures can either be non-discriminatory or discriminatory. For example, a non-discriminatory measure affecting market entry may limit the number of service providers in the telecommunications sector of a given country regardless of nationality, whereas a discriminatory measure would impose national quotas for foreign firms or ceilings on maximum foreign equity participation. Similarly, a non-discriminatory measure affecting post-entry operations may stipulate, for instance, a minimum capital requirement for all insurance firms, whereas a discriminatory measure would entail additional capital requirements for foreign suppliers (Francois and Hoekman, 2010).

Scores were assigned for each restriction by experts on the basis of a judgement about its stringency. For instance, an economy that restricts the number of banking licences was assigned a higher score than an economy that issues new banking licences with only prudential requirements. Next, the different restrictions were combined in a weighted average, once again according to an expert value judgement about their relative economic cost. For example, restrictions on banking licences were assigned larger weights than restrictions on the temporary movement of people. The weights were chosen so that the resulting restrictiveness index score ranges from zero to one. *De facto*, the trade restrictiveness index for each economy comprises two indexes – a foreign trade restrictiveness index and a domestic trade restrictiveness index. The foreign index score includes both discriminatory and non-discriminatory restrictions, while the domestic index score covers only non-discriminatory restrictions. Hence, the difference between the scores of the two indexes is a measure of the discrimination against foreigners (McGuire, 2008). Some studies in the trade literature have used these STRIs to estimate the price effects of services measures, taking account of standard determinants of performance for the sector concerned.

Beyond the limited country and time coverage, there are several limitations of such an STRI, outlined by Grünfeld and Moxnes (2003). Firstly, the STRI is not a tariff equivalent; thus it does not provide information on price or cost impacts. Secondly, it does not measure anti-competitive practices, such as price-fixing, market-sharing arrangements and cartels, which constitute impediments to services trade. Thirdly, it is only computed for six industries: banking, telecommunications, maritime services, distribution (wholesale and retail), education and professional services (engineering, architectural and legal).

The construction of STRIs using a methodology of scores and weights based on expert judgement is also being carried out in on-going World Bank research. Discrimination against foreign suppliers for each services sector and mode of supply is mapped on a five-point scale ranging from 0 (for no restrictions) to 1 (highly restricted), with three intermediate levels of restrictiveness (0.25, 0.50 and 0.75). Sector results are aggregated across modes of supply using weights that reflect the judgement of experts on the relative importance of the different modes for a sector. For example, “temporary movement of suppliers” (mode 4) is important for professional services, but not for telecommunications, whereas “commercial presence” or foreign direct investment (mode 3) is the dominant mode for contesting a market. Next, sector STRIs are aggregated into a single measure for the services sector as a whole in each country using sector GDP shares or FDI shares as weights (Gootiiz and Mattoo, 2009a).

The major limitation of the estimates based on the STRIs is that they rely on the judgement of experts to determine the severity of different restrictions. This lends an unavoidable element of subjectivity to the index (Gootiiz and Mattoo, 2009b). In addition, there are conceptual problems with the weights used.

For example, the use of actual FDI flows as weights introduces a bias because highly restricted sectors are likely to experience less FDI and therefore are allocated too low a weight. Similarly, using GDP weights, sectors such as health, with relatively large shares of GDP, are subject to a low number of restrictions, whereas those with low shares of GDP, such as transport, electricity and finance, are generally highly restricted sectors.

A recent study by the OECD (2009) analyses alternatives to the expert-based methodology for constructing STRIs. It argues that a less subjective weighting scheme could be based on impact analysis – estimating the direct impact of different services measures on trade using regression techniques. The study also identifies principal component analysis (PCA) as a possible weighting scheme. Exploring the statistical properties of the underlying data, this method first groups together individual measures that are highly correlated. It then creates weights based on each group's contribution to the overall variation in the observed outcome, i.e. services trade.

Another distinction that is only partially captured by PMR indicators is the one between discriminatory and non-discriminatory services measures (as defined in Section B.2).⁶² This distinction is important for policy-making. Using data for 34 economies in the Asia Pacific, European and American regions, Nguyen-Hong (2000) finds that price-cost margins of engineering firms are negatively affected by non-discriminatory measures that restrict entry and positively affected by discriminatory measures on foreign establishment and operation. Increases in price-cost margins are interpreted as indirect evidence of the rent-creating (i.e. profit-generating) effects of restrictions, while reductions in such margins are interpreted as indirect evidence of cost-creating effects. This suggests that non-discriminatory measures are likely to raise costs, while discriminatory policies such as nationality or residency requirements generate additional profits for domestic incumbents (Francois and Hoekman, 2010).

