THE INVISIBLE BARRIERS TO TRADE

HOW BUSINESSES EXPERIENCE NON-TARIFF MEASURES

International Trade Centre

TRADE IMPACT FOR GOOD

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The Invisible Barriers to Trade – How Businesses Experience Non-Tariff Measures
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This paper assesses the impact of Non-Tariff Measures (NTMs) on the business sector, based on large-scale surveys of companies in developing countries reporting export-related burdensome NTMs - describes the NTM survey methodology; presents main results obtained from business surveys carried out in 23 developing countries and draws conclusions intended for designing trade policy that meets the business sector's needs; includes NTM classification, survey data statistics and bibliographical references (pp.37-38).

Descriptors: **Non-Tariff Measures**, **Market Access, Exports, SMEs, Developing Countries, Trade Policy**

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Contents

Acronyms

Unless otherwise specified, all references to dollars ($) are to United States dollars, and all references to tons are to metric tons.

The following abbreviations are used:

GDP	Gross domestic product
HS	Harmonized System
ITC	International Trade Centre
LDC	Least developed countries
NTM	Non-tariff measure
OECD	Organisation for Economic Co-operation and Development
PPP	Purchasing Power Parity
RTA	Regional Trade Agreement
SITC	Standard International Trade Classification
SME	Small and medium-sized enterprise
SPS	Sanitary and phytosanitary measures
TBT	Technical barriers to trade
WTO	World Trade Organization

Executive summary

Exporters experience obstacles to trade differently, whether they are rigorous requirements, red tape, time spent at customs, certification procedures, arbitrary behaviour of officials or informal payments.

To shed light on their perceptions, the International Trade Centre (ITC) initiated a series of surveys to document non-tariff measures (NTMs) that exporters and importers in developing countries perceive as problematic.

This publication analyses information from surveys conducted between 2010 and 2013.

Giving small and medium-sized enterprises a voice

The ITC surveys on NTMs bring the private sector's voice to the debate on the trade impact of NTMs. The surveys capture at the product and partner country level how businesses perceive NTMs.

They document the extent to which developing country exporters experience NTMs as regulatory and procedural obstacles to trade, independently of whether this effect is intended by regulatory authorities.

Practical methodology

Surveys have been conducted in 23 developing countries to date, covering all major export sectors. More than 11,500 companies were surveyed. The surveys serve as a basis for national public-private roundtables, to explore changes in laws and practices. The aim is to build a more conducive business environment for small and medium-sized firms (SMEs). For each country, a report is published and is available online.

A lean, systematic and rigorous methodology underpins ITC's NTM Surveys.

- *Sample based on business registers* – A survey sample based on business registers leads to the selection of companies to be contacted by telephone.
- *Pre-screening through telephone interviews* – Pre-screening identifies the affected companies that will be surveyed face-to-face.
- *Face-to-face interviews* – These capture in detail – by NTM measure, product and partner country – the regulatory and procedural obstacles experienced by exporters and importers. More than half of the companies reporting NTM-related trade obstacles during the telephone interview accepted to participate in an in-depth face-to-face interview.

Defining NTMs

NTMs concern a wide range of trade policy measures, such as import quotas, licensing and rules of origin. They also include product-specific requirements, such as quality or content requirements, labelling, testing and certification. ITC's NTM Surveys identify the subset of NTMs that businesses perceive as obstacles to trade. An NTM-related trade obstacle is defined as any regulatory or procedural obstacle that a firm faces when complying with a specific measure.

NTM Survey findings

Results point to the highly uneven impact of NTMs on companies and countries.

Small companies are most affected

Up to half of the firms, depending on their size, are affected by NTMs. Those most affected are small companies (over 50%), which have less capacity to overcome fixed or variable export costs.

Fragmented sectors in developing countries display a large proportion of burdensome NTMs.

More concentrated sectors, where the international division of labour is monitored by big players, are less affected.

Private sector concerns with NTMs are not limited to the strictness of regulations, but often relate to local procedures that present obstacles to trade.

Difficult export markets: Developed countries for agriculture, regional markets for manufacturing

For agricultural products, developed countries are perceived as comparatively more NTM-restrictive than other markets.

The opposite is the case for manufactured products. This may be due to the integration of exporters from developing countries in global industrial value chains.

The common perception is that non-tariff barriers are faced in the destination market. The ITC NTM surveys reveal that more than 25% of reported problems correspond to measures applied by the home country of the exporting company.

Key challenges: Conformity assessment (agriculture) and rules of origin (manufacturing)

NTMs that are perceived as burdensome vary by sector.

Companies in the agro-food sector are impacted by sanitary and phytosanitary regulations, especially for certification or quality control: 48% of reported trade obstacles for agricultural products relate to conformity assessment measures.

For manufactured products, rules of origin and the related paperwork represent the most problematic partner country measures for developing country exporters, representing 35% of reported cases.

Scope for domestic action: Procedural obstacles

Addressing obstacles raised by partner countries may be difficult and a long-term target.

ITC has identified two areas where governments could act: domestic measures and procedural obstacles. Work begins at home. The NTM survey results underscore the large scope for action in tackling before-the-border problems that businesses face with behind-the-border measures.

Among the countries surveyed, domestic impediments constitute a large share of reported obstacles. These can be solved more easily at home than problems occurring outside of a country's or region's jurisdiction.

Address gaps in implementation of regional trade agreements

The results provide further evidence for implementation gaps in trade agreements. Many difficulties relate to NTMs applied by countries within regional trade agreements.

Making existing agreements work on the ground can considerably contribute to trade facilitation and eliminate many business concerns presented in this paper. This is particularly true at the regional level, where eliminating regulatory and procedural trade obstacles can play an important role in the integration and growth of a region.

Assist the poorest countries

Lower income per capita generally translates into deficient infrastructure, such as lack of certification bodies or undue delays, together with limited resources to develop public services dedicated to supporting exporting companies. While these bottlenecks are expected to vanish as an outcome of development, urgent action is needed to help tackle domestic and procedural obstacles.

Improve transparency of regulations and procedures

Transparency is key: providing information and communicating contributes to more efficient processes and reduced trade cost, and renders cross-border business transactions more predictable in terms of time and cost.

NTM surveys have impact

ITC NTM surveys are implemented as part of its trade-related technical assistance. They aim to facilitate identifying and removing trade obstacles through increased transparency and dialogue. Country findings are systematically discussed with local, regional and international actors. The results for the 23 countries presented in this paper served as input for national stakeholders' meetings.

Beyond validating the NTM survey results, these meetings have served to define priority actions to eliminate the obstacles faced by exporters and importers.

Survey results have fed into trade strategies, informed the design of national and regional projects and led to many initiatives, especially for product quality and conformity assessment, improved SME access to information on regulations and trade procedures, and strengthened public-private dialogue mechanisms.

The way forward

From a research perspective, the findings in this paper only partially exploit the richness of the information collected by the ITC NTM surveys. Possibilities for future research encompass adding the import perspective, exploiting the firm-level data, for example on women-owned businesses, adding new countries to the analysis as data becomes available, and conducting regional analyses.

From a policy perspective, the findings of the ITC NTM Surveys will prove to be a valuable source of information in the framework of the United Nations post-2015 development agenda, as well as in the implementation of the Bali trade facilitation package adopted in December 2013 by World Trade Organization member countries.

Introduction

Progressive reductions in tariff rates have occurred because of the periodic multilateral negotiations carried out under the General Agreement on Tariffs and Trade (GATT) since the late 1940s, culminating in the Uruguay Round that was completed in 1994. Many developing countries have also been granted special preferences for their exports by high-income countries. As a result, for exporters in developing countries, tariffs are no longer the main obstacle to market access. Manufacturing exports from developing economies face a mean theoretical ad valorem tariff of 0.63% in developed countries, while those from least developed countries (LDCs) face an average tariff of 0.15%. Agricultural exports from developing countries and LDCs face a tariff of 7.42% and 2.21% respectively in developed countries, where domestic support also plays a role.

The preferential access from which LDCs benefit contributes to this very low average, but even non-LDC developing economies face a low level of protection in developed markets. At first glance, these figures may lead to the perception that international markets constitute a level-playing field for exporters in developing countries. This is a misperception. Exporters and importers face non-tariff measures (NTMs) that, in addition to tariffs and transport costs, may also hinder international trade flows.

NTMs refer to a wide range of requirements and regulations other than customs tariffs, which countries apply on imports and exports of goods. NTMs include technical regulations, conformity assessments and customs procedures. NTMs vary across products and countries, and can change quickly. Most of these regulations do not have protectionist objectives, but are designed to protect health or the environment. Compliance with these requirements may be beyond the reach of companies, particularly small and medium-sized enterprises (SMEs). For this reason, multilateral rules under the World Trade Organization (WTO) and most regional and bilateral trade agreements include provisions on NTMs. In this context, the analysis of the commercial impact of NTMs is becoming increasingly important.

The quantification of NTMs and their impact on trade has largely been addressed in literature. Different methods have been used and it is important to distinguish 'direct' and 'indirect' approaches to NTMs.[1] Direct approaches collect information on measures (for example, technical regulations), which is then introduced into a gravity equation that explains bilateral trade through a series of country characteristics, trade costs and information on NTMs. The trade impact of these measures on quantities, prices or price-cost margins is then assessed.[2] The outcome depends on the quality of information on actual regulations.

Indirect approaches use benchmarks, such as traded quantities or prices, and compute NTM ad valorem equivalents from the deviation between observed trade and the benchmark. A common benchmark is intranational trade, which is trade between regions or cities within one country. Intranational trade is characterized by the absence of borders (in most cases); viable communications; a single currency; and similar if not identical regulations, business practices, consumer tastes and cultural variables. The observed deviation in trade flows when crossing a border reveals the trade costs associated with NTM-related trade obstacles.[3,4]

Commerce within countries is a multiple of international trade, everything equal in terms of demand, supply or distance. The reduction in exports – when crossing a border – can be transformed in an ad valorem tariff equivalent that is a multiple of actual tariff protection. The difference between *de jure* protection (tariffs) and *de facto* protection (the tariff equivalent of crossing a border) is much greater for developing country

[1] Chen & Novy (2012).

[2] See e.g, Disdier et al (2008) [quantities], Cadot & Gourdon (2012) [prices], Dihel & Sheperd (2007) and Fontagné & Mitaritonna (2013) [price-cost margins].

[3] Head & Mayer (2000), Head & Ries (2001), Anderson & van Wincoop (2004), Fontagné et al (2005).

[4] While this method uses the right benchmark, the degree of integration of the domestic economy, it is difficult to differentiate trade partners' irreducible differences in tastes or culture and actual non-tariff barriers.

exports.[5] We conclude from this that most trade costs, beyond those induced by geographical distance, are associated with NTMs, and the more so for developing economies.

Other evidence of the detrimental effects of NTMs for trade comes from the empirical evidence showing that its effect on export/import participation differs across firms, in particular by their sizes. Individual exporter and importer statistics from national customs reveal that only a limited number of firms are able to cope with the fixed and variable costs of exporting or importing. Only the most productive exporters manage to bear these costs, particularly in remote or restrictive markets. As a result, the distribution of trading firms is skewed towards efficient firms that manage to participate in international markets, which are flagged as the 'happy few'.[6] Similarly, firms are not affected evenly by a given NTM in a destination market.[7]

A perspective largely missing in the existing literature is the micro-level private sector perception of NTMs. From a business perspective, differences in regulations, rigorous requirements, red tape, time spent at customs, certification procedures, and arbitrary behaviour of officials or bribes may all be perceived as burdensome obstacles by exporters.

From an analytical point of view, it is important to identify whether the obstacle is the outcome of a strict regulation imposed by the government of the importing or exporting country, for example temporary prohibition of import or export, or whether it is an indirect consequence of the regulation's application, for example delays encountered during the production of a compulsory certificate of import or export.

Two examples extracted from the ITC NTM Surveys illustrate the distinction between the two forms of trade obstacles. A Rwandan black tea exporter claimed that certification was costly due to deficient organization: 'A phytosanitary certificate is a problem due to many offices that are scattered instead of [a] one-stop centre. This takes more than two days.' (ITC NTM Survey, 2011). A customs agent in Peru emphasized the application of labelling rules increasing the cost of imports: 'Chemical products under special regimes with labelling errors are re-embarked, though these mistakes can often be fixed. In order to avoid re-embarkment, firms undertake previous labelling inspections, which increase their import costs.' (ITC NTM Survey, 2010).

