UNITED NATIONS CONFERENCE ON TRADE AND DEVELOPMENT

Technical and statistical report

Making sense of non-tariff measures

A user's guide to accessing and analysing the data

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United Nations
Geneva, 2024

United Nations Publications
405 East 42nd Street
New York, New York 10017
United States of America

Email: publications@un.org
Website: https://shop.un.org

United Nations publication issued by the United Nations Conference on Trade and Development

UNCTAD/DITC/TAB/2024/6

ISBN: 978-92-1-003359-6
eISBN: 978-92-1-106957-0
Sales No. E.24.II.D.27

Acknowledgements

The study *Making Sense of Non-tariff Measures: A User's Guide to Accessing and Analysing the Data* was prepared by the Division on International Trade and Commodities of UNCTAD, with coordination by Denise Penello Rial and under the overall guidance of Ralf Peters.

The study team was comprised of Christian Knebel, Seul Lee, Samuel Munyaneza, Chi Le Ngo, and Denise Penello Rial; Rado Razafinombana and Fabien Dumesnil provided non-tariff measures and trade data. Julien Bliesener, Theresa Carpenter and Anna L. Peters provided additional contributions and comments.

The data are collected in collaboration with governments and other international organizations. UNCTAD gratefully acknowledges the cooperation of member States and partners and the support of donors.

Overall layout, graphics and desktop publishing were undertaken by the Division of Conference Management of the United Nations Office at Geneva.

Contents

Executive Summary

This document is a guide to understanding, accessing, and retrieving data on non-tariff measures (NTMs) contained in the TRAINS NTM database, managed by the United Nations Conference on Trade and Development (UNCTAD). It is accessible at https://trainsonline.unctad.org.

NTMs are domestic policy measures that can impact international trade, excluding tariffs. NTMs encompass a wide range of policy measures beyond tariffs—such as sanitary and phytosanitary standards (SPS), technical barriers to trade (TBT), and import/export restrictions—that directly or indirectly impact international trade by increasing compliance costs for businesses, particularly small and medium-sized enterprises (SMEs).

The value of this database lies in its features. The standardized methodology for data collection and the unified approach for the classification of measures ensure comparable data across countries and economies, and over time. Both aspects are described briefly in this guide and in detail in respective prior publications (see NTM Classification[1] and Guidelines for collecting NTMs[2]).

TRAINS database offers a comprehensive repository of regulations. The available data is extensive and granular; 145 countries and economies are available, and the years span from 2012 to 2024. However, not all years are available for all countries or economies. The database offers detailed information on each NTM identified in legislations at the 6-digit level of the Harmonized System (HS6) for products.

This guide briefly explains the nature of the data contained within the UNCTAD TRAINS database, how to access different types of data for various purposes, and the uses of the data. The information contained in it is useful for three types of users:

Policymakers may gauge and streamline domestic regulations and assess and compare the regulatory patterns of potential trade partners. Businesses can navigate the requirements of different markets. Finally, researchers can conduct detailed statistical and econometric analyses to quantify the NTMs impact on trade and development. This guide provides practical examples for these different users. By referencing specific products, it offers a step-by-step introduction to help users easily find the right information at the product level. There is a bulk download feature to access computed incidence measures such as the Frequency Index, Coverage Ratio, and Prevalence Score in CSV or STATA format. Computed aggregated indicators and ad-valorem equivalent (AVE) values are also downloadable. AVE analysis translates the impact of NTMs into a tariff-equivalent, expressed as a percentage of the value of the import, offering a clearer understanding of the economic significance of NTMs. This allows policymakers to compare NTMs directly with traditional tariffs and quantify their trade restrictiveness.

The guide also presents the UNCTAD NTM Cost-Effectiveness Toolkit that enables policymakers to analyse the costs and effectiveness of NTMs in specific sectors.

In summary, the TRAINS database promotes transparency in international trade by providing comprehensive information on the NTMs applied by different countries and economies. It provides detailed and structured information on trade related regulations and is a vital tool for understanding and addressing the complexities of NTMs in global trade, thereby facilitating less costly and more equitable international trade relations.