The Australia Productivity Commission's STRI is a first source of information on discrimination against foreign providers of services. Findlay and Warren (2000) present ample evidence that there is significant discrimination, both in the establishment of foreign services providers and in the conduct of their operations. As argued in Box C.2, the amount of discrimination is calculated as the difference between the foreign STRI and the domestic STRI.

Secondly, some evidence on the extent of discrimination can be gathered from the OECD PMR indicator "discriminatory procedures" (DPs). This indicator includes information on whether there is "general" discrimination and "competition" discrimination against foreign firms. Among the questions pertaining to "general discrimination", there is one asking whether the country "has specific provisions which require or encourage explicit recognition of the national treatment principle when applying regulations, so as to guarantee non-discrimination between foreign and domestic firms, goods or services".⁶³ Like the general PMR indicator, discriminatory procedures have also, on average, decreased over time.⁶⁴

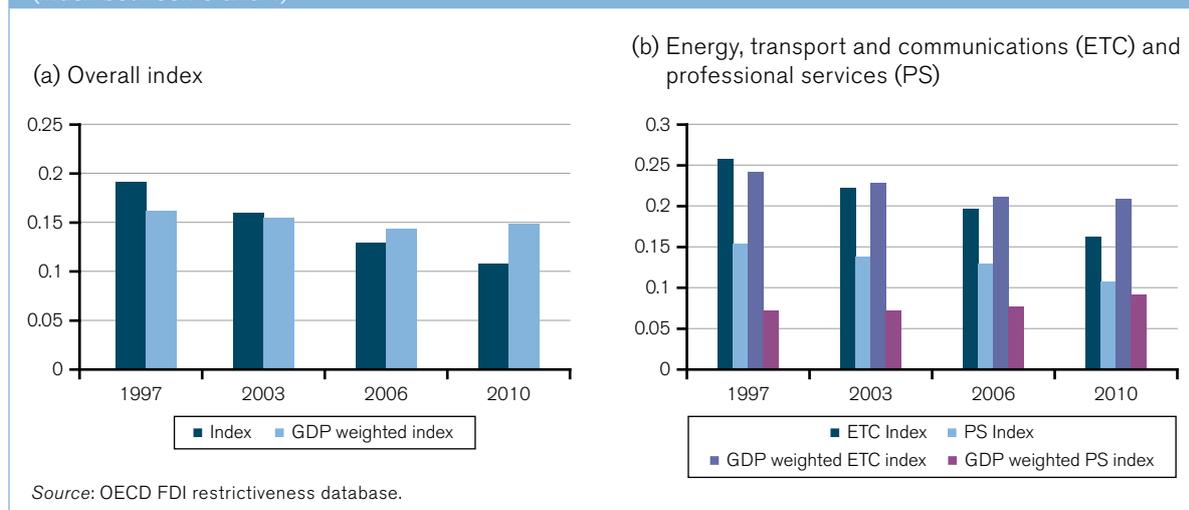
A third source of information on discrimination in services regulations is contained in the OECD's FDI

Restrictiveness Index. The index summarizes, for a number of manufacturing and services sectors, the extent to which foreign investment is restricted. This constitutes, by definition, a discriminatory restriction. Based on the OECD data, three indexes that are relevant to services sectors have been created: an overall index; an index for electricity, transport and communications sectors; and an index for professional services.⁶⁵ These indexes provide information on GATS mode 3 restrictions.

FDI restrictiveness in services varies across countries, as shown in Kalinova et al. (2010).⁶⁶ There is also some evidence of a downward trend in FDI restrictiveness indicators, both for the overall index and for the ETC and professional services indexes. For the overall index, Panel (a) of Figure C.22 clearly shows that the unweighted average across countries decreases over time, while the GDP weighted average is more stable over time, probably because rich countries start from low levels of FDI restrictions. Likewise, Panel (b) of Figure C.22 shows a downward trend in the unweighted averages, and a less clear pattern of GDP weighted averages, of the ETC and professional services indicators. Regression analysis, however, reveals that the overall, ETC and professional services indexes all decrease over the sample period.⁶⁷ Moreover, as discussed in Box C.3, most of the reduction in the FDI restrictiveness indexes is driven by a reduction in foreign equity restrictions.

(b) Domestic regulation

Measuring domestic regulation in services is difficult. Most, if not all, domestic regulation is sector-specific. To provide a couple of examples, specific qualification and licensing requirements and procedures apply to professional services providers, such as architects or engineers; technical standards on capital requirements discipline the provision of financial services by financial intermediaries. Moreover, a regulation may not be burdensome *per se*, but rather because of the way in which it is implemented. Given the inherent difficulties in measuring domestic regulation, it is hardly surprising that most available proxies are rather poor.