Microeconomic evidence on the role and importance of NTMs as obstacles to trade is limited. Studies analysing firm participation and export performance in presence of NTMs provide only indirect evidence on the perception of barriers by exporters.[8]

To fill this gap and to generate hands-on information on NTMs, ITC initiated a series of surveys to document the NTMs that exporters and importers in developing countries perceive as problematic in a systematic and rigorous manner. Exporters and importers are surveyed in a two-step approach. Telephone interviews identify the affected companies that are then surveyed face-to-face. To the best of our knowledge, this methodology is unprecedented. This paper compiles the results obtained from business surveys carried out in 23 countries and draws a first set of conclusions.[9] ITC has covered diverse developing regions such as sub-Saharan Africa, the Middle East and North Africa, Asia and South America. This study focuses on barriers to export and does not address obstacles faced by importers in the surveyed countries.

The main objective of the ITC NTM Surveys is to provide information for designing trade policy that meets the business sector's needs. This justifies the two-step approach, which is biased towards identifying burdensome NTMs. Importantly, the aim of the ITC NTM Survey is to analyse the companies' problems in detail. The survey data are captured in a country database and the key information on products, partners,

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[5] De Sousa et al. (2012).

[6] Mayer & Ottaviano (2008).

[7] Maskus et al. (2005), Chen et al (2008), Rau & van Tongeren (2009), Reyes (2011), Fontagné et al. (2013), Schuster & Maertens (2013).

[8] Fontagné et al. (2013).

[9] Results are published separately in country studies.

NTMs and related procedural obstacles are coded for the purpose of the analysis. All of the country databases have been combined in a global dataset that is used extensively in this paper.

The first chapter describes the NTM Survey methodology. The second chapter explains the construction of the database. The third chapter presents a snapshot of results and the last chapter draws conclusions and highlights topics for potential future research.

Chapter 1 Survey methodology

From 2010 to 2013, ITC completed large-scale company-level surveys on non-tariff measures (NTMs) in 23 developing and Least Developed Countries. The main objective of the NTM Surveys is to capture how businesses, particularly SMEs, perceive NTMs and to better understand their specific role in the creation of trade obstacles at a most detailed level – by product and partner country. The NTM Survey results are intended to inform trade policymaking, trade support advocacy as well as the design of targeted trade-related technical assistance.

ITC's NTM Surveys are based on a common methodology consisting of a core part and a country-specific part. The core part of the survey methodology, described below, is identical in all surveyed countries, which enables cross-country analyses and comparisons. The country-specific part is developed in cooperation with local stakeholders prior to the survey launch and is used in the country reports. This paper covers all information collected during the core part of the 23 country surveys.

Scope and coverage

NTMs represent all regulations that are set by an official body in a country and that must be satisfied by a company either importing or exporting a good into or outside of the country. NTMs are regulations that – intentionally or unintentionally – affect trade. NTMs concern a wide range of trade policy measures (such as import quotas, licensing, and rules of origin) as well as product-specific requirements (such as quality or content requirement, labelling, testing and certification). NTMs are usually applied by the importing country, but can also be applied by the exporting country. A complete list of NTMs can be found in appendix I.

ITC's NTM Surveys aim to pinpoint those NTMs that are perceived as obstacles to trade by the private sector. A helpful distinction can be made between regulatory and procedural obstacles. Regulatory obstacles concern strict or complicated requirements set by a specific NTM, for example the level of pesticides an exported product must comply with. Procedural obstacles concern any burdensome procedure that is related to the application of a specific NTM, for example the lack of local laboratories to test an exported product. An NTM-related trade obstacle is any regulatory or procedural obstacle that is faced by a firm when complying with a specific NTM. A complete list of procedural obstacles can be found in appendix II.

The ITC NTM Surveys are undertaken among companies exporting and/or importing goods. This does not mean that trade in services is free of regulatory or procedural trade obstacles. Anecdotal evidence and partial studies point to a very high ad valorem equivalent of barriers to trade in the distribution and telecommunication sectors.[10] However, services deserve a specific set of surveys using a different methodology.[11]

The ITC NTM Survey covers legally registered companies of all sizes and types of ownership. It aims at being representative by export sectors, which allows for the extrapolation of the survey results to the country level. To achieve this objective, the NTM Survey covers at least 90% of the total export value of the respective country for 13 sectors, excluding minerals and arms.[12]

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[10] See Fontagné & Mitaritonna (2013).

[11] A joint World Trade Organization-World Bank initiative recently led to the construction of a database on regulatory obstacles to trade in services for a large set of countries: the Services Trade Restrictions Database (http://iresearch.worldbank.org/servicestrade/home.htm). ITC foresees developing a methodology for surveying companies engaged in services trade. Preparatory work for this has already started.

[12] The export of minerals is generally not subject to trade barriers due to a high demand, and the specificities of trade undertaken by large multinational companies. The export of arms is out of the scope of ITC activities. The 13 sectors are fresh food and raw agro-based products; processed food and agro-based products; wood, wood products and paper; yarn, fabrics and textiles; chemicals; leather; metal and other basic manufacturing; non-electric machinery; computers, telecommunications and consumer electronics; electronic components; transport equipment; clothing; miscellaneous manufacturing. This grouping, used in many ITC studies, is based on the Standard International Trade Classification (SITC) revision 3 and was developed by Mimouni M., Fontagné L., and von Kirchbach F. For more information see The Trade Performance Index, Technical Note, ITC, 2007.

ITC's NTM Surveys are demand driven. The participation of countries in the survey is subject to governments' interest. To participate in the NTM Suvey, the government is required to submit a formal request to ITC. In its first phase of implementation (2010-2013), the project covered 23 countries from a wide range of developing economies at different stages of development. The surveyed countries are listed by region in table 1 below. More information on the country surveys is presented in appendix III. The survey is conducted by local companies or research institutes specialized in field interviews on trade topics, which are selected according to a competitive procurement process. They are responsible for the field interviews with exporting and importing companies and enter the information into a country database. ITC is responsible for the sampling, the training of the interviewers, monitoring of the interviews, data quality control and the analysis of the results.

Table 1. List of surveyed countries (2010 to 2013)

Sub-Saharan Africa (SSA)	Middle East and North Africa (MENA)	Asia	Latin America
Burkina Faso	Egypt	Cambodia	Jamaica
Côte d'Ivoire	Morocco	Indonesia	Paraguay
Guinea	State of Palestine	Kazakhstan	Peru
Kenya	Tunisia	Sri Lanka	Trinidad and Tobago
Madagascar			Uruguay
Malawi			
Mauritius			
Rwanda			
Senegal			
Tanzania (United Republic of)			

Source: ITC NTM Surveys, 2010 to 2013.

Note: Since 2013, Bangladesh, Colombia, Philippines and Thailand have been added. Additional NTM Surveys are on-going and/or planned in Benin, Dominican Republic, Ecuador, Ethiopia, Jordan, Kyrgyzstan, Mali, Uganda and the European Union.

Survey process and modalities

The NTM Survey depends first and foremost on the availability of a comprehensive and up-to-date sample frame of trading companies to ensure a representative sample of the target population. ITC works in collaboration with local partners in each country to compile a business registry that allows the polling company to run a pre-defined number of interviews in the selected sectors. The survey process involves two stages of interviews with exporting and importing companies: short telephone interviews are followed by detailed face-to-face interviews with companies facing NTM-related trade obstacles and willing to participate.

Table 2. The NTM Survey process

Steps	
1	Business registry compiled by ITC and local partners from national sources
2	Company selection based on ITC sampling methodology
3	Telephone interviews by local partner covering: Company's experience with NTMs Company-level information
4	Face-to-face interviews by local partner covering: Company's trade information at product and partner level Detailed information on the NTM-related trade obstacles for each product-partner pair
5	Survey data analysis by ITC

Source: ITC methodology for NTM Surveys, 2010.

Business register

ITC and the local partners compiled the sample frame of the survey from various national sources in each of the 23 countries. These sources include ministries, customs offices, business associations, export promotion agencies and national statistical bodies. The databases often diverge in terms of information and number of companies covered. Obtaining contact details and information about the sector of each company was particularly challenging in many countries. Often additional research was needed, such as using the yellow pages, to compile a satisfactory sample. Typically, the sector information for the provided business registers must be matched manually to the ITC sector classification. In addition, preliminary telephone interviews were sometimes necessary to filter and complete the information.

The final population, including all surveyed countries consists of 49,398 exporting and/or importing companies from the 23 countries' registers (see appendix III for the number of companies by country). The registers include variables enabling a representative sampling by sectors as well as the implementation of telephone and face-to-face interviews. They contain information on the company name and contact details (phone number, address, email) as well as the main sector of activity. For some countries, additional information was available, for example company size, the number of employees and annual turnover. However, this information was not reported systematically and cannot be taken into consideration for the global sampling.

Sampling method

The NTM Survey aims at being representative for sectors at the telephone interview stage. The selection of companies for the telephone interviews is based on a stratified random sampling.[13] In the case of the NTM Surveys, companies are stratified by sector, as type and incidence of NTMs are often product-specific. Subsequently, simple random samples are selected within each sector.

The number of telephone interviews is calculated by sectors to capture a sufficiently large number of enterprises within each sector. This ensures that the share of enterprises experiencing burdensome obstacles is estimated correctly and can be extrapolated to the entire sector. To achieve this objective, a sample size for the telephone interviews with exporting companies is determined independently for each export sector.[14] The maximum number of interviews by sector is 96 (maximum number of interviews per country: 96 (maximum number of companies per sector) x 13 (number of sectors) = 1,248). The minimum number of telephone interviews was set to 10 companies, depending on the number of companies in each selected sector, in order to ensure a sufficient number of observations per sector.

The selection of surveyed export sectors is based on the country's trade structure. Sectors that account for more than 2% of the country's total export value and that represent a sufficient number of companies in the business register are included in the NTM Survey. To avoid endogeneity[15] bias, and to not disregard under-represented key sectors with high export potential, the list of surveyed sectors is discussed with local stakeholders, including national authorities, export promotion agencies and business associations, and modified to cover additional products or sectors of interest, if needed.

The samples of ITC's NTM Surveys are not stratified by export destination, company size and geographical location, although companies' affectedness by NTMs might well be affected by those factors. However, a sufficiently large sample size prevents a systematic bias and ensures the representativeness for different sizes of companies, regions and trading partners.

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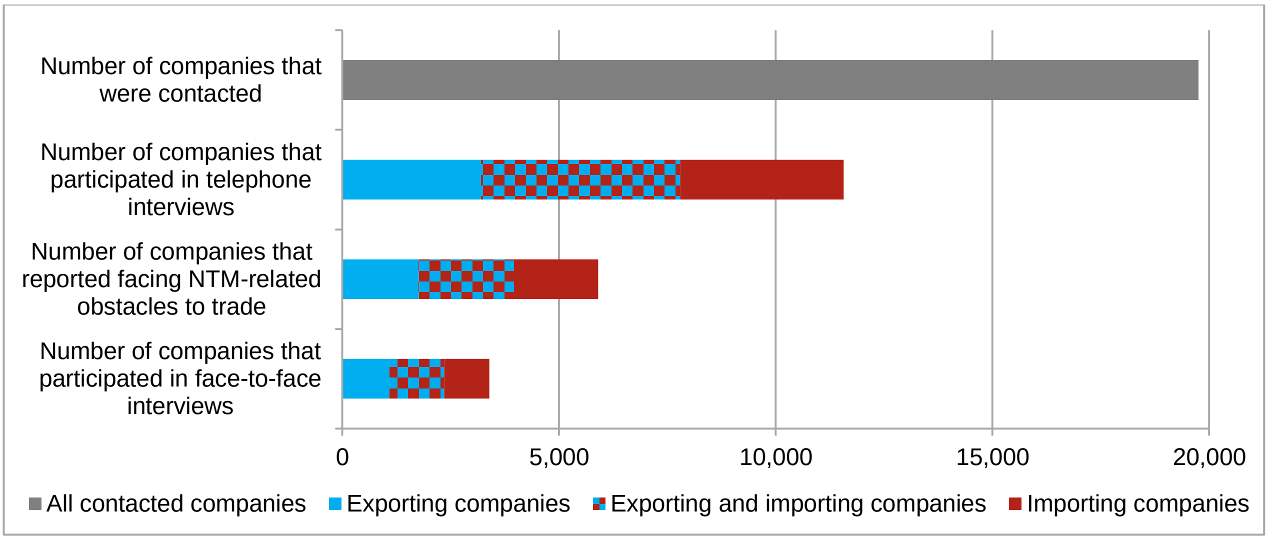
[13] In a stratified random sample, all population units are first clustered into homogeneous groups ('strata'), according to some predefined characteristics, chosen to be related to the major variables being studied.

[14] See appendix V for technicalities. In case of incomplete information in the business register, the survey's rule is rather to conduct too many interviews then too few to ensure a good representativeness of each country's trade structure and diversity. For importing companies, the sample size is usually smaller than the sample size for exporters, as imports is considered as one single sector, mainly for two reasons. First, the interviewed exporting companies are often import intermediaries and provide reports on their experiences with obstacles at the border as both exporters and importers. Second, problems experienced by importing companies are generally linked to domestic regulations required by their home country.