[1] https://unctad.org/system/files/official-document/ditctab2019d5_en.pdf
[2] https://unctad.org/system/files/official-document/ditctab2023d4_en.pdf

Chapter I

Introduction

This document is a guide to understanding and accessing data on non-tariff measures (NTMs) using the UNCTAD TRAINS NTM database. The UNCTAD TRAINS (Trade Analysis and Information System) NTM database provides access to a wide range of systematically assembled data.

NTMs are all policy instruments, other than tariffs, that can have an impact on international trade. These measures include a wide range of policies and policy instruments, including:

(a) **technical requirements** such as sanitary and phytosanitary (SPS) measures and technical barriers to trade (TBT) that are crucial for achieving public policy objectives, such as protecting human health, ensuring food safety, and safeguarding the environment; and

(b) **traditional trade policy measures** such as quotas, import licensing, and export restrictions.

Technical measures are largely focused on safety and quality, while **non-technical measures** are more about controlling trade flows, protecting domestic industries, or maintaining economic stability. Both categories of NTMs can have significant implications for trade by increasing costs, restricting market access, and creating complex compliance requirements for exporters. This complexity makes it difficult for businesses to fully understand and comply with the requirements, increasing the costs of trade unnecessarily.

UNCTAD estimations suggest that trade costs associated with NTMs are high, around three to four times higher than those of tariffs (UNCTAD and the World Bank (2018)). As many NTMs aim to ensure important legitimate policy objectives, eliminating them is not an option. To reduce trade costs related to NTMs, therefore, other approaches such as transparency, regulatory cooperation, streamlining and other Good Regulatory Practices, are proposed. These include ex-ante and ex-post analysis such as Regulatory Impact Assessment and UNCTAD's cost-effectiveness analysis.

To accomplish the objective of reducing trade costs, data on NTMs must be available. Transparency in non-tariff measures is challenging due to the complexity and diversity of these data, which often involve multiple government agencies and layers of domestic regulation. Unlike tariffs, which are generally straightforward to quantify, NTMs can be highly technical and vary significantly across countries and sectors. Additionally, governments may not always communicate or update these measures clearly and accessibly, leading to a lack of transparency that can hinder international trade and create uncertainty for exporters and importers alike.

UNCTAD established the Group of Eminent Persons on Non-Tariff Barriers that developed a definition for NTMs and asked UNCTAD to develop, together with the **Multi-Agency Support Team** (MAST group: FAO, ITC, OECD, UNIDO, UNCTAD, World Bank, WTO), an **International Classification of NTMs**. The jointly developed classification has been a milestone for transparency in NTMs and the United Nations Statistical Commission has endorsed the classification as *the* international classification of NTM data. UNCTAD then developed a **methodology for data collection** which ensures a coherent approach across countries and through time. Furthermore, an online tool, TRAINS Online, was developed for collecting and disseminating the information, and data cooperation was agreed on to avoid duplication and ensure efficient data collection.

The TRAINS database is comprehensive, containing all import and export requirements at and behind the border, and granular information on each separate NTM. For example, there is a list of product codes at the HS 6-digit level attached to each NTM. The data provided is usable for quantitative analysis as well

as for improving regulatory practices for economies wishing to reduce trade costs.

Transparency around NTMs is crucial for different actors pursuing different goals. It is mainly designed to support:

- **Policymakers at the national level**. NTM data enables policymakers to identify inefficiencies, streamline regulations, and foster an environment more conducive to trade and investment. To support this, UNCTAD developed the NTM Cost-Effectiveness Toolkit, offering a step-by-step procedure and tools for reviewing NTMs affecting intermediate inputs in critical value chains.[3] Through analysis of NTM data, policymakers can assess the impact of regulatory measures on trade flows and economic development, informing interventions that promote sustainable growth and development.
- At an **international level**, NTM data provide clear information on regulatory requirements across countries, facilitating international trade flows, trade negotiations, and regulatory cooperation to significantly reduce trade costs.
- **The private sector**. NTM data helps businesses identify market access conditions across different countries. By understanding the regulatory landscape, firms can navigate compliance requirements and strategize market entry or expansion plans effectively. The TRAINS online portal offers detailed information searchable by product and by target market.
- **Researchers**. NTM data is useful for quantitative analysis. Analysts can leverage NTM data to conduct empirical studies, evaluate policy effectiveness, and contribute to the advancement of knowledge in the field of international trade. For example, UNCTAD has published computations of ad-valorem equivalents (AVE) by categories of NTM. Impact analysis research enables informed decision-making.