Figure C.22: FDI restrictiveness in services, evolution over time
(index between 0 and 1)


Despite the absence of a clear correspondence with the GATS, PMR indicators have been used in the trade literature to proxy for domestic regulation mentioned in GATS Article VI.4. In particular, Kox and Nordås (2007) select the sub-set of indicators that, according to them, comes closest to covering the regulation mentioned in GATS Article VI.4. They drop all of the state control measures, reconstructing the PMR indicator using only two main components (with equal weight): “barriers to entry” and “barriers to trade and investment”.

Barriers to entry is an equal-weight aggregation of “regulatory and administrative opacity”, “administrative burden on start-ups” and “barriers to competition”. Barriers to trade and investment is an equal-weight aggregation of “discriminatory procedures” and “regulatory barriers”. As partly acknowledged by the authors themselves, it is however unclear to what extent the reconstructed PMR captures the regulatory barriers that come closer to the ones falling under GATS Article VI.4.

Among the PMR indicators, the one that is most closely related to domestic regulation in GATS Article VI.4 is “licences and permits system” (LPS). This indicator comprises three questions (with equal weights): (i) whether the “silence is consent” rule is used (i.e. licences are issued automatically if the competent licensing office has not acted by the end of the statutory response period); (ii) whether there are single contact points (“one-stop shops”) for getting information on notifications and licences; (iii) whether there are single contact points for issuing or accepting notifications and licences.

A “yes” answer receives a score of zero; therefore the lower the indicator, the less burdensome are the licensing requirements. For the sample of 39 OECD and large developing countries on which PMR information exists in 1998, 2003 and 2008, there is some evidence that licence and permit systems have become less burdensome over time.⁶⁸

Box C.3: Decomposition of changes in FDI restrictiveness

The FDI restrictiveness index is constructed as the sum of four components: foreign equity restrictions (FER), screening and approval (SCR), restrictions on key foreign personnel (KPE) and other restrictions (OTR). The average percentage contribution of each component to the growth rate in the total index between 1997 and 2010 is decomposed using the following formula:

$$\gamma^{1997-2010} = \gamma_{FER}^{1997-2010} \theta_{FER}^{1997} + \gamma_{SCR}^{1997-2010} \theta_{SCR}^{1997} + \gamma_{KPE}^{1997-2010} \theta_{KPE}^{1997} + \gamma_{OTR}^{1997-2010} \theta_{OTR}^{1997}$$

where γ 's represent growth rates between 1997 and 2010 and θ_i is the share of sub-indicator i in the FDI restrictiveness index in 1997.

The results, averaged across countries, are presented in Table C.8. FER constituted the most important component of the overall index in 1997 (64.6 per cent) and represented the component with the largest percentage change (-33.7 per cent). All other components accounted for smaller shares in 1997 and smaller growth rates (in absolute value).

Table C.8: Decomposition of growth of FDI restrictiveness in total services, 1997-2010

	Observations	Mean	Standard deviation	Minimum	Maximum
γ (FDI restrictiveness)	38	-37.5	34.2	-92.6	85.6
γ (FER)	38	-33.7	35.7	-91.8	85.6
θ (FER)	38	64.6	25.2	10.2	100.0
γ (SCR)	38	-19.1	38.6	-100.0	12.6
θ (SCR)	38	14.0	23.0	0.0	83.6
γ (KPE)	38	-18.4	34.1	-100.0	0.0
θ (KPE)	38	5.0	9.9	0.0	44.2
γ (OTR)	38	-28.6	61.4	-100.0	150
θ (OTR)	38	16.4	16.9	0.0	71.8

Source: OECD FDI restrictiveness database.

The same decomposition was performed for energy, transport and communications (ETC) and professional services. The results are similar for ETC sectors, where most of the change in the ETC indicator (-38 per cent) was driven by the change in FER (-33.6 per cent). In professional services, FER still represent the most important component of the index. However, this component did not change much over time. Thus, the overall reduction of 29 per cent in the professional services index was mainly driven by reductions in SCR and OTR, with very small contributions from SCR and KPE.

The most reliable information on domestic regulation, coming closer to the types of measures mentioned in Article VI.4 of the GATS, is derived from sector-specific data, namely in financial services. The work by Barth et al. (2008) compiles information on banking regulation in more than 140 countries.⁶⁹ This information is grouped in four main components: entry requirements, capital regulation, official supervisory powers and private monitoring.

Indicators of licence requirements, capital regulation, official supervision, accounting standards and financial statement transparency come closest to the definition of domestic regulation used in this report. As argued in Section D.2, empirical analysis by Kox and Nordås (2007) finds that regulation aiming at ensuring appropriate standards is positively associated with trade in financial services.