[15] Endogeneity means a change or variable that arises from within a model or system.

The objective of the face-to-face stage is to interview companies that report experiencing regulatory or procedural trade obstacles. The sample size for the face-to-face stage depends on the number of companies that reported obstacles during the telephone screen interview and companies' willingness to participate in the face-to-face interview. Based on the results of the surveys in 23 countries, the number of successfully completed telephone interviews can range from 100 to 1,000, with 60 to 400 subsequent face-to-face interviews with exporting and importing companies.

Figure 1. Number of companies interviewed (23 countries, 2010-2013)



Source: ITC NTM Surveys, 2010 to 2013.

Telephone interviews

The representatives of the surveyed companies, generally export/import specialists or senior-level managers, are asked whether their company has experienced trade-related problems other than tariffs (NTMs and procedural obstacles) in the preceding year. The telephone interviews determine which firms perceive NTMs as obstacles and to what extent they feel they are affected. However, the telephone interview does not allow distinguishing between burdensome NTMs (regulatory obstacles) and procedural obstacles associated with the implementation of regulations.

This first step serves the purpose of identifying firms facing burdensome NTMs. Telephone interviews capture detailed company-level information, notably on the main HS6 product[16] exported and/or imported (sector of activity), the number of employees (firm size) and location (region, export processing zones, etc.). The telephone interviews are recorded either by a Computer Assisted Telephone Interview (CATI) system, computer spread sheets or on paper.

Of the 19,748 companies contacted in the 23 countries under consideration, 11,567 agreed to participate in telephone interviews: 3,195 exporters, 3,780 companies that both export and import, and 4,592 importing companies. The average participation to telephone interviews is 58%, ranking from 12% to 100% in countries where all contacted companies participated in this first stage.

[16] HS6 product means that the product is classified at the 6-digit level of the harmonized commodity description and coding system.

Table 3. Sector composition of companies interviewed by telephone in 23 countries

Sectors	Companies exporting	Companies importing
Fresh food and raw agro-based products	18%	5%
Processed food and agro-based products	15%	7%
Wood, wood products and paper	9%	6%
Yarn, fabrics and textiles	7%	10%
Chemicals	10%	18%
Leather and leather products	2%	1%
Metal and other basic manufacturing	8%	11%
Non-electric machinery	2%	7%
Computer, telecommunications; consumer electronics	1%	4%
Electronic components	2%	5%
Transport equipment	1%	5%
Clothing	8%	2%
Miscellaneous manufacturing	13%	14%
Not available	4%	5%

Source: ITC NTM Surveys, 2010 to 2013.

The two agricultural sectors (fresh food and processed food) represent one-third of the interviewed exporting companies. The remainder are in manufacturing goods notably chemicals, wood products, textiles, clothing and metal products. Almost half (44%) of exporting companies are small (less than 20 employees), 34% are medium-sized (21 to 100 employees) and 22% are large (more than 100 employees).

Companies that report NTM-related trade obstacles during the telephone interview are invited to participate in detailed face-to-face interviews.

Face-to-face interviews

The face-to-face interviews investigate which NTMs are perceived as burdensome, why, what type of obstacles they create for companies and what is the aggravating role of the related procedural obstacles. The interviewer aims to discover all the details of burdensome NTMs and other obstacles at the product-code level and for the different partner countries. The interview captures the type of burdensome NTMs, the nature of the problem (regulatory or procedural), the place where each obstacle occurs, and the agencies involved. The interviews are conducted face-to-face due to the complexity of issues related to NTMs. Face-to-face interactions with experienced interviewers ensure that respondents correctly understand the purpose and the coverage of the survey, and accurately report their cases according to predefined categories.

Of the 11,567 companies interviewed by telephone, 5,902 faced NTM-related trade obstacles, of which 3,390 agreed to participate in face-to-face interviews – 1,085 exporters, 1,044 companies that both export and import, and 1,261 importing companies. The average participation in face-to-face interviews is 57%, but ranges from 35% (in Kazakhstan) to 100% (in the State of Palestine).

The questionnaire used to structure face-to-face interviews consists of four parts. The first part covers the characteristics of the company, including the number of employees, turnover, share of exports in total sales and whether the company exports their own products or represents a trading agent that provides export services to domestic producers.

The second part is dedicated to the company's exporting activities, with all traded products and partner countries recorded. While doing this, the interviewer also identifies all products and partner countries for which burdensome regulations are encountered.

In the third part of the interview, each problem is described in detail. A trained interviewer helps respondents to identify the relevant government-imposed regulations, affected products (6-digit level of the Harmonized System), the partner country exporting or importing these products, and the country applying the regulation (partner, transit or home country).

A final part of the interview, introduced in mid-2011, comprises questions on the general business environment.

While the distribution of the 3,390 companies does not differ significantly between the two rounds of interviews in terms of company size, the distribution across sectors changes remarkably in the face-to-face stage. The number of face-to-face interviews is mainly driven by the share of companies being affected by regulatory or procedural trade obstacles. In particular, 45% of the companies interviewed in face-to-face export agricultural products (fresh food and processed food). The face-to-face interview sample remains representative to the extent that it is the result of the telephone interview sample.

Table 4. Sector composition of companies in face-to-face interviews in 23 countries

Sectors	Companies exporting	Companies importing
Fresh food and raw agro-based products	28%	7%
Processed food and agro-based products	17%	9%
Wood, wood products and paper	8%	6%
Yarn, fabrics and textiles	5%	8%
Chemicals	7%	18%
Leather and leather products	3%	1%
Metal and other basic manufacturing	6%	10%
Non-electric machinery	3%	8%
Computer, telecommunications; consumer electronics	0%	5%
Electronic components	2%	6%
Transport equipment	2%	6%
Clothing	7%	2%
Miscellaneous manufacturing	11%	10%
Not available	1%	3%

Source: ITC NTM Surveys, 2010 to 2013.

Chapter 2 Construction of the database

1. Country data

Each burdensome measure (regulation) is classified according to the international taxonomy of NTMs (appendix I), with minor adaptations to the ITC NTM Survey's needs and consisting of 120 specific measures grouped into 16 categories. The NTM classification is the core of the survey, enabling the application of a uniform and systematic approach to comparatively analyse burdensome NTMs in different countries with idiosyncratic trade policies and approaches to NTMs.

The procedural obstacles are also classified according to a taxonomy developed by the UN Multi-Agency Support Team group and adapted by ITC for the purpose of the NTM Surveys (appendix I).

Each NTM could either create a regulatory obstacle, one (or more) procedural obstacles or a combination of one regulatory problem and one (or more) procedural obstacles. During the face-to-face interview stage, each company would typically report a minimum of one burdensome NTM and potentially procedural obstacles.

The frequency and coverage statistics are based on 'NTM cases'. An NTM case is the most disaggregated data unit of the survey. Each NTM case is multidimensional, taking into account the reporting company, the product, the type of NTM, the partner country and, if relevant, related procedural obstacles, which would be counted separately. For example, if three products are affected by the same NTM applied by the same partner country and reported by the same company, the results would include three NTM cases (box 1). Similarly, if two companies report the same measure imposed on the same product by the same destination country, it would be counted as two different NTM cases.

Box 1. Counting non-tariff measures and procedural obstacles

To understand how NTM and procedural obstacle cases emerge from the face-to-face interviews, consider the following testimonial captured during the NTM Survey in Egypt.

- An Egyptian exporter of electric appliances (three different HS6 codes) to Saudi Arabia reported:, 'Product registration is very difficult and should be renewed every two years. The registration process itself is usually delayed for almost one month and is relatively expensive (US$ 2,850) per registration of product.'
- This testimonial about one company facing one burdensome NTM (product registration) when exporting three products to one partner country will be captured in the survey database as three NTM cases: 1 exporter x 3 HS6 products x 1 partner country x 1 NTM = 3 NTM cases.
- In this example, the NTM is burdensome because of its nature (regulatory problem), but also due to the compliance process, which is 'delayed' (first procedural obstacle) and 'expensive' (second procedural obstacle). The NTM case is then related to two different procedural obstacles that will be counted as two different procedural obstacles. Each of the three NTM cases will lead to two procedural obstacle cases: 3 NTM x 2 procedural obstacles = 6 procedural obstacle cases.

Source: ITC NTM Survey in Egypt, 2011.

The counting of cases differs for measures imposed by the exporting country. If the home country of the interviewed exporter applies an NTM to a product exported by the company to several countries, the problem will be recorded as a single NTM case, irrespective of the number of destinations. If the company exports three products that are affected by the same NTM applied by the home country, the results would include three NTM cases.

In each surveyed country, the filled out interview questionnaires are compiled into a single dataset, which contains three main databases: one with the company level information, one with the NTM cases information and one with the procedural obstacle cases information, which are captured at the face-to-face interview stage at product and partner country level. In the country data analysis, frequency and coverage statistics are calculated along several dimensions, including product and sector, main NTM category, related procedural obstacle category and company characteristics. The country analysis is published in a country report, which also includes the findings of discussions with national experts and stakeholders.[17] This paper takes stock of the information collected in 23 countries.

2. Cross-country data

The country databases have been merged to enable cross-country analyses and comparisons. The structure of the data remains the same (same variables) but the counting of NTM cases and procedural obstacles has been adapted to balance the weight of interviews across the different countries. While 129 companies were interviewed by telephone in Malawi, they were 964 in Peru. A two-step adjustment is made to attribute equal representation to each country in the sample. The number of companies participating in the telephone interviews in each country is adjusted to a standard size (arbitrarily chosen at 1,000 companies). The share of companies affected by NTMs (as revealed by the telephone interviews) remains unchanged. Next, the participation rate in the face-to-face interview stage is adjusted to a standard value (arbitrarily chosen at 100%). For the analysis of the global results we rely on the first weight to obtain statistics for the telephone interview stage; statistics for the face-to-face interview stage are compiled by combining the two weights.

The weighting removes the differences between surveyed countries arising from different sample sizes in the telephone interview stage as well as the differences stemming from the way companies participate to the face-to-face interview stage. However, the effect of different levels of the willingness to report burdensome NTMs will remain; a country in which companies are in general more willing to report on their issues will appear larger. The values attributed to each country are detailed in appendix IV.

The following example illustrates the adjustment process. In Burkina Faso, 172 companies were interviewed by telephone. The coefficient for the first weighing is 5.8 (1,000/172). The participation rate in the face-to-face interviews is 67%: two-thirds of the companies reported facing burdensome NTMs and were willing to participate in the face-to-face interviews. The second coefficient is thus 1.5 (100/67). The final adjustment coefficient for Burkina Faso is 8.7 (=5.8*1.5) for the face-to-face interview weighing. A different method was applied to the results for the State of Palestine, as non-exporting companies (importing only) were not interviewed.[18] This results in a theoretical number of observations equals to 22,642 observations (22 countries times 1,000 plus 642 for the State of Palestine). The following analysis is based on this adjusted cross-country database.

3. Database limitations

While adding new evidence to the literature on effect of NTMs on trade, the survey-based approach is subject to caveats.

First the surveys generate perception data as respondents are asked to report burdensome regulations representing a serious impediment to their exports. Respondents may have different perceptions when judging what constitutes an impediment. The differences may further intensify when the results of the NTM Surveys are compared across countries, stemming from cultural, political, social, economic and linguistic differences.

Second, the sample consists only of those companies capable to trade. Firms unable to export due to burdensome trade-related NTMs are not surveyed. Firms that do not perceive existing NTMs as obstacles

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[17] The ITC series on NTMs is available at: www.intracen.org/publications/ntm.

[18] In the case of the State of Palestine, 239 exporters were interviewed. To perform the adjustment, companies interviewed in the State of Palestine were considered equivalent to the group of companies exporting only and companies doing both (exports and imports) in other countries. In the 22 other countries, there is a simple average of 36% of importers and 64% of companies exporting or both exporting and importing. Keeping this value for the State of Palestine, 372 (=239/(1-36%)) companies in the telephone interview stage for the State of Palestine compare to the size of other surveys. The 372 figure is the one to be adjusted to 1,000.

because they are large and well equipped to deal with those regulatory issues are not interviewed face-to-face. However, the NTM Surveys do capture with which markets existing exporters were unable to trade due to NTMs.

Third, it is not straightforward to measure the magnitude of NTM-related costs. For each NTM case involving procedural obstacles, additional details such as the number of days or weeks (delays) and the magnitude of the cost (in US$ or local currency) are captured.[19] However, inferring the costs of compliance or quantifying the actual impact of NTMs on trade activity requires further work and information. As a result, the ultimate impact of restrictive NTMs on the margins of trade cannot be directly deduced from the ITC NTM Survey.