NTM data availability is an enabler for sustainable development. UNCTAD studies and other research have suggested that transparency in NTMs has relatively more benefits for small and medium enterprises (SMEs) and developing countries, especially least developed countries (LDCs), as well as women (UNCTAD 2014a, UNCTAD 2014b, UNCTAD 2016, UNCTAD 2017, UNCTAD 2022, UNCTAD 2024b). Smaller companies may struggle to obtain the necessary information on trade requirements due to limited resources and expertise. Readily accessible information on NTMs enables SMEs to better understand regulations, and take appropriate actions to ensure compliance, by effectively implementing investments to align with requirements, or carefully choosing their markets.

NTM TRAINS Online is free to access and so constitutes a global public good. However, there are challenges to the provision and maintenance of a fully global and up-to-date NTM database that requires significant resources, including financial means, expertise, and training.

Several donors and agencies support the initiative to create a universal, systematic approach for collecting, verifying, and updating NTM data. This effort is backed by global funds and regionally targeted initiatives to ensure the development and maintenance of a comprehensive, up-to-date global database.

[3] https://unctad.org/project/developing-cost-effectiveness-toolkit-non-tariff-measures

Box 1.
Quick start options

Quick start for exporters

1. Go to TRAINS Online (unctad.org)
2. Select the country or economy of origin ("Which markets are affected"), the product to be exported (using HS code or description), and the export destination ("NTM from which country").
3. Click "Search" to see the list of measures that apply.
4. Filter using the options on the left-hand side to see the measures that apply on exports from the country of origin and imports to the country of destination.

Quick start for policymakers

1. Go to TRAINS Online (unctad.org)
2. Select the country whose NTMs you are interested in ("NTM from which country"). Select your country ("Which markets are affected") and the product groups to be assessed ("Products affected", then the option to the right: "Product Groups").
3. Click "Search" to see the list of measures that apply.
4. Download the data using the "Download" button on the top right.

Quick start for researchers

1. Go to TRAINS Online (unctad.org).
2. Scroll to the bottom of the landing page. Click "Read More" under "Research Highlights/Bulk Data Download".
3. Download Stata or CSV file. Check data availability for panel data usage and read the "Researcher File Explanatory Note" for variable availability.

Chapter II

Features of the UNCTAD TRAINS NTM database

Standardized systematic data collection, including comprehensive and deep coverage with a neutral approach, and a publicly available analytical tool.

The TRAINS NTM database offers:

- **Standardized systematic collection**: NTM data are collected and classified using a standardized data collection approach and the International NTM Classification.
- **Comprehensive coverage**: TRAINS provides a detailed repository of regulatory information. It is comprehensive in its coverage of both trade-related policy measures and countries, with 145 countries and economies covered,[4] corresponding to more than 95 per cent of world trade. This breadth of coverage offers valuable insights into regional or sectoral regulatory pattern divergences and market opportunities. It helps understand the complexities of policies that affect international trade by collecting these into a single database.
- **Depth of information**: TRAINS contains detailed data that allows for versatility in analysis. The methodology for collecting the data includes registering the full list of products affected by every single measure using the Harmonized System 6-digit level, sometimes up to the tariff line level (HS eight or above digit level). The numerous variables collected include the name of the official regulation that states the requirement, its date of issuance, the government department responsible, the link to the regulation, and many others.
- **Neutrality**: There is no distinction or signalling of which measures may constitute barriers to trade. Instead, the approach is neutral: the database contains all requirements that are enforced in a certain economy at the time of data collection, with equal status and without judgement of whether the measure is unnecessarily restricting trade.
- **Regular updates**: Data updates occur regularly, though intervals vary. For some countries or economies, updates are made monthly, while for most, it is yearly or less. Certain economies have data available annually since 2013, while others, particularly many African nations, have been added more recently. Each time data are collected—whether it is an initial collection for a new economy or an update for an existing one—the methodology identifies all regulatory requirements in effect at that time. Even though most regulations do not change frequently, the data collection process carefully verifies whether each regulation is still valid or if it has been updated. Regulatory changes between updates are not covered. TRAINS is an unbalanced panel dataset.
- **Open access**: The database is freely available, making it accessible and usable for a wide range of users, including policymakers, researchers, and businesses worldwide.
- **International collaboration**: TRAINS encourages governments, international organizations, academics, and the private sector to contribute to data collection. This collaborative approach is monitored closely by UNCTAD through quality verification efforts to ensure consistency, reliability, and accuracy of the information contained in the database.
- **Analytical tools**: TRAINS offers analytical functionalities that enable users to search and retrieve NTM data that enables analysts to compare across countries and sectors, and through time. These tools empower users to extract valuable insights from the data and inform evidence-based policy decisions, for example in the harmonization of standards and technical requirements, as well as cooperation on conformity assessment.