4. Conclusions

Although this section of the Report has documented numerous trends and developments in non-tariff measures and services measures, only a few strong results emerge from the analysis for several reasons. First, existing data sources are compromised by large gaps in country coverage, intermittent data collection and a lack of shared terminology. Secondly, some sources of information, such as specific trade concerns and notifications, reflect not only the level of NTM activity but also the degree of engagement with the WTO on the part of its members. Consequently, any visible trends must be viewed with caution. Finally, changes in NTM activity may be relatively small,

making fluctuations in the data more difficult to detect. Despite these problems, some tentative conclusions can be drawn.

The incidence of non-tariff measures does not show any clear trend since the mid-2000s. Such measures appear to have increased in the late 1990s, but between 2000 and 2008 NTM activity was relatively flat, before picking up again in the aftermath of the financial crisis. Whether the post-crisis increase in NTMs is durable remains to be seen, but it certainly is a cause for concern. However, the relative stability of overall NTM activity in recent years must be considered in the context of declines in tariff rates, which have made NTMs more important in relative terms. Moreover, TBT/SPS measures appear to be on the rise. This is important because these types of measures represent a large component of NTMs.

The share of TBT/SPS measures in non-tariff measures is large across most of the major databases, including the ITC surveys. Their lack of prominence in WTO disputes data may be interpreted as suggesting that the specific trade concerns mechanism is effectively defusing issues before they come to a head. Moreover, econometric and survey evidence shows that TBT and SPS measures are employed more often by developed than by developing economies. Such measures appear to be less problematic than cumbersome administrative procedures, i.e. "red tape", only in the case of intra-regional trade in Africa. Implementation issues appear to be the most important source of concerns for exporters from developing countries, including in Africa.

Although available data are problematic in several respects, the fact that similar results are obtained from multiple data sources lends some confidence to these findings. Other research on non-tariff measures also points in a similar direction. In particular, the greater importance of TBT/SPS measures is echoed by Ando and Obashi (2010), who find that “non-core” NTMs (including SPS and TBT measures) have higher frequency ratios than other types of measures in countries in the Association of Southeast Asian Nations (ASEAN), and Fliess (2003), who reports that “technical measures” far outweigh other types of measures. Beghin (2006) also documents an increase in the share of “non-core” measures in NTMs from 55 per cent to 85 per cent between 1994 and 2004. In the future, better data collection could provide a much more detailed picture of the state of NTMs, and TBT/SPS measures in particular.

Turning to services measures, the data situation is even more problematic than for non-tariff measures. A major issue is the weakness of the transparency provisions in the GATS. The notification requirements, in particular, are very limited. Using available non-WTO

sources of information, this report has documented an increasing trend in market contestability in a number of (mostly OECD) countries during the last decades. There is also some evidence that discrimination (in the sense of domestic services and service suppliers being treated differently than their foreign equivalents) has decreased in the last decade. However, a serious limitation of available data is the difficulty in distinguishing between market access, national treatment and domestic regulation.

The proxies for domestic regulation are generally poor and not very informative, except for some sector-specific data in financial services. Clearly, transparency is a major challenge in the area of services measures. Current efforts are geared towards collecting information on applied regimes in market access and national treatment. For domestic regulation, a difficulty is to identify the measures that potentially affect trade in the regulatory regime of a country. Section E.4 discusses various options for the WTO if it is to play a more significant role in improving transparency in this area.