Finally, a possible bias of the interviewer cannot be ruled out, although every effort is made to reduce the interviewer effect to a minimum. Some inconsistency may be possible among interviewers, for example in matching reported measures against the codes of the NTM classification. This is due to the complex and idiosyncratic nature of NTMs. To tackle this potential issue, ITC provides in-depth training to interviewers to ensure they have the skills to obtain and capture the correct information and to conduct the interviews in line with ITC’s high-quality standards. The training involves pilot interviews under ITC supervision. All survey data undergoes a thorough quality control process managed by ITC.

Additional problems that may arise include:

- Exporters may not know the demand-side constraints behind the borders, for example ‘buy domestic’ campaigns;
- The survey is limited to legally operating companies and does not survey unrecorded trade, for example the informal sector;
- Private standards are by definition not the main focus of the NTM Survey and are only captured when companies mention issues related to such standards at their own initiative.

ITC believes that despite these intrinsic limitations, this methodology allows the collection and analysis of relevant information on NTMs faced by developing countries’ exporters or importers.

[19] Note that ITC’s NTM Surveys, which commenced in 2013 or later, include a specific question on the cost of each problem (NTM case) as a percentage of the product value. However, this information is not available for the 23 countries discussed in this paper.

Chapter 3 An overview of NTM Survey results

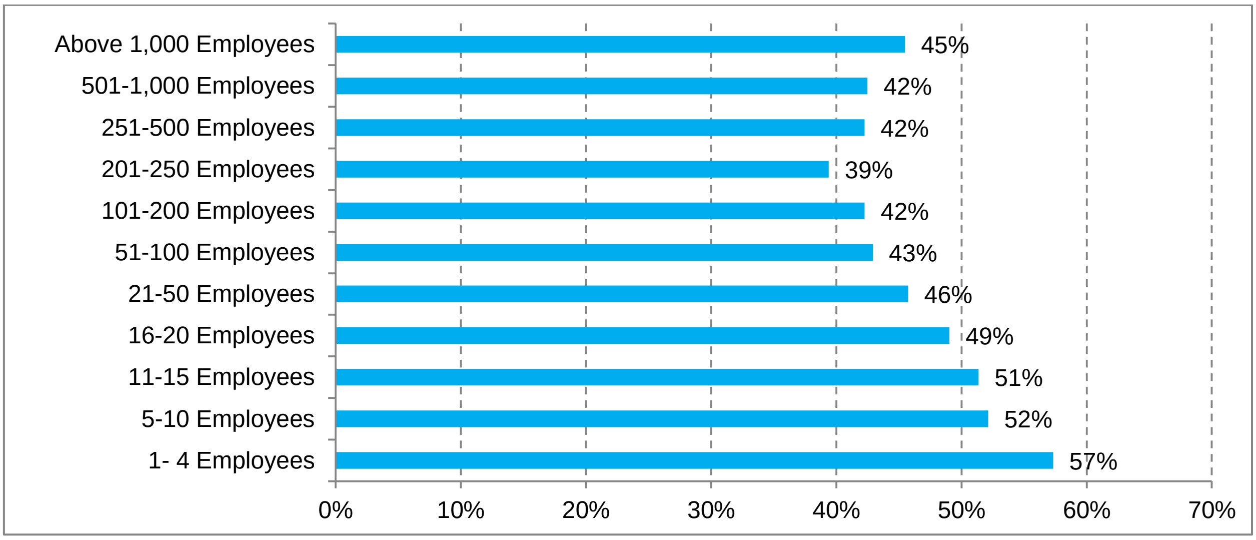
1. Overall perception of burdensome NTMs

This chapter presents the insights on obstacles to trade developed from the NTM Surveys in 23 countries. For simplicity, the analysis concentrates on exporters' perspectives.

The first evidence on the importance of NTMs is affectedness (figure 2). The affectedness is calculated as the share of firms facing burdensome NTMs when trading goods. Up to half of the firms, depending on their size are affected by NTMs. Affectedness is the largest (57%) for smaller companies with fewer than five employees. In contrast, only 45% of the largest companies of our sample, with more than 1,000 employees, declare being affected. This is points to the fact that a large proportion of the distribution of firms is affected.

NTMs are an important issue for developing countries' exporters. However, smaller firms with less capability to overcome fixed or variable costs of exporting are more impacted, while the positive relationship between exporters' size and productivity is a well-documented stylized fact. Part of what is observed in the survey is the combination of actual barriers and insufficient productivity of exporters. Nonetheless, the negative correlation between companies' size and affectedness reverses above a certain threshold (250 employees). Figure 2 shows that companies' size influences the affectedness in two ways: the smaller the company, the less capability to comply with NTMs; the bigger the company, the more products-markets that could encounter at least one obstructive NTM.

Figure 2. Overall exporters' affectedness by NTM-related trade obstacles, by number of employees



Source: ITC NTM Surveys, 2010 to 2013.

Note: The bar chart plots the share of interviewed exporting companies across the 23 countries that reported to face NTM-related trade obstacles when trading goods according to the number of employees. The figure shows that 52% of companies employing five to 10 persons are affected by NTM-related trade obstacles. This share is 39% for companies employing 201 to 250 persons.

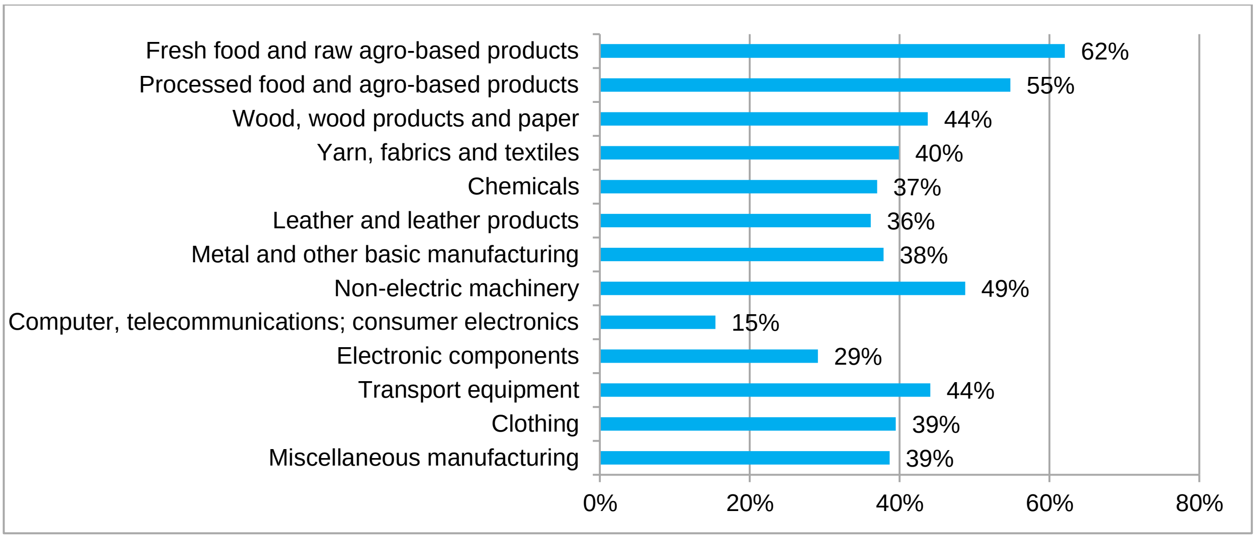
Not all products are affected in the same way, but part of the evidence on the differentiated impact of NTMs by firm size might be driven by the fact that firms of different size export different products. With the exception of the fresh food sector, there is no clear relation between the share of firms with less than 50 employees and the affectedness of the sector.

The agro-food sector is particularly impacted by sanitary and phytosanitary standards and the related certification or control procedures because products are generally highly perishable and fragile. This expected outcome is shown in figure 3, where fresh food and raw agricultural products appears as most impacted sector, with the overall exporters' affectedness by NTM-related trade obstacles above 60%.

Beyond cost and time spent in procedures, the uncertainty about possible rejection of the shipment at the border of the destination market is affecting exporters.

The second most impacted sector is processed food, with 55% of exporters declaring being affected. Conversely, in consumer electronics, NTMs play a limited role; NTM-related trade obstacles affect only 15% of exporters. The type of products is only one explanation, as technical barriers to trade (TBTs) are very present. Another explanation could be the position of developing countries' exporters in the different value chains. While exporters of agricultural goods are mainly active at earlier stages of the production with a high and diffuse number of competitors, exporters of manufactured goods usually depend on the intensive use of high-quality (imported) inputs and belong to more closed and organized trade relationships with higher levels of trust. A similar explanation may pertain to electronic components, with a 29% affectedness rate.

Figure 3. Overall exporters' affectedness by NTM-related trade obstacles, by sector



Source: ITC NTM Surveys, 2010 to 2013.

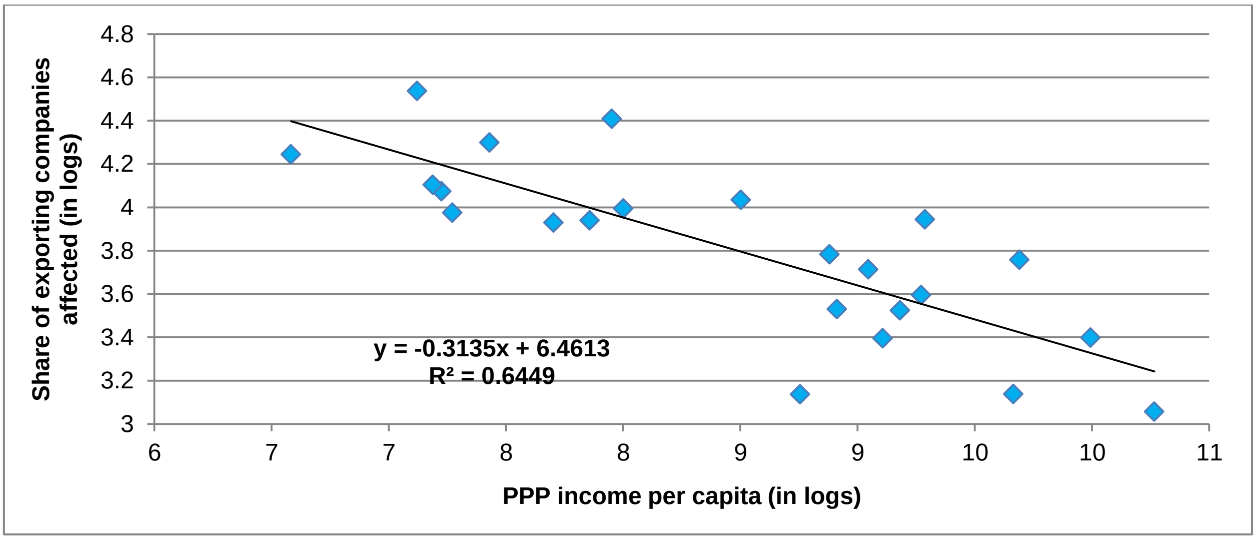
Note: The bar chart plots the share of interviewed exporting companies across the 23 countries that reported to face NTM-related trade obstacles when trading goods according to their sector. The figure shows that 62% of exporters of fresh food and raw agro-based products are affected by NTM-related trade obstacles. This share is 37% for exporters of chemicals and 39% for exporters of clothing.

This descriptive evidence suggests that fragmented sectors where small exporters from developing countries are confronted with tight regulations are a big proportion of the problem of NTMs. More concentrated sectors where the international division of labour is dominated by big players are less concerned. As LDCs are often characterized by fragmented sectors, the policy issue with NTMs is the combination of exposed sectors, limited capacity of individual small exporters, and also possibly the limited capacity of their domestic administrative and technical environment to cope with information supplied to exporters, certification procedures or controls. The next sub-section of this paper explains this important domestic dimension of the problem. But before addressing this issue, let us recall that figures commented here do not show the situation where NTM are present but are not perceived as obstacles by the surveyed firms or in very rare cases where no NTM exists.

Previous evidence suggests that part of the trade impact of NTMs is inversely related to the development level of exporting countries for two reasons. First, countries at a lower level of development may have limited resources to support exporters to cope with these measures. Second, domestic procedural obstacles may be higher in countries at lower level of income, for example because of fewer certification bodies. ITC systematizes this negative relationship between the share of affected companies and the income level in figure 4.

Income level is proxied by gross domestic product (GDP) per capita and ITC uses the purchasing power parity (PPP) valuation of it in order to take account of actual purchasing power at domestic prices, a fair indicator of the investment possibilities in administration and infrastructures. The share of affected companies ranges from 90% to 20% and this can be broadly explained by differences in income per capita. The negative relationship is clearly present and differences in income per capita alone predict two thirds of the variance of affectedness (in logs) between countries.[20,21] The elasticity of affectedness to income is such that a 10% increase in income reduces affectedness by 3%.