[4] See Annex I for country and economy codes included in the database.

Chapter III

The data: collection and description

The data collection process follows a standardized, well-documented methodology, through which NTMs identified in legislation are classified according to the International Classification of NTMs. The goods affected by each of those NTMs are recorded in the database using the Harmonized System at the 6-digit level. The UNCTAD TRAINS NTM database contains granular information about regulations, measures, and products. It covers 117 countries and economies, and more than 95 per cent of world trade.

As with tariffs, there is a pressing need for comprehensive and internationally comparable data on NTMs. The primary challenge is that NTMs do not have numerical values. They are requirements that countries use to regulate international trade and are embedded in legislation. To achieve internationally comparable data, a unified and standardized methodology and approach is necessary. The International Classification of NTMs serves this purpose. It is a jointly developed and internationally accepted classification, and a unified taxonomy for NTMs. This is essential to facilitate regular and consistent data collection that is comparable across countries and economies, as well as through time.

Box 2.
The development of the International Classification of NTMs

UNCTAD developed the International Classification of Non-tariff Measures together with several international organizations forming the Multi-Agency Support Team (MAST group: FAO, ITC, OECD, UNIDO, UNCTAD, World Bank, WTO), during a pluriannual discussion among experts. The first version of the International Classification was issued in 2012; it was updated in 2019.

The International Classification of Non-tariff Measures was endorsed by the United Nations Statistical Commission for collecting data from member States and for reporting data on non-tariff measures in a way that could be compared across economies. Many national entities and regional organizations use the International Classification of NTMs to classify and present their data.

Source: UNCTAD, 2024.

Collection of regulations and non-tariff measures

Non-tariff measures (NTM) data collection involves three main steps: collecting regulatory legal texts; identifying which requirements within these texts apply to exports and imports; and registering each requirement in a database with a specific code from the Classification, as well as identifying which 6-digit Harmonized System (HS) product codes are affected by the measure.

Within this framework, a regulation is an official legal document issued by a government, such as a law, decree, or directive. It contains rules and requirements that have implications for trade (but are not necessarily related only to trade), which are the NTMs. In other words, non-tariff measures are specific mandatory requirements that must be followed, which are contained within these enforced regulations. Consequently, collecting NTM data involves reviewing each regulation that affects exports and imports to identify

all the measures it contains. Then, each identified measure needs to be registered separately in the NTM database.

Both the regulation (the legal document) and its measures (the specific requirements) must be recorded accurately and completely in the database to ensure that all relevant requirements are captured. Descriptions of both the regulations and their measures must be provided. They are recorded separately but associated so that it is possible to identify from which regulation an NTM originates.

For regulations issued in English, if a description is available, it can be directly copied into the database. For regulations issued in other languages, a description of the regulation and each measure is captured in the original language, accompanied by an informal translation into English.

Currently, UNCTAD's NTM database is available primarily in English. This system ensures that all trade requirements are clearly documented and accessible, facilitating international trade compliance.

Non-tariff measures are normally collected by highly trained data collectors using UNCTAD's TRAINS Data Entry Tool, and are disseminated through its TRAINS Dissemination Portal, the World Integrated Trading System (WITS), and the Global Trade Helpdesk (GTH). The data entry tool is capable of recording precisely and fully the information embedded within the legal document which is relevant to the trade requirements. It also contains descriptions of both the regulations and the measures within the regulation. Since information is collected based on the product codes that are affected by each regulation, TRAINS Online can be searched by HS code. This feature can be used to provide a comprehensive list of NTMs impacting a specific product or product group in the selected market. The distribution system makes this information available to a wide range of users.