Endnotes

- 1 The members who included non-tariff concessions in their schedules of commitments during the Uruguay Round are Belize, Cameroon, Egypt, El Salvador, Malta, Indonesia, Senegal, and Trinidad and Tobago. In most cases, these concessions provide for the elimination of non-automatic licence requirements on certain products. Those who included non-tariff concessions in their schedules as part of their WTO accession process are China, Saudi Arabia, Chinese Taipei, Ukraine and Viet Nam.
- 2 The tariff quotas are expressed in various quantity units and the in-quota and out-of-quota tariffs are often specific or mixed. As for the commitments to limit domestic support, they are expressed in national currencies from 1994.
- 3 For a detailed discussion of the diversity of notifications and its causes, see Bacchetta et al. (2012).
- 4 Bacchetta et al. (2012) discuss in more detail the metrics of the compliance and quality of notifications and the reasons why both are often low.
- 5 Collins-Williams and Wolfe (2010) discuss the quality of the information provided by subsidies notifications.
- 6 Note that like all other WTO documents, notifications are accessible through the WTO's Documents Online portal.
- 7 The number of notifications corresponds roughly to the number of measures notified as each change in legislation is notified separately and each change in legislation typically involves one measure.
- 8 Reports broadly follow a standard template but there is an ad hoc component.
- 9 It is a preparatory contribution to the report by the Director-General that is called for in Paragraph G of Annex 3 of the Marrakesh Agreement and that aims to assist the TPRB to undertake an annual overview of developments in the international trading environment which are having an impact on the multilateral trading system. See WT/TPR/OV/W/1 to WT/TPR/OV/W/3 and WT/TPR/OV/1 to 13.
- 10 The second series started in late 2008 (the first report was distributed in January 2009) in the context of the recent global financial and economic crisis. See, for example, the Report on G20 trade and investment measures (May 2010 to October 2010) dated 4 November 2010.
- 11 In the context of the Fourth Appraisal of the TPRM, delegations indicated their desire to bring this matter to the attention of Ministers at the Eighth Ministerial Conference, and to prepare a Ministerial Decision aimed at the continuation and strengthening of the trade monitoring exercise under the TPRB. See Section VIII of WTO document WT/MIN(11)6 of 25 November 2011. The Appraisal was approved by all members.
- 12 Members sometimes request the WTO Secretariat to put concerns on the agenda but withdraw them before they are presented to the Committee, arguing that a bilateral arrangement has been found.
- 13 Documents G/SPS/GEN/204/Rev.11 and G/TBT/GEN/74/Rev.9 provide summaries of the specific trade concerns raised respectively in the SPS and the TBT committees.
- 14 The dataset and the methodology are available at http://www.wto.org/english/res_e/publications_e/wtr12_dataset_e.htm.
- 15 While this database is not public, the World Bank maintains a public database on WTO disputes. See Section C.1(b).
- 16 The disputes themselves are only a sub-set of all the conflicts that arise between members. In this perspective, Appellate Body cases can be seen as the tip of the "great pyramid" of the WTO legal order, with most of the important normative and conflict resolution work done much closer to the base of the pyramid (Wolfe, 2005).
- 17 Santana and Jackson (2012) have also reviewed and complemented a dataset of requests for consultations under the GATT dispute settlement covering the period 1948-1989. The original dataset was prepared by Reinhardt (1996) on the basis of Hudec (1993).
- 18 UNCTAD's collaboration with Asociación Latinoamericana de Integración (ALADI) stands out as its most successful attempt at engaging regional organizations in the collection of NTM information. Since 1997, ALADI has been collecting NTM information for a number of countries in the region and providing this information to UNCTAD on an annual basis. The data collected by ALADI is fully compatible with the UNCTAD TRAINS database. ALADI member countries are among the few for which the NTM information in TRAINS has been regularly updated over the period 1997 to 2010. See Section C.2.
- 19 Among the sources used were various government publications (official journals), publications from international organizations such as ESCAP's TISNET, WTO notifications, the German Foreign Trade Information Office (BFAI), the French International Trade Monitor (MOCI), the German Institute for Economic Research (IFO) or the British Business Journal.
- 20 For more details on this project, see United Nations Conference on Trade and Development (UNCTAD) (2010).
- 21 This international classification will be revised on a regular basis. The next update will be released in April 2012.
- 22 The seven pilot project countries were Brazil, Chile, India, Philippines, Thailand, Tunisia and Uganda.
- 23 The initial list of procedural obstacles can be found in Annex 3 of United Nations Conference on Trade and Development (UNCTAD) (2010).
- 24 By March 2012, data had been collected for about 40 countries and it had been disseminated for eight of them.
- 25 Accessible at: <http://go.worldbank.org/W5AGKE6DH0>.
- 26 See also the discussion of disputes as a source of information on NTMs in Section C.1.(a).
- 27 Moreover, it is not clear whether the PMR indicators take into account the enforcement of measures. However, Conway and Nicoletti (2006) argue that NMR indicators partly take into account the impact of policy enforcement.
- 28 This is not always true in the case of notifications. As discussed, there are reasons to believe that compliance with certain requirements may be low.
- 29 See Part II of United Nations Conference on Trade and Development (UNCTAD) (2010) for a discussion of quantification methodologies suited to survey data. One problem discussed in Appendix 1 of International Trade Centre (ITC) (2011) is that many countries lack a systematic business register covering all sectors, which makes random sampling in each sector difficult.