Figure 4. Share of exporting companies affected and purchasing power parity (PPP) income per capita in surveyed countries



Source: ITC NTM Surveys, 2010 to 2013 and World Bank for income per capita.

Note: GDP is observed at the starting year of the NTM Survey for each country.

2. Type of burdensome non-tariff measures

This section focuses on the sub-sample of firms having declared in the survey that NTMs were turning into obstacles, and tries to determine under which conditions this is the case. As discussed in the previous sub-section, the survey captures a highly uneven sectoral distribution of firms, and the size of the firms is also smaller in the sample of affected firms than in the surveyed sample. These characteristics of sectors and firms being identified, the instances under which NTMs become obstacles can be characterized. Burdensome NTMs might come from different sources. Is it at home in the exporting country, and the more so for food products requiring a good infrastructure of certification or refrigeration? Is it when reaching the border of an Organisation for Economic Co-operation and Development (OECD) market where regulations or controls may be tougher due to higher standard of living and high concern for food and other products safety? Is it when reaching the border of another developing country, where possibly infrastructures for product control are deficient? And finally, is there any evidence that signing Regional Trade Agreements (RTAs) with other developing countries facilitates trade with regards to NTMs? Figures 5 and 6 provide a series of answers to these questions.

OECD countries are the destinations where NTM-related trade obstacles are concentrated, especially for agricultural products. Figure 5 shows that 39% of the cases reported for agricultural products are obstacles faced when exporting to this group of countries and respectively 31% for manufactured products. When

[20] Notice however that the sector composition of exports – not controlled here – might play a role, since countries at lower level of income per capita can have a comparative advantage in Fresh food, a highly affected sector.

[21] The linear regression of the logarithm of a first variable (*log y*) on the logarithm of a second variable (*log x*) is known as the log-log specification. It allows interpreting the estimate of the coefficient on the second variable as the elasticity of variable *y* with respect to variable *x*. The elasticity corresponds to the relative change (in percentage points) of variable y following an increase of 1% in the value of variable x.

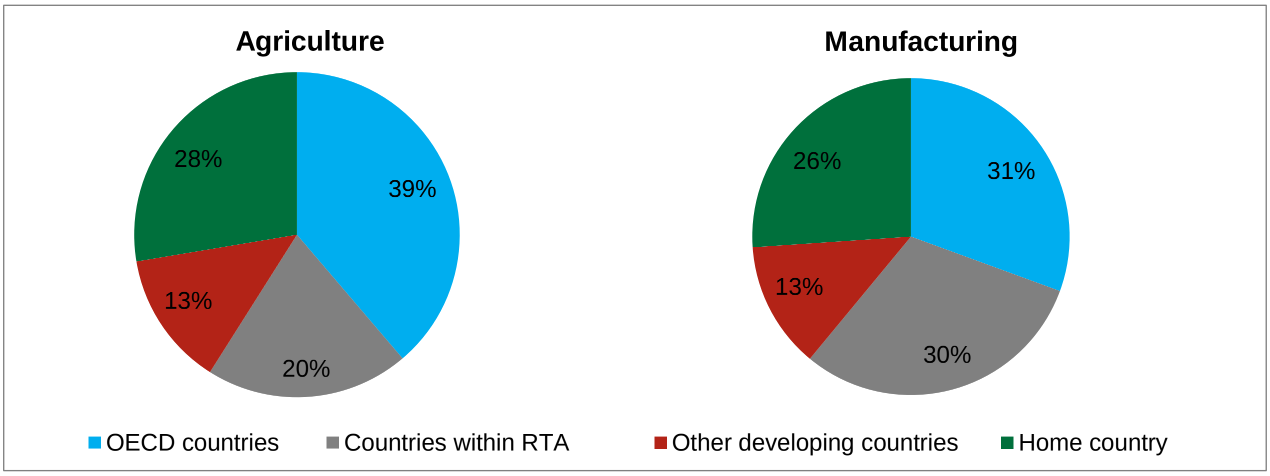
interpreting this result, however, it is important to consider that the geographic structure of exports might play a role. This is why it is necessary to compare the share of cases of burdensome NTMs and the share of exports across trading partners, for each sector. This is done in figure 6, where the domestic part of NTM-related trade obstacles is disregarded. The NTM Survey only focuses on destination markets. The NTM Survey shows that 41% of the value of agriculture exports is shipped to OECD countries, but this is where 54% of the burdensome NTM obstacles are identified. This comparison shows that the OECD market of agricultural products is perceived comparatively more NTM-restrictive than other markets.

Considering manufacturing products, OECD markets appear much less restrictive in terms of access: 54% of surveyed countries' value of manufactured exports is shipped towards OECD countries, while only 41% of NTM cases are observed in relation to measures applied by these countries. One explanation is the integration of exporters from developing countries in global value chains, or more generally their tight connection with buyers or distributors that impose strict private specifications in terms of design or quality of products.

Another 33% of reported cases correspond to exports of agricultural products to developing countries: 20% within RTAs and 13% outside of RTAs (figure 5, left panel). Similar figures pertain to exports of manufactured goods. RTAs do not deliver their potential benefits in terms of market access: 18% of agricultural exports in value are directed towards other developing countries in the RTAs; 28% of the NTM cases are reported in relation to these destinations (figure 6, left panel). The situation is worse for manufactured products, 22% and 41% respectively (figure 6, right panel). This suggests that despite phasing out tariffs within RTAs, member countries have failed to achieve proper economic integration. Technical norms for manufactured products and many more non-tariff obstacles continue to hamper intra-regional trade. This pattern is not observed for exports to other developing countries, which suggests that it is easier to access markets outside an RTA than within a region.

Contradicting the common perception that non-tariff barriers are faced in the destination market, ITC NTM Surveys reveal that 26% (agriculture) to 28% (manufactured goods) of the NTM cases correspond to measures applied by the home country (figure 5). An important category of problems faced at home by exporters is procedural obstacles, which render compliance with NTMs difficult (see also figures 9 and 10). From a policy perspective, domestic obstacles are a low-hanging fruit. It is much simpler for an exporting country to adapt its domestic regulatory and procedural framework than to negotiate with trading partners.

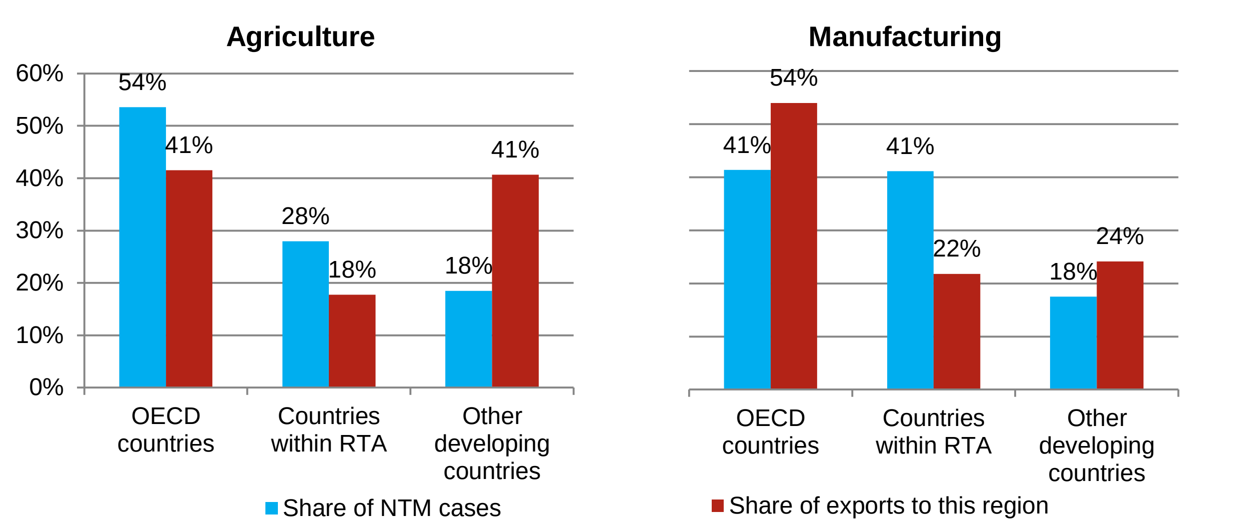
Figure 5. Distribution of cases reported by exporters across countries and regions applying the NTM



Source: ITC NTM Surveys, 2010 to 2013.

Note: The pie charts represent the total number of cases of burdensome NTMs (NTM cases) that were reported by exporting companies in surveyed countries for agricultural and manufacturing products. The NTMs are subdivided according to the country applying the measure. These countries include the home country of the company or its partner countries, distinguishing regional partners (signatory of a Regional Trade Agreement), developing countries and OECD member countries. The charts reveal that 20% of NTM cases reported by agricultural exporters concern measures applied by regional partners. Likewise, 31% of burdensome NTMs to manufacturing exports are applied by OECD members.

Figure 6. Share of cases of burdensome NTMs versus share of exports across trading partners, by sector



Source: ITC NTM Surveys, 2010 to 2013; and ITC staff calculations based on Trade Map data, 2012.

Note: The bar chart plots for both the agriculture and the manufacturing sector the share of NTM cases for measures applied by partner countries against the estimated share of exports of the surveyed countries to their regional partners and the rest of the world (developing and OECD countries). Export shares are calculated excluding minerals and arms. Only burdensome NTMs reported by exporters are considered. Shares of NTM cases are weighted averages of the survey results for surveyed countries.

The figure shows that 28% of burdensome NTMs reported by exporters of agricultural products in the surveyed countries are applied by regional trading partners. Only 18% of these countries' exports go to their region. For manufacturing, 41% of NTM cases concerning regional partners' regulations stand against just 22% of exports.

Anecdotal evidence suggests that the type of burdensome NTMs may be very different depending on the sector. Due to the presence of SPS measures for agricultural products, technical requirements and conformity assessment related obstacles are likely to represent a frequent source of complication for exporters. Because of strict SPS regulations, the combination of testing, evaluation and certification of products might be costly or lengthy.

'Shipments to the United States are subject to several checks, which include mandatory testing for food hygiene reasons such as salmonella. We are required to pay for testing at a United States laboratory (US$ 1,200 per test), and there is usually a three-to-four week delay for the release of the container.'

Exporter of baked goods in Trinidad and Tobago, ITC NTM Survey

In contrast, another source of paperwork regards rules of origin. Pre-shipment inspections imposed by importing countries – but performed in the exporting country – could be an important source of difficulties for exporters of both kinds of products in relation to inspections performed by entities contracted or mandated by the importing country.[22] For example, the exporting company might not be aware of all documents that need to be submitted to the inspectors or of any change in the regulations of the destination country.

The NTM Survey confirms the two first hypotheses (figure 7): 48% of NTM-related trade obstacles for agricultural products were reported in relation to conformity assessments, but only 5% in relation to pre-shipment inspection. If exporters encounter difficulties at home, it is because of insufficient domestic conformity assessment infrastructure, rather than the pre-shipment requirements of the partner country. In addition, partner countries' technical requirements account for 22% of NTM cases in agriculture.

[22] Pre-shipment inspection is defined by the WTO as 'all activities relating to the verification of quality, the quantity, the price, including currency exchange rate and financial terms, and/or the customs classification of goods to be exported to the territory of the user Member' (Uruguay Round agreement on Pre-shipment Inspection, Article 1.3). It is 'by definition carried out on the territory of exporter Members'.

In contrast, for manufactured products, 35% of the burdensome NTMs applied by partner countries to manufacturing exports concern rules of origin and the related paperwork. The stringency or complexity of rules of origin in industry appears much more difficult to comply with than in agriculture. Problems with pre-shipment inspection are also more frequent than for agricultural products (13% of the cases identified for goods exports), but still not as important as expected.