The steps to collect data on the measures are as follows:

a) Obtain the source data

   i. Identify sources of information. Only domestic official sources are used.

   ii. Identify regulations from each source or document. Only domestic regulations that are in force are used.

b) Classify and register the information

   i. Identify and classify measures within each regulation.

   ii. Identify and classify affected products for each measure.

   iii. Identify and classify affected countries for each measure.

   iv. Identify and classify objectives for each measure, whenever possible.

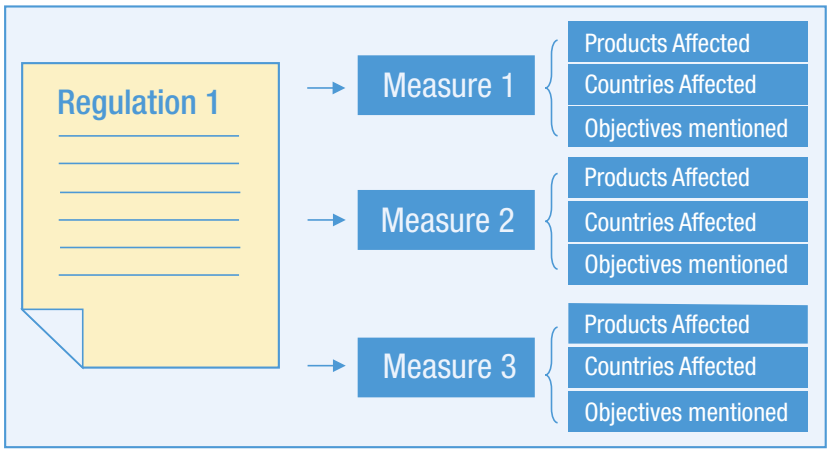
Figure 1 illustrates how a single regulation or legal text yields a series of individual measures which in turn are associated with a list of products affected, and the countries that need to comply with each measure.

Each step described above is registered separately in the Data Entry Tool developed by UNCTAD. The first two steps systematically register the origin of information. These steps are essential to ensure that the data is traceable and can be verified and updated.

Data collectors undertake considerable efforts to ensure the comprehensiveness of the data collection. Consequently, all import and export requirements are registered in the database in this manner, irrespective of complexity or stringency.

A single regulation may include several separate measures. Each measure must be classified according to the International Classification of NTMs. Each measure is likely to affect certain products and countries, and there may also be objectives mentioned explicitly in the text. All this must be registered.

Figure 1.
Principle workflow for each regulation



After the data collector registers all relevant information (non-tariff measures and Harmonized System codes for the products affected by the measures), an expert in international trade, acting as a supervisor of the collection process – a data collection supervisor – will validate the accuracy of registered measures and codes. The data is then ready for publication.

Coding measures according to the International Classification of Non-Tariff Measures

The International Classification of Non-Tariff Measures is a taxonomy of codes used to classify the NTMs identified in the text of a regulation. Measure codes are organized into 16 chapters labelled from A to P. The chapters A to O contain requirements for the import of goods, while chapter P comprises regulations imposed by countries on their own exports.

Codes are alphanumerical and are organized as branches of a tree, similar to the structure of the Harmonized System product codes. For example, ***Chapter A*** refers to sanitary and phytosanitary (SPS) measures; ***A8*** indicates a conformity assessment requirement related to SPS, and the code ***A820*** is a testing requirement. Figure 2 lists the 16 chapters of the International Classification of NTMs.

Figure 2.
Chapter organization in the classification of NTMs

Imports	Technical measures	A	SANITARY AND PHYTOSANITARY MEASURES
		B	TECHNICAL BARRIERS TO TRADE
		C	PRE-SHIPMENT INSPECTION AND OTHER FORMALITIES
	Non-technical measures	D	CONTINGENT TRADE-PROTECTIVE MEASURES
		E	NON-AUTOMATIC IMPORT LICENSING, QUOTAS, PROHIBITIONS, QUANTITY-CONTROL MEASURES AND OTHER RESTRICTIONS NOT INCLUDING SANITARY AND PHTOSANITARY MEASURES OR MEASURES RELATING TO TECHNICAL BARRIERS TO TRADE
		F	PRICE-CONTROL MEASURES, INCLUDING ADDITIONAL TAXES AND CHARGES
		G	FINANCE MEASURES
		H	MEASURES AFFECTING COMPETITION
		I	TRADE-RELATED INVESTMENT MEASURES
		J	DISTRIBUTION RESTRICTIONS
		K	RESTRICTIONS ON POST-SALES SERVICES
		L	SUBSIDIES AND OTHER FORMS OF SUPPORT
		M	GOVERNMENT PROCUREMENT RESTRICTIONS
		N	INTELLECTUAL PROPERTY
		O	RULES OF ORIGIN
Exports		P	EXPORT-RELATED MEASURES