- 30 For an overview of business surveys, see Organisation for Economic Co-operation and Development (OECD) (2005). World Bank (2008a, 2008b) report the results of two recent World Bank initiatives to collect NTM data through interviews respectively in 13 mostly Asian countries and in East African countries, respectively.
- 31 Selected NTM survey countries include Burkina Faso, Egypt, Jamaica, Kenya, Madagascar, Mauritius, Morocco, Paraguay, Peru, Rwanda and Uruguay.
- 32 See the detailed description of ITC's NTM survey methodology, including the sampling technique in International Trade Centre (ITC) (2011).
- 33 Wolfe (2012) compares the GTA and WTO monitoring mechanisms.
- 34 As explained in Appendix C.1, the data available on UNCTAD TRAINS refer to the old NTM classification. There is no exact correspondence between the old and new classification. The use of data from UNCTAD TRAINS up to 2008 is made because it is the only source of official data that allows identifying trends.
- 35 Caution should be taken in interpreting these results, however, because of gaps in the data and also because part of the information comes from WTO notifications. The incentives to notify and compliance rates change over time.
- 36 Panel (b) of Figure C.2 has been constructed with the sub-set of Latin American countries with NTM information in 1999, 2001, 2003, 2004, 2005, 2006 and 2008. This comprehensive information was developed by ALADI and included in UNCTAD TRAINS. Note that the time periods slightly differ in the two panels because of data availability.
- 37 The average number of SPS notifications issued per member has fluctuated widely between 2005 and 2009, though in the prior years it has shown an increasing trend. For TBT notifications, the trend in the number of notifications per member somehow reverses, with wide fluctuations until 2005 and a marked increase since then.
- 38 The SPS STC Database includes information on the termination of each concern, which is provided by members in the context of the SPS Committee discussions. The data included in the figure are between 1995 and 2010. Sixteen new concerns were issued in 2011, but there is no information on the number of concerns resolved in 2011.
- 39 Unfortunately, with the information at hand, it is not possible to distinguish between these two channels. A third hypothesis is that there could be some substitution between the dispute-settlement mechanism and the specific trade concerns mechanism.
- 40 Because information on the date of resolution of TBT specific trade concerns is not available in the raw data, we make the following assumption in the construction of Figure C.6: we classify a TBT concern as "resolved" in year t if it is not raised again for two or more years after year t . For instance, if a specific trade concern is first raised in the TBT Committee in 1999, re-raised in 2000, and not re-raised in any following year, it is assumed to be "resolved" in 2000. As compared to SPS, the number of TBT concerns assumed to be "resolved" is therefore relatively high. This partly reflects the fact that a significant share of TBT concerns are raised on only one or two occasions, as a matter of clarification or further information. These concerns – for the purposes of this analysis – are assumed to be "resolved".
- 41 The results are essentially unchanged if trade values are expressed in real terms, deflating them with the US Consumer Price Index (CPI).
- 42 These results are statistically significant. The coefficient of a time trend in a regression with the coverage ratio (or the frequency index) as dependent variable is positive and significant at the 1 per cent level, both for SPS and for TBT concerns. The regressions include sector, country and country-sector fixed effects to control for unobserved sector-, country- and country-sector specific variables.
- 43 Subscripts c and t are omitted for expositional simplicity.
- 44 In fact, the measures computed from the two databases are not comparable; therefore, they are assigned different names.
- 45 The regressions in Box B.6 use instead the country, HS2 sector and time-specific indexes indicated in the equations.
- 46 Pre-shipment inspections, which under the previous classification were grouped together with TBT and SPS measures under the category of "technical measures", cover on average 20 per cent of products and of trade value.
- 47 Developed economies comprise the members of the European Union (27), Switzerland, Norway, the United States, Canada, Japan, Australia and New Zealand. Developing economies comprise all other countries, including the Commonwealth of Independent States (CIS). Country coverage depends on data availability.
- 48 This takes into account the fact that WTO membership includes many more developing than developed countries. It should be reminded that in the STC Database the European Union is considered a single developed country. As noted above, a "raising" country is the one which complains about a TBT/SPS measure imposed by a "maintaining" country in the relevant WTO Committee.
- 49 We run regressions of the coverage ratio or the frequency index on a dummy equal to one if the maintaining country belongs to the group of developed countries and zero otherwise. The coefficients on such dummy are positive and significant. The regression is at the two-digit level of disaggregation in the HS 1988-92 nomenclature, because this is the highest level of disaggregation at which frequency and coverage ratios can be calculated. Regression analysis is preferred in this context because it allows to control for omitted variables using fixed effects. In particular, the inclusion of sector-year fixed effects allows to control for unobserved heterogeneity within a sector over time. Country fixed effects cannot be included, due to collinearity with the variable of interest (developed country dummy). The results are available upon request.
- 50 An example is the Emerald Ash Borer, a beetle that was introduced into North America from Asia in the 1990s, and which has since devastated ash tree populations. The total discounted cost of the infestation to the United States alone is estimated at US\$ 10.7 billion by Kovacs et al. (2010).
- 51 As argued by United Nations Conference on Trade and Development (UNCTAD) (2012), the use of SPS measures is largely limited to agricultural sectors and products from animal origin because their control is essential for ensuring the health and well-being of consumers and the protection of the environment.
- 52 Twenty concerns (6 per cent) cover both agricultural and non-agricultural products. The results are quite similar when distinguishing between AOA and NAMA products. In this case, the results for SPS and TBT concerns are as follows. For SPS, 85 per cent of specific trade concerns are in AOA products and 7 per cent in NAMA products, with 8 per cent covering both. For TBT, 22 per cent of specific trade concerns are in AOA, 57 per cent in NAMA and 21 per cent in both.