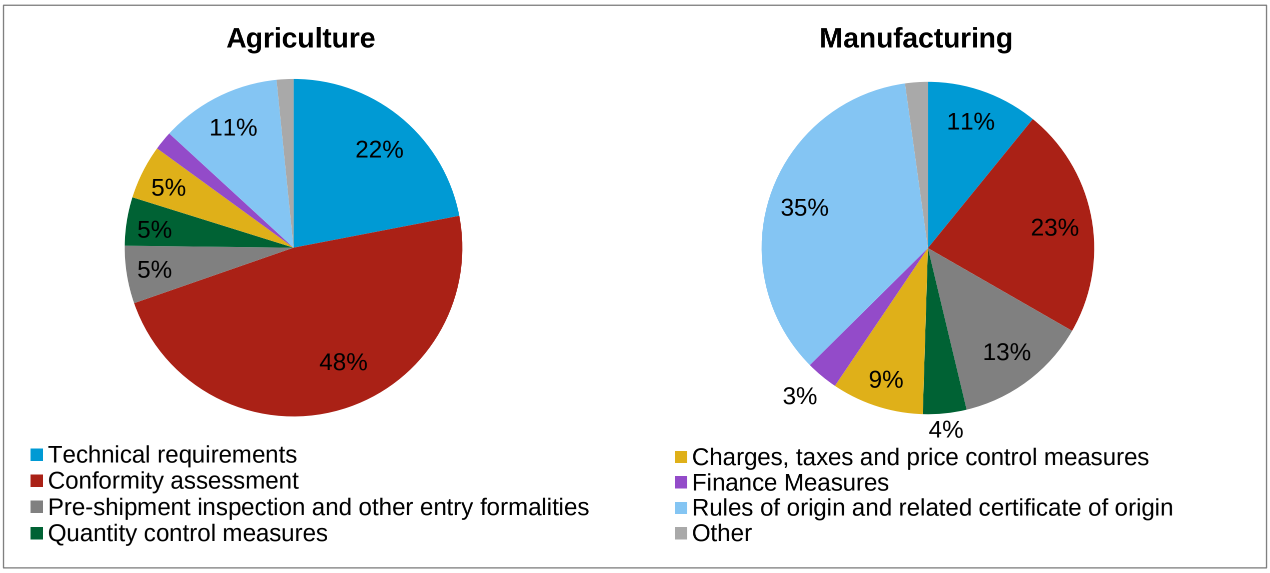
'When exporting cut roses from Tanzania to Spain our company is required to obtain an export permit from the Ministry of Industry and Trade, but it takes up to three months to obtain this permit.'

A United Republic of Tanzania exporter of cut roses, ITC NTM Survey

In addition to the difficulties created by partner country regulations, exporters struggle with NTMs applied by their home country (figure 8). Disaggregating domestically applied NTMs on exports by type, the NTM Surveys reveal export inspection and certification requirements as bottlenecks: 46% of cases pertain to export inspection or certification of agricultural exports. For manufacturing products, the share amounts to 32%.

An unexpected 10% (agriculture) and 13% (manufacturing) of the NTM-related trade obstacles identified in the NTM Surveys correspond to additional taxes and charges on exports imposed by the exporting country (figure 8).

Figure 7. Types of burdensome NTMs applied by partner countries



Source: ITC NTM Surveys, 2010 to 2013.

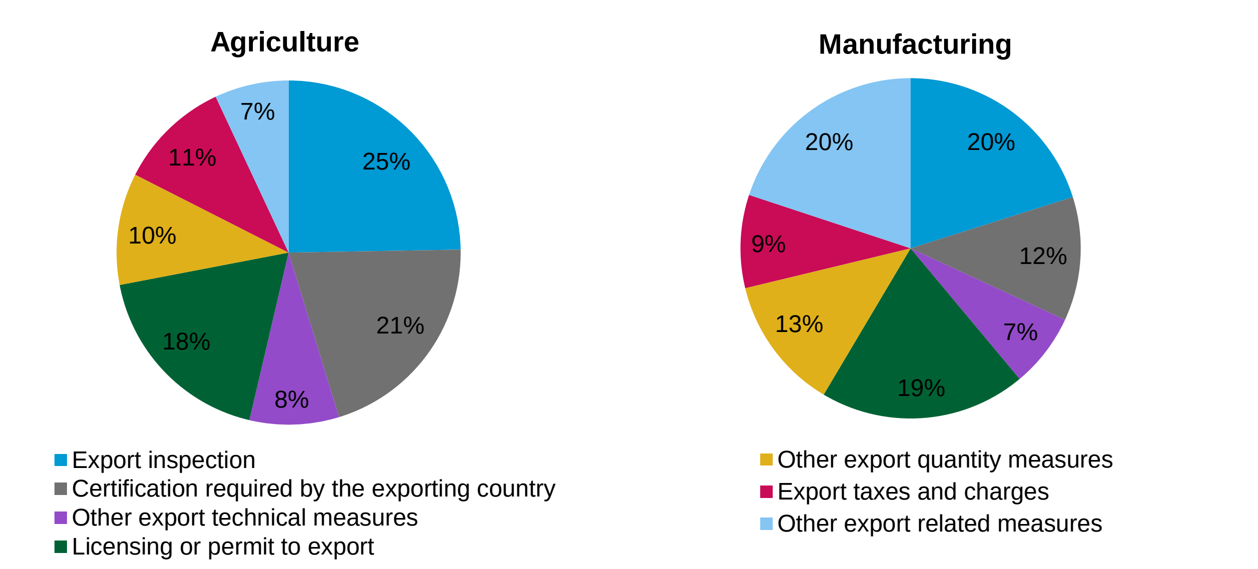
Note: The pie charts show the type of burdensome NTMs applied by the partner countries to exporters of agricultural and manufacturing products from surveyed countries. It reveals that 48% of the burdensome NTMs applied by partner countries to agricultural exports concern conformity assessment requirements. Likewise, 35% of the burdensome NTMs applied by partner countries to manufacturing exports concern rules of origin.

Procedural obstacles

The encountered obstacles are not necessarily only the outcome of the NTMs' stringency, but also the consequences of the related procedures to implement them. A more direct way to assess the respective contributions of these two dimensions of the problem is to ask directly exporters whether regulations are too strict or whether the problems come from procedural obstacles.

In certain cases, the two can cumulate. The NTM Surveys show the overwhelming importance of procedures: in 65% of the cases identified in exporting agricultural products (and respectively 77% for manufacturing) procedural obstacles are involved in the identified problem (figure 9). This result is a clear guidance from a policy perspective. It is more effective to focus on improving the procedures than it is to fight for reducing the severity of regulations, which are often, if not always, enforced for legitimate reasons, for example to ensure the quality or safety of products.

Figure 8. Types of NTMs applied by home country to exports



Source: ITC NTM Surveys, 2010 to 2013.

Note: The pie charts show the type of burdensome NTMs applied by the surveyed countries to their own exporters of agricultural and manufacturing products. The left pie chart reveals that 25% of the burdensome NTMs applied by surveyed countries to their exporters of agricultural products concern export inspections.

Where do these procedural obstacles come from? Is it a lack of infrastructure in the exporting country, deficient administration or discriminating behaviour of officials? Results reported in figure 10 point to a multiplicity of causes across the 23 surveyed countries. We consider here agricultural and manufacturing products equally.

First of all, the majority (72% of cases) of procedural obstacles are encountered in the home country. In the exporter's home country, the most important issue is lengthy procedures. Time is money for exporters, and delays are very penalizing: 30% of procedural obstacles concern time constraints (notably delays) occurring at home, and another 11% in the partner country. The second most important problem concerns corruption and high charges, which occur mainly in the exporting country. The third dimension of the problem involves red tape, which also occurs primarily in the exporting country.

> 'The European Union and Japan have different MCPA (2-methyl-4-chlorophenoxyacetic acid) herbicide residue allowances for tea. The problems arising from technical measures were usually not from the inability to comply with the requirement, but the administrative burden of keeping records of different requirements from each country.'
>
> The Industrial Technology Institute of Sri Lanka, ITC NTM Survey

The evidence demonstrates that NTMs are often transformed into obstacles to exports through a combination of conformity and pre-shipment requirements requested by the importer, and deficient export inspection or certification procedures in the exporting country. The problem is delays, red tape and high cost (including bribes).

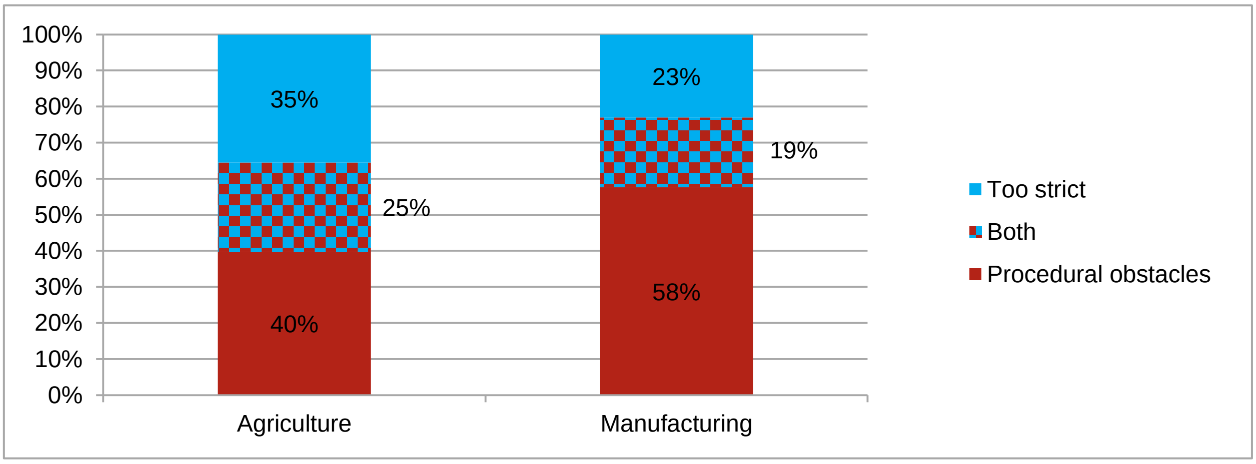
To the extent that the problem with procedural obstacles is partly a domestic issue in the exporting country, it is worth identifying the institutions associated with these inefficiencies. This exercise is difficult when considering 23 very different countries. However, ITC has tentatively grouped agencies and various administration bodies or semi-public entities in 15 broad categories (table 5). This paper examines how often each entity was mentioned in the 23 surveys as the source of a domestic procedural obstacle. Within this matrix, cells of different colours indicate where

> 'We are not always informed about the registration procedures of the Tunisian customs. The lack of information creates delays and force us to pays a penalty of 150 TND per shipment. The delays come often from the customs' officials themselves who then bribe us for facilitating the procedures.'
>
> A Tunisian exporter of margarine, ITC NTM Survey

obstacles are concentrated. Colours range from green to red, with green being the lowest and red being the highest frequency. The evidence is clear: the major procedural concern are time constraints and cost related to border clearance processes at customs as well as to processes in the ministry in charge of international trade (for example the issuance of certificates of origin), other relevant ministries (for example health certification in the ministry of health) and the standards bodies (product testing and certification). This contrasts with the low occurrence of e.g. time constraints at airports. Standard bodies are also associated with problems related to lack of regognition and accreditation while procedures involving chambers of commerce are hampered by red tape.

The NTM Survey results confirm the customs authority as probably the most important agency in trade facilitation. The essential challenge for customs agencies boils then down to the question of how to fulfil the mandate of revenue collection and product quality and safety control, while at the same time ensuring a smooth import and export process.

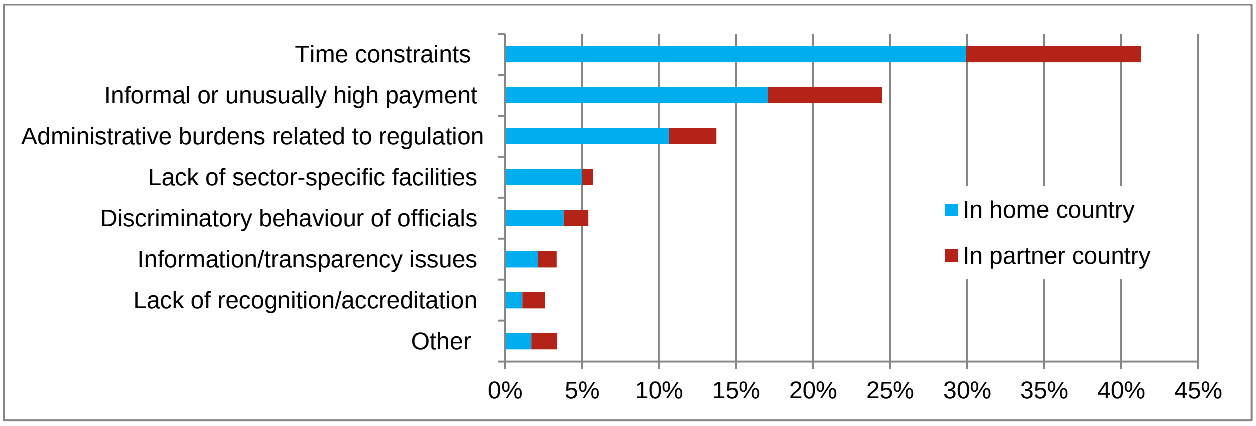
Figure 9. Reasons making NTMs burdensome for exporters, by sector



Source: ITC NTM Surveys, 2010 to 2013.

Note: The bar charts present the types of NTM-related trade obstacles faced by exporters of surveyed countries for agricultural and manufacturing products. It shows that 65% of NTMs on agriculture (left panel) and 77% of those on manufacturing products (right panel) are considered burdensome because of procedural obstacles.