UNCTAD and its partners follow agreed guidelines and a methodology that standardizes the collection and classification approach across countries and economies. For instance, each measure is to be assigned no more than one NTM code and is to be coded at the most detailed level within a branch. Details on the principles of coding measures and special cases can be found in the Guidelines for the collection of data on official non-tariff measures.[5] These guidelines are designed to ensure that the collection of data is harmonized across collectors and to minimize uncertainty during the collection process.

In doing so, the manual presents the logic behind the classification of non-tariff measures, and it explains how to choose the most appropriate code.

UNCTAD TRAINS database provides comprehensive "NTM profiles" that reveal how countries use NTMs as policy tools, with or without the intention to affect trade. The methodology developed by UNCTAD, and its partners allows for comparable analysis across countries, products, and time (UNCTAD, 2016). The TRAINS NTM database therefore fills important gaps in information about NTMs. The gap cannot fully be covered by notifications to the WTO.

[5] UNCTAD (2023), Guidelines for the collection of data on official non-tariff measures | UNCTAD

Non-tariff measures and WTO notifications

While all countries regularly publish information on the tariffs they levy on imports, transparency is often lacking for many NTMs, including quantitative restrictions, price controls, and technical regulations. The significance of each of these measures is acknowledged in various WTO agreements which address issues such as quotas and trade protection, including anti-dumping, safeguards, and countervailing measures. Furthermore, the WTO Agreement on Sanitary and Phytosanitary Measures (SPS) and the Technical Barriers to Trade (TBT) Agreements emphasize the importance of trade restrictions that may stem from domestic or international regulations concerning food safety, environmental protection, and consumer protection.

The UNCTAD TRAINS database complements WTO members' NTM notifications to the WTO. These notifications are made by the WTO members applying the measure, and they have differing levels of discipline. This makes it difficult to compare data across countries. Furthermore, not all notifications include the product code(s) to which the NTMs apply. The HS product code is always present in the UNCTAD TRAINS database, which makes the database searchable by product.

Additionally, the WTO rules do not require that all trade-related measures are notified. Notifications provide updates on newly introduced or proposed regulations, but members are not obliged to notify the WTO of regulations already in force. This contrasts with the UNCTAD TRAINS database, which emphasizes the comprehensiveness of all NTMs enforced at the moment of data collection, whether notified to the WTO or not. Moreover, WTO members may notify their plans to introduce a new NTM which is not yet in force. UNCTAD TRAINS database only contains measures that are legally in force.

In addition, if a Sanitary or Phytosanitary (SPS) measure follows an international standard, it does not need to be notified to the WTO.[6] The exception is "Contingent trade protective measures", Chapter D of the classification, which comprises anti-dumping, countervailing measures, and safeguard data. The information that WTO members use to notify the WTO is deemed to be comprehensive and of high quality by UNCTAD and the World Bank in a comparison of TRAINS data and WTO notifications. Therefore, it is the information notified to the WTO that is used to directly populate the TRAINS database, provided directly by the WTO.

The NTM notifications made to the WTO are a fundamental transparency instrument that is central to multilateral discussions on market access. The purpose and means of WTO NTM notifications are different from the UNCTAD TRAINS database, and so both complement each other and are useful in different ways. This document presents the characteristics and uses of the latter.

[6] WTO agreements stipulate, for each policy area, specific notification requirements.

Chapter IV

How to access and use the NTM data

The TRAINS NTM data is available through several platforms for different user preferences, the UNCTAD TRAINS database, World Integrated Trade Solution (WITS), and the Global Trade Helpdesk (GTH). All three sources provide access to the same NTM data.