- 53 We run regressions of the coverage ratio or the frequency index on a dummy equal to one if a specific trade concern affects any of the first 24 chapters of the Harmonized System (HS) trade nomenclature. The coefficient on such a dummy variable is positive and significant. The regressions include country-year fixed effects to control for unobserved heterogeneity within a (maintaining) country over time. Sector fixed effects cannot be included, due to collinearity with the variable of interest (agricultural sector dummy). The results are available upon request.
- 54 See Appendix Table C.1 in Appendix C.2. Intermediate intensity is measured as the share of HS6 products classified as parts and components in the total number of HS6 products belonging to a chapter (HS2).
- 55 The institutional implications of the theory of trade agreements under offshoring are analysed in detail in Section E.
- 56 Companies that could not be affiliated to a sector are excluded from this calculation.
- 57 Para-tariff measures comprise various taxes and charges other than tariffs and customs duties.
- 58 Refers to measures classified as "RED" in GTA reports, which clearly restrict trade.
- 59 See Hoekman (1996), Barth et al. (2006), Adlung and Roy (2009) and Gootiiz and Mattoo (2009a). Barth et al. (2006), for instance, show that, in the financial services sector, applied policy in a sample of 123 countries is much more liberal than what was committed to in the GATS.
- 60 This general trend of increased market contestability can be explained by the raising awareness that reforms that promote private corporate governance and competition (where these are viable) have the potential to boost economy-wide productivity growth (Nicoletti and Scarpetta, 2003). Moreover, stronger competition in product markets may also have a positive effect on employment. Wöfl et al. (2009) argue, however, that the aggregate trend masks wide differences in reform across countries and over time.
- 61 Figure C.21 (b) also includes the trends disaggregated by type of regulation, entry or conduct. It suggests that conduct regulations have decreased over time more markedly than entry regulations. Regression analysis confirms that the downward trend is statistically significant only for overall and conduct regulation, not for entry regulation. In the regressions, the NMR index is regressed on a time trend, including country-profession fixed effects. The coefficient on the time trend is negative and statistically significant. The results are available upon request.
- 62 Discriminatory (non-discriminatory) measures affect domestic and foreign services and services suppliers differently (equally).
- 63 Other questions used to compile the DPs indicator go beyond national treatment. For this reason, DPs is an imperfect proxy for discrimination in the sense of national treatment limitations (GATS Article XVII).
- 64 In particular, a regression of DP on a time trend and the full set of country fixed effects gives a negative and statistically significant coefficient. The sample includes however only 39 countries (mostly OECD members and some large developing countries such as Brazil, China and the Russian Federation, among others) for three years (1998, 2003 and 2008).
- 65 The overall index includes the following sectors (with equal weights): electricity distribution, wholesale trade, retail trade, transport, hotels and restaurants, media, telecommunications, banking, insurance, other finance and business services. The electricity, transport and communications index only includes (with equal weights) electricity distribution, transport (land and air, with respective sub-weights of one half) and telecommunications. The professional services index includes legal services, accounting and audit, architectural services and engineering services (always with equal weights).
- 66 See also United Nations Conference on Trade and Development (UNCTAD) (2006). This study classifies and scores FDI restrictions in services sectors for 50 developing and transition economies in 2004. It also finds considerable variation in FDI restrictiveness across countries. Moreover, it reports systematic differences across regions, with lower levels of restrictions in Latin America and European economies in transition (in 2004) compared with East Asia and the Middle East.
- 67 Specifically, the index is regressed on a time trend, with inclusion of country fixed effects to control for country-specific unobserved heterogeneity. The estimated coefficient on the time trend is negative and statistically significant. Results are available upon request.
- 68 In particular, a regression of LPS on a time trend and the full set of country fixed effects gives a negative and statistically significant coefficient. The results are available upon request.
- 69 The first survey included 117 countries in 1998-2000. The second included 152 countries in 2002-03. The last survey included 142 countries in 2005-07.

Appendix C.1: Data handling methodology in the UNCTAD's Trade Analysis Information System (TRAINS)

The “Historical Non-Tariff Measures” data used for this report were downloaded from the World Bank's World Integrated Trade Solution (WITS) database, using UNCTAD's Trade Analysis Information System (TRAINS). The data were only downloaded in the cases where the NTM classification was based on the old trade control measures (TCM) code (before 2009), since there is no exact correspondence between old and new TCM codes.