Figure 10. Procedural obstacles related to NTMs applied to exports



Source: ITC NTM Surveys, 2010 to 2013.

Note: The bar chart presents the types of procedural obstacles associated to NTMs applied to exports of surveyed countries. It shows that 41% of procedural obstacles concern time constraints, notably delays, with 30% occurring at home and 11% in the partner country.

Table 5. Incidence of procedural obstacles occurring in domestic agencies

Type of procedural obstacles / Location of the procedural obstacles	Time constraints	Informal or unusually high payment	Administrative burdens related to regulation	Lack of sector-specific facilities	Discriminatory behaviour of officials	Information/ transparency issues	Lack of recognition/ accreditation	Other
Customs authority								
Ministry in charge of international trade								
Ministry in charge of agriculture								
Ministry in charge of public health								
Public/private organization for standard and quality								
Chamber of commerce and trade support institution								
Public/private organizations for certification								
Ministry in charge of environmental affairs								
Public/private organizations for inspection								
Products testing and analysis laboratory								
Port authority								
Airport								
Ministry in charge of finance								
Other ministries/agencies								
Other private companies/banks								
Not specified								

Legend: The different intensities of green over yellow and orange to red indicate the frequency of procedural obstacles that are mentioned for a given institution and the type of procedural obstacle, with green being the lowest and red being the highest frequency.

Note: The table presents the domestic procedural obstacles related to NTMs applied to exports from surveyed countries, by institution and type of obstacle. It shows that many obstacles occur or involve the customs authorities and key ministries in charge of export control.

Source: ITC NTM Surveys, 2010 to 2013.

Chapter 4 The way forward

The NTM Surveys conducted by ITC bring the private sector's voice to the debate on the trade impact of NTMs. The NTM Surveys document the extent to which developing country exporters experience NTMs as regulatory and procedural obstacles to trade, independently of whether this effect is intended by regulatory authorities.

The NTM Survey results across 23 countries suggest that a large proportion of companies are affected by NTM-related problems, especially in less developed countries. Many difficulties relate to NTMs applied by countries within regional trade agreements. Across countries, domestic impediments constitute a large share of reported obstacles. Private sector concerns with NTMs are not limited to the strictness of regulations, but often relate to local procedures that present obstacles to trade. Transparency is thereby a key element: providing information and communicating contributes to more efficient processes and reduced trade cost though rendering cross-border business transactions more predictable in terms of time and cost.

Outcomes

The NTM Surveys are implemented as part of ITC's trade-related technical assistance. They aim to facilitate identifying and removing trade obstacles through increased transparency and dialogue. Country findings are systematically discussed with local, regional and international actors. The results of the NTM Surveys for the 23 countries presented in this paper served as input for national stakeholders' meetings. Beyond validating the NTM Survey results, these meetings served to define priority actions to eliminate the obstacles faced by exporters and importers.

Survey results spark action

Survey results have as such fed into trade strategies, for example in Côte d'Ivoire, Malawi and the State of Palestine. Results have informed the design of national and regional projects and programmes, for example in Jamaica, Madagascar and Morocco. NTM Survey results have also led to a number of initiatives, for example on product quality and conformity assessment in Senegal and Sri Lanka, improved SME access to information on regulations and trade procedures in Arab States and strengthened public-private dialogue mechanisms in Côte d'Ivoire and Mauritius.

In Côte d'Ivoire, the public-private interaction created through the NTM Survey process has continued through the implementation of an online platform, which allows trade operators to report obstacles they face when exporting or importing their products. Via an alert system based on email notifications, the relevant national authorities can learn first-hand about the hurdles faced by the business community and address their concerns. In addition, users can choose to receive alerts for the products and markets of their interest, concerning the obstacles encountered by other operators and the solutions provided.

Future research

This paper takes stock of an unprecedented effort of data collection in developing countries regarding trade obstacles faced by exporters and importers, which goes beyond the usual indicators such as number of days to export or number of documents.

From a research perspective, the findings presented in this paper only partially exploit the richness of the information collected by the ITC NTM Surveys. This paper focused on exporting companies for sake of clarity. There is a need to complement the analysis with an assessment of regulatory and procedural trade obstacles faced by importing companies, which are also captured through the surveys.

The information collected has been presented on the basis of stylized facts and summary statistics. Given the microeconomic nature of such data collected at the firm level – although by sampling – an in-depth analysis taking benefit of within-industry differences of perceptions is to be envisaged.

As a by-product, NTM Surveys have gathered insightful firm-level data on exporters and importers in developing countries. The data reveal company characteristics such as the size, share of female employment or company ownership. This data will prove useful for research beyond NTMs, for example concerning the representation of women in trade.[23]

This paper looked at survey data from 23 countries. ITC is continuing to increase the country coverage of the data, with NTM Surveys ongoing or planned. This will allow ITC to refine the conclusions of this paper and will open new research possibilities, for example with regard to selected value chains or specific regions.

In particular, further research is needed concerning the role of NTMs in trade agreements and regional integration. A forthcoming ITC book on intra-regional trade in Arab States serves as example for how the NTM Survey data can be used to assess obstacles to trade within a regional trade agreement.

In addition to NTMs, exporters, particularly of food products, are confronted with another source of obstacles and related costs: private standards. These standards have been captured in a non-systematic way in the ITC NTM Surveys as they were not the main focus. Further work remains to be done on the impact of private standards on trade and would benefit from data on business perspectives, as collected through the ITC NTM Surveys. This work would be an important complement to ITC’s Standards Map, which provides comprehensive, verified and transparent information on voluntary sustainability standards and other similar initiatives covering issues such as food quality and safety.[24]

Services sectors are not yet covered in the surveys NTM Surveys conducted. Developing countries can have a competitive advantage is certain services. The reason why services are so little traded does not pertain to their limited tradability. Complex regulations hampering trade in services may be particularly detrimental to companies in developing countries. This issue is an important avenue for future research and data collection.

ITC NTM Survey data will be made publicly available in the near future, and the information disseminated will progressively expand as new surveys are launched. As a first step, each of the NTM Surveys used to inform this report is analysed in detail in country reports available online.

From a policy perspective, the findings of the ITC NTM Surveys will prove to be a valuable source of information in the framework of the United Nations post-2015 development agenda, as well as in the implementation of the Bali trade facilitation package adopted in December 2013 by World Trade Organization member countries.

[23] A forthcoming ITC publication uses the data on female ownership and management of exporting firms.

[24] See more at: www.intracen.org/standardsmap

Appendix I Non-tariff measures classification for surveys

Importing countries are very different in the ways they apply non-tariff measures NTMs. This called for an international taxonomy of NTMs, which was prepared by the Multi-Agency Support Team (MAST), a group of technical experts from eight international organizations, including the Food and Agricultural Organization of the United Nations, the International Monetary Fund, ITC, OECD, the United Nations Conference on Trade and Development, the United Nations Industrial Development Organization, the World Bank and WTO. It was finalized in November 2009 and updated in 2012. It is used to collect, classify, analyse and disseminate information on NTMs received from official sources such as government regulations. For the purpose of the large-scale company surveys on NTMs, ITC uses a simplified version of this international classification.

The NTM classification for surveys differentiates measures according to 16 chapters (denoted by alphabetical letters, see figure below), each comprising sub-chapters (denoted by two letters) and the individual measures (denoted by two letters and a number). The following sketches the content of each of the 16 chapters.

Chapter A, on technical regulations, refers to product-related requirements. They are legally binding and set by the importing country. They define the product characteristics, technical specifications of a product or the production process and post-production treatment and comprise the applicable administrative provisions, with which compliance is mandatory. Technical requirements include sanitary and phytosanitary measures, which are generally implemented to protect human, animal and plant life, and health.

Chapter B, on conformity assessment, refers to measures determining whether a product or a process complies with the technical requirements specified under Chapter A. Conformity assessments include control, inspection and approval procedures – such as testing, inspection, certification and traceability – which confirm and control that a product fulfils the technical requirements and mandatory standards imposed by the importing country, for example to safeguard the health and safety of consumers.

Chapter C, on pre-shipment inspection and other formalities, refers to the practice of checking, consigning, monitoring and controlling the shipment of goods before or at entry into the destination country.

Chapter D, on trade remedies refers to measures implemented to counteract the damage resulting from the occurrence of ‘unfair’ foreign trade practices. It includes anti-dumping, countervailing and safeguards measures.

Chapter E, on licences, quotas, prohibitions and other quantity control measures, includes measures that restrain the quantity of goods that can be imported, regardless of whether they come from different sources or from one specific supplier. These measures can take the form of restrictive licensing, fixing of a predetermined quota or through prohibitions.

Chapter F, on charges, taxes and price control measures, refers to measures other than tariffs that increase the cost of imports in a similar manner, i.e. by a fixed percentage or by a fixed amount. It includes measures implemented to control or affect the prices of imported goods.

Chapter G, on finance measures, refers to measures that are intended to regulate the access to and cost of foreign exchange for imports and define the terms of payment. They may increase import costs in the same manner as tariff measures.

Chapter H, on anti-competitive measures, refers to measures that are intended to grant exclusive or special preferences or privileges to one or more limited groups of economic operators.

Chapter I, on trade-related investment measures, refers to measures that restrict investment by requesting local content, or requesting that investment be related to export to balance imports.

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

Chapter K, on restrictions on post-sales services, refers to measures restricting the provision of post-sales services in the importing country by producers of exported goods.

Chapter L, on subsidies, includes measures related to financial contributions by a government or government body to a production structure, be it a particular industry or company, such as direct or potential transfer of funds (e.g. grants, loans, equity infusions), payments to a funding mechanism and income or price support.

Chapter M, on government procurement restrictions, refers to measures controlling the purchase of goods by government agencies, generally by preferring national providers.

Chapter N, on intellectual property, refers to measures related to intellectual property rights in trade. Intellectual property legislation covers patents, trademarks, industrial designs, layout designs of integrated circuits, copyright, geographical indications and trade secrets.

Chapter O, on rules of origin, covers laws, regulations and administrative determinations of general application applied by the governments of importing countries to determine the country of origin of goods.

Chapter P, on export-related measures, encompasses all measures that countries apply to their exports. It includes export taxes, export quotas or export prohibitions, among others.

The structure of the NTM classification for ITC surveys

A to O. Import related measures

Measures imposed by the country importing the goods. From the perspective of an exporter, these are the measures applied by the destination country of your product. From the perspective of an importer, these are the measures applied by your own country on the goods that you import.

Technical measures

- A. Technical requirements
- B. Conformity assessment

Non-technical measures

- C. Pre-shipment inspection and other entry formalities
- D. Trade remedies (antidumping, countervailing and safeguards)
- E. Quantity control measures (e.g. licences, quotas, prohibitions
- F. Charges, taxes and price control measures
- G. Finance measures
- H. Anti-competitive measures
- I. Trade-related investment measures
- J. Distribution restrictions
- K. Restriction on post-sales services
- L. Subsidies
- M. Government procurement restrictions
- N. Intellectual property
- O. Rules of origin and related certificate of origin

P. Export related measures

Measures imposed by the country exporting the goods. From the perspective of an exporter, these are the measures imposed by your own country on the goods you export from your country. From the perspective of an importer, these measures are imposed by the country of origin on the goods you import from this country.

Source: International Trade Centre, NTM classification adapted for ITC surveys, February 2015 (unpublished document).

Appendix II Procedural obstacles

Following is a list of procedural obstacles related to compliance with non-tariff measures and to an inefficient trade-related business environment and infrastructure.

A	Administrative burdens related to regulations	A1. Large number of different documents A2. Documentation is difficult to fill out A3. Difficulties with translation of documents from or into other languages A4. Numerous administrative windows/organizations involved, redundant documents
B	Information/transparency issues	B1. Information on selected regulation is not adequately published and disseminated B2. No due notice for changes in selected regulation and related procedures B3. Selected regulation changes frequently B4. Requirements and processes differ from information published
C	Discriminating behaviour of officials	C1. Arbitrary behaviour of officials regarding classification and valuation of the reported product C2. Arbitrary behaviour of officials with regards to the reported regulation
D	Time constraints	D1. Delay related to reported regulation D2. Deadlines set for completion of requirements are too short
E	Informal or unusually high payment	E1. Unusually high fees and charges for reported certificate/regulation E2. Informal payment, e.g. bribes for reported certificate/regulation
F	Lack of sector-specific facilities	F1. Limited/inappropriate facilities for testing F2. Limited/inappropriate facilities for sector-specific transport and storage, e.g. cold storage, refrigerated trucks F3. Other limited/inappropriate facilities, related to reported certificate/regulation
G	Lack of recognition/ accreditations	G1. Facilities lacking international accreditation/recognition G2. Other problems with international recognition, e.g. lack of recognition of national certificates
H	Other	H1. Other procedural obstacles, please specify

Source: International Trade Centre, classification of procedural obstacles adapted for ITC surveys, January 2012 (unpublished document).