The data were downloaded for each country-year and include information about the nomenclature, the product code at the most disaggregated level (at the most detailed commodity level of the national tariffs – for some countries up to 12-digit codes), the start year, a partial coverage indicator, and the source. The countries were chosen on the condition that they reported two or more duty codes per year. Only the countries that had available information for at least two years were retained. These data were then matched with the description and the type of measure corresponding to each NTM code.

The data were then harmonized at the HS6 digit level,¹ using the following methodology. All product codes of less than six digits were expanded to include the six-digit codes belonging to the chapter or heading. The underlying assumption is that all products within an HS6 category are horizontally affected by a non-tariff measure if it is reported at lower levels of disaggregation (the correctness of this assumption has been verified with the compilers of the original data). In the cases where NTMs were reported at a level of disaggregation higher than HS6, it was assumed that the entire HS6 line was horizontally affected. For instance, for an NTM applied to HS8 product 51051015, the HS6 line 510510 was coded as affected. This procedure can potentially inflate the shares of products and trade affected by NTMs. To

obtain a sense of whether this was a real concern, we calculated incidence ratios – the number of product lines reported to be affected by NTMs over the total number of product lines belonging to that six-digit product code (downloaded from the Tariff Download Facility of the WTO). The partial coverage indicator could not be used for calculating the NTM incidence, since there were duplicate observations. Thus, this variable was not used.²

When using incidence ratios, D_i in the formulas for the share of trade and the share of lines affected is not a dummy variable, but an incidence ratio that can take values between zero and one. Results using incidence ratios are, however, not reported in this report because they are very similar to the ones obtained with D_i as a dummy variable (the correlation among the indices is as high as 0.98). Results are available upon request.

The next step was to obtain the information about which products were actually imported by the reporter countries, in the years for which the NTM was reported. Import data are from UN Comtrade, at the six-digit level, with the world as trade partner. For the European Union 1999, the trade data were not available directly; thus, the gross imports of the countries that belonged to it at that time were downloaded separately and summed up. Other data were not directly available when the nomenclature did not correspond with the years. For these, the available import data were downloaded in another nomenclature, and then matched to the actual nomenclatures via correspondence tables. The country-years handled in such a way were the Philippines (1998), Tunisia (1999) and the Bolivarian Republic of Venezuela (2003, 2004, and 2005).

Data availability

The country-year observations available are as follows:

Argentina	1999	2001	2003	2004	2005	2006	2008
Bolivia, Plurinational State of	1999	2001	2003	2004	2005	2006	
Brazil	1999	2001	2003	2004	2005	2006	
Chile	1999	2001	2003	2004	2005	2006	
Colombia	1999	2001	2003	2004	2005	2006	2008
Cuba			2003	2004	2005	2006	
Ecuador	1999	2001	2003	2004	2005	2006	2008
EU	1999						2007
Japan	1996	2001		2004			

Mexico	1999	2001	2003	2004	2005	2006	
Paraguay	1999	2001	2003	2004		2006	2008
Peru	1999	2001	2003	2004	2005	2006	2008
Philippines	1998	2001					
South Africa	1999					2006	
Thailand		2001	2003				
Tunisia	1999		2002				
Uruguay	1999	2001	2003	2004	2005	2006	2008
Venezuela, Bolivarian Republic of	1999	2001	2003	2004	2005	2006	2008
Viet Nam		2001		2004			

For the graphical representation of the descriptive statistics, the evolution is shown of the ratios, indices, and the counts over time by averaging the yearly observations into three periods. The reasons for this were the unbalanced panel, and the completely missing years 1997 and 2000.

Endnotes

- 1 The nomenclature was chosen in accordance with the reported year, as suggested by the compilers of the original data.
- 2 The same happened with duplicate observations whose only difference was in the variables start-year and start-month or sources. These variables were also dropped from the dataset.

Appendix C.2: Regression results

Appendix Table C.1: Coverage ratio and frequency index: intermediate-intensive sectors				
	SPS		TBT	
	Coverage ratio	Frequency index	Coverage ratio	Frequency index
	(1)	(2)	(3)	(4)
Intermediate intensity	-0.225*** (0.0434)	-0.0991*** (0.0207)	-0.00987** (0.00402)	-0.0300*** (0.00254)
Observations	3,808	3,614	11,760	10,715
R-squared	0.411	0.381	0.273	0.314

Notes: Country-year fixed effects included in all regressions.
Robust standard errors in parentheses. *** p<0.01, ** p<0.05.