Appendix III Summary information for the country surveys

Surveyed country	Entity / person in charge of the survey implementation	Interview period	Total number of companies in register/sample frame	Number of interviews	
				Telephone	Face-to-face
Burkina Faso	Sicarex	Mar 2010 - Aug 2010	442	172	57
Cambodia	BMRS (Asia) Ltd.	Jan 2012 - Jan 2013	1,662	502	242
Cote d'Ivoire	Bureau national d'études techniques et de développement (BNETD)	May 2012 - Oct 2012	800	587	215
Egypt	The International Company for Export Development (ExpoFront)	May 2011 - Nov 2011	3,017	869	187
Guinea	Vision Consulting International	Jun 2012 - Oct 2012	1,129	331	165
Indonesia	Mazars	Sep 2012 - Aug 2013	4,441	951	211
Jamaica	A-Z Consulting	Aug 2011 - Mar 2012	4,465	608	122
Kazakhstan	ISPRI Kazakhstan	Jan 2012 - Oct 2012	990	387	64
Kenya	Imani/Synovate (IPSOS)	Dec 2010 - Sep 2011	5,164	791	288
Madagascar	Hermes Conseils	Apr 2011 - Jul 2011	2,218	393	130
Malawi	Kadale Consultants Ltd (Plus ITC interviews)	Oct 2010 - Jun 2011	749	129	60
Mauritius	StraConsult	Feb 2011 - Oct 2011	1,096	416	85
Morocco	LMS-CSA Marketing & Sondages	Apr 2010 - Feb 2011	3,264	794	240
Paraguay	Consumer Intelligence COIN S.A. (Plus ITC interviews)	Apr 2010 - Apr 2011	1,158	411	79
Peru	Ipsos Apoyo Opinión y Mercado S.A.	Jan 2010 - Jul 2010	3,751	964	111
Rwanda	DR consulting	Nov 2010 - May 2011	3,504	530	136
Senegal	TNS-RMS Senegal	Oct 2011 - Jun 2012	3,253	260	162
Sri Lanka	Lanka Market Research Bureau Limited (LMRB)	Feb 2010 - Aug 2010	1,208	510	105
State of Palestine	PalTrade	Dec 2011 - Mar 2012	513	239	135
Tanzania, United Republic of	IPSOS Synovate	Jul 2012 - May 2013	1,370	504	224
Trinidad and Tobago	AK Insights	Aug 2011 - May 2012	832	500	153

Surveyed country	Entity / person in charge of the survey implementation	Interview period	Total number of companies in register/sample frame	Number of interviews	
				Telephone	Face-to-face
Tunisia	Carthage University, Tunis	Jul 2011 - Jul 2012	4,867	258	132
Uruguay	Equipos Mori	Aug 2010 - Mar 2011	1,167	461	87

Appendix IV Weighting of country survey data

Country	Number of telephone interviews	Company reports NTMs (in Exp and/or Imp)	Company participated in face-to-face (FTF) interview	Standard size for telephone interview (any number)	Real size in the telephone interview	Coefficient to standardrdize the telephone interview	Same standard participation rate to the FTF (any number)	Real participation rate	Coefficient to give them the same participation rate to the FTF	Final weight
Burkina Faso	172	85	57	1,000	172	5.8	100%	67%	1.5	8.7
Côte d'Ivoire	587	422	215	1,000	587	1.7	100%	51%	2.0	3.3
Egypt	869	326	187	1,000	869	1.2	100%	57%	1.7	2.0
Guinea	331	314	165	1,000	331	3	100%	53%	1.9	5.7
Indonesia	951	350	211	1,000	951	1.1	100%	60%	1.7	1.7
Jamaica	608	210	122	1,000	608	1.6	100%	58%	1.7	2.8
Kazakhstan	387	131	64	1,000	387	2.6	100%	49%	2.0	5.3
Kenya	791	563	288	1,000	791	1.3	100%	51%	2.0	2.5
Cambodia	502	347	242	1,000	502	2	100%	70%	1.4	2.9
Sri Lanka	510	222	105	1,000	510	2	100%	47%	2.1	4.1
Morocco	794	323	240	1,000	794	1.3	100%	74%	1.3	1.7
Madagascar	393	173	130	1,000	393	2.5	100%	75%	1.3	3.4
Mauritius	416	129	85	1,000	416	2.4	100%	66%	1.5	3.6
Malawi	129	88	60	1,000	129	7.8	100%	68%	1.5	11.4
Peru	964	372	111	1,000	964	1	100%	30%	3.4	3.5
Paraguay	411	212	79	1,000	411	2.4	100%	37%	2.7	6.5
Palestine, State of	372	210	210	1,000	372	2.7	100%	100%	1.0	2.7
Rwanda	532	395	136	1,000	532	1.9	100%	34%	2.9	5.5
Senegal	260	164	162	1,000	260	3.8	100%	99%	1.0	3.9
Trinidad and Tobago	500	171	153	1,000	500	2	100%	89%	1.1	2.2
Tunisia	258	159	132	1,000	258	3.9	100%	83%	1.2	4.7
Tanzania, United Republic of	504	373	224	1,000	504	2	100%	60%	1.7	3.3
Uruguay	461	207	87	1000	461	2.2	100%	42%	2.4	5.2

Appendix V Sample size calculation

The sample size depends on the number of exporting companies per sector and on the assumptions regarding the share of exporting companies that are affected by NTMs in the actual population of this sector. The calculation of a sample size will be based on the equation below (developed by Cochran, 1963) to yield a representative sample for proportions in large populations (based on the assumption of normal distribution). $n_0 = \frac{t^2 p(1-p)}{d^2}$

Where n_0 is the sample size for large populations and t is the t-value for selected margin of error (d). In the case of the NTM survey 95% confidence interval is accepted, so t-value is 1.96. The estimated proportion of an attribute that is present in the population is p. In the case of the NTM survey, it is a proportion of companies that experience burdensome NTMs. As this proportion is not known prior to the survey, the most conservative estimate leading to a large sample size is employed, that is p=0.5. The acceptable margin of error for the proportion being estimated is d, here d=0.1.

Source: Cochran, W. G. 1963. Sampling Techniques, 2nd Ed., New York: John Wiley and Sons, Inc.

Appendix VI Survey data statistics

Table 6. Types of burdensome NTMs applied partner countries, by sector

NTM chapter	Agriculture			Manufacturing			Total		
	OECD countries	Countries within Regional Trade Agreements (RTAs)	Other developing countries	OECD countries	Countries within RTA	Other developing countries	OECD countries	Countries within RTAs	Other developing countries
A. Technical requirements	25.9%	16.5%	19.3%	14.5%	7.9%	9.4%	21.6%	11.9%	15.1%
B. Conformity assessment	53.5%	40.6%	41.1%	21.6%	23.4%	21.4%	41.6%	31.5%	32.8%
C. Pre-shipment inspection and other entry formalities	4.0%	6.4%	8.5%	14.1%	11.2%	14.6%	7.8%	8.9%	11.1%
D. Charges, taxes and other para-tariff measures	1.5%	14.0%	1.9%	2.3%	15.9%	6.4%	1.8%	15.0%	3.8%
E. Quantity control measures	3.4%	7.8%	3.4%	2.4%	6.7%	4.5%	3.0%	7.2%	3.8%
F. Finance Measures	0.7%	2.9%	3.5%	2.6%	4.4%	1.6%	1.4%	3.7%	2.7%
G. Price control measures	0.2%	0.0%	0.7%	0.1%	0.7%	0.9%	0.2%	0.4%	0.7%
H. Anti-competitive measures	1.1%	0.2%	1.2%	0.0%	0.3%	3.8%	0.7%	0.3%	2.3%
J. Distribution restrictions	0.0%	0.3%	0.3%	0.0%	0.0%	0.5%	0.0%	0.2%	0.3%
K. Restriction of post-sales services	0.0%	0.0%	0.0%	0.0%	0.0%	0.7%	0.0%	0.0%	0.3%
L. Subsidies	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%
M. Government procurement restrictions	0.0%	0.0%	0.0%	0.0%	0.0%	0.6%	0.0%	0.0%	0.2%
N. Intellectual property	0.0%	0.9%	1.1%	0.6%	0.3%	1.9%	0.2%	0.6%	1.4%
O. Rules of origin and related certificate of origin	9.6%	10.2%	19.1%	41.7%	29.2%	33.9%	21.6%	20.3%	25.3%

Source: ITC NTM Surveys, 2010 to 2013.

Note: The table shows the type of burdensome NTMs applied by the partner countries to exporters of agricultural and manufacturing products from surveyed countries. It reveals that 53.5% of the burdensome NTMs applied by OECD countries to agricultural exports concern conformity assessment requirements (Chapter B). Likewise, 29.2% of the burdensome NTMs applied by countries within RTA to manufacturing exports concern rules of origin.

References

Anderson, James E. & van Wincoop, Eric, 2004. ‘Trade Costs’, Journal of Economic Literature, American Economic Association, vol. 42(3), pages 691-751, September.

Cadot, Olivier & Gourdon, Julien, 2012. ‘Assessing the price-raising effect of non-tariff measures in Africa’, Working Papers 2012-16, CEPII research center.

Chen, Natalie & Novy, Dennis, 2012. ‘On the measurement of trade costs: direct vs. indirect approaches to quantifying standards and technical regulations’, World Trade Review, Cambridge University Press, vol. 11(03), pages 401-414, July.

Chen, Maggie Xiaoyang & Wilson, John & Otsuki, Tsunehiro , 2008. ‘Standards and export decisions: Firm-level evidence from developing countries’, The Journal of International Trade & Economic Development, Taylor & Francis Journals, vol. 17(4), pages 501-523.

De Sousa, José & Mayer, Thierry & Zignago, Soledad, 2012. ‘Market access in global and regional trade’, Regional Science and Urban Economics, Elsevier, vol. 42(6), pages 1037-1052.

Dihel, Nora & Shepherd, Ben, 2007. ‘Modal Estimates of Services Barriers’, OECD Trade Policy Papers 51, OECD Publishing.

Disdier, Anne-Célia & Fontagné, Lionel & Mimouni Mondher, 2008. ‘The Impact of Regulations on Agricultural Trade: Evidence from the SPS and TBT Agreements’, American Journal of Agricultural Economics, Agricultural and Applied Economics Association, vol. 90(2), pages 336-350.

Fontagné, Lionel & Mayer, Thierry & Zignago, Soledad, 2005. ‘Trade in the Triad: how easy is the access to large markets?’, Canadian Journal of Economics, Canadian Economics Association, vol. 38(4), pages 1401-1430, November.

Fontagné, Lionel & Mitaritonna, Cristina, 2013. ‘Assessing barriers to trade in the distribution and telecom sectors in emerging countries’, World Trade Review, Cambridge University Press, vol. 12(01), pages 57-78, January.

Fontagné, Lionel & Orefice, Gianluca & Piermartini, Roberta & Rocha, Nadia, 2013. ‘Product standards and margins of trade: Firm level evidence’, WTO Staff Working Papers ERSD-2013-04, World Trade Organization (WTO), Economic Research and Statistics Division.

Head, Keith & Mayer, Thierry, 2000. ‘Non-Europe: The magnitude and causes of market fragmentation in the EU’, Review of World Economics (Weltwirtschaftliches Archiv), Springer, vol. 136(2), pages 284-314, June.

Head, Keith & Ries, John, 2001. ‘Increasing Returns versus National Product Differentiation as an Explanation for the Pattern of U.S.-Canada Trade’, American Economic Review, American Economic Association, vol. 91(4), pages 858-876, September.

Maskus, Keith E. & Otsuki, Tsunehiro & Wilson, John S., 2005. ‘The cost of compliance with product standards for firms in developing countries: an econometric study’, Policy Research Working Paper Series 3590, The World Bank.

Ottaviano, Gianmarco & Mayer, Thierry, 2008. ‘The happy few: the internationalisation of European firms’, Blueprints, Bruegel, number 12.

Rau, Marie-Luise & van Tongeren, Frank, 2009. ‘Heterogeneous firms and homogenising standards in agri-food trade: the Polish meat case’, European Review of Agricultural Economics, Foundation for the European Review of Agricultural Economics, vol. 36(4), pages 479-505, December.

Reyes, José-Daniel. 2011. ‘International Harmonization of Product Standards and Firm

Heterogeneity in International Trade'. WB Policy Research Working Paper 5677,

Washington, DC: World Bank.

Schuster, Monica & Maertens, Miet. 2013. 'Private Food Standards and Firm-Level Trade Effects: A Dynamic Analysis of the Peruvian Asparagus Export Sector', Bioeconomics Working Paper Series, Working Paper 2012/3, KU Leuven.

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