Accessing the data

UNCTAD NTM data can be accessed through three channels:

- **UNCTAD TRAINS database**: This online platform serves as a comprehensive resource for importers, exporters, policymakers, and researchers seeking information on NTMs. It features a user-friendly search function allowing quick access to data on NTMs applied by specific importing countries to goods from specified exporters. Moreover, the TRAINS online database facilitates large data downloads, catering particularly to researchers, and offers descriptive statistics on NTM frequency and coverage ratios per country.
- **World Integrated Trade Solution** (WITS): Developed in collaboration with the World Bank, WITS is a data dissemination and analytics tool that incorporates TRAINS tariff and NTM data alongside international merchandise trade data from the UN COMTRADE database.[7] It provides a download option tailored primarily to researchers.
- **Global Trade Helpdesk**: This online platform, a joint initiative by ITC, UNCTAD, and the WTO, aims to streamline market research for companies, especially Micro, Small, and Medium Enterprises (MSMEs). By integrating trade and business information, including trade regulations and NTMs, into a unified online portal, it simplifies access to essential resources for businesses.

The data collected by UNCTAD using the methodology described above is disseminated through these three platforms. The underlying information on NTMs is identical in each of the three channels described above, although the format and the variables that are shown varies. It is the collaboration between UNCTAD and ITC, the World Bank and WTO that makes this possible. Different users may consult their preferred source to access the NTM data that is collected in the TRAINS database.

Those interested in statistical analysis may bulk download the STATA file accessible within the UNCTAD TRAINS portal.[8] As the dataset is an unbalanced panel, it is recommended that users check the year/economy combinations of available data.

Using NTM data for the private sector: exports of bottled water to the United States of America

Businesses, particularly micro, small, and medium-sized enterprises (MSMEs) looking to access a new export market often struggle to find clear and concise information about the regulations and standards they would need to meet. Market requirements are frequently buried within extensive legal documents distributed across various government authorities, making the process both time-consuming and expensive. The lack of centralized and accessible information can be a major barrier to international trade for these smaller businesses, which typically have fewer resources to devote to regulatory compliance. A lack of transparency is therefore costly.

[7] WITS—a collaborative effort by the World Bank's Development Data Group, the United Nations Conference on Trade and Development (UNCTAD), the World Trade Organization, the UN Statistics Division, and the International Trade Centre.

[8] https://trainsonline.unctad.org/bulkDataDownload

Tools such as the UNCTAD TRAINS database and the Global Trade Helpdesk can help address these challenges. Both platforms provide private sector users with comprehensive access to the requirements for exporting goods to different markets. By collecting and disseminating NTM data following UNCTAD's methodology, these tools help businesses quickly and efficiently determine the requirements they must adhere to in their target markets. This streamlined access to information can significantly reduce the burden on MSMEs, enabling them to compete more effectively in the global marketplace.

This section provides an example of how companies can access and use the information contained in the UNCTAD TRAINS database.

> Over the past decade, bottled water has emerged as one of Fiji's top export goods. A renowned brand of bottled water, sourced and packed in Fiji, has found its way to around 40 countries, with the United States being the largest importer. The export of bottled mineral water from Fiji to the United States will be used as an example to demonstrate how businesses can utilize NTM data to identify relevant regulations in a foreign market.

Exporters from the private sector can use the TRAINS database to find the requirements that they must comply with to place their products on the shelves of target markets. The corresponding product code for bottled mineral water is HS 220110, "Mineral waters and aerated waters, not containing added sugar or other sweetening matter nor flavored".

A Fijian exporter of bottled water would need to meet two kinds of trade requirements: (1) the requirements imposed by the Fijian government when the water is exported from Fiji; and (2) the requirements imposed by the government of the United States of America when the water arrives in the United States. Users should conduct two searches in the TRAINS database to identify these two sets of requirements.

To find the first set of requirements, select Fiji in "*NTM from which country(ies) or economies?*". This will show the requirements imposed by Fiji, both for import and for export. Users can either directly type the country's name in the search box or scroll down in the "*Countries or Economies*" tab.

The second filter box is labelled "Which market(s) are affected?". If "All countries" is selected, the filter will display all regulations from Fiji that impact trade with every country worldwide. In this example, however, we are focusing on trade between Fiji and the United States of America. Therefore, selecting "United States" in the second box will filter the results to show only the Fijian requirements for goods traded specifically between Fiji and the United States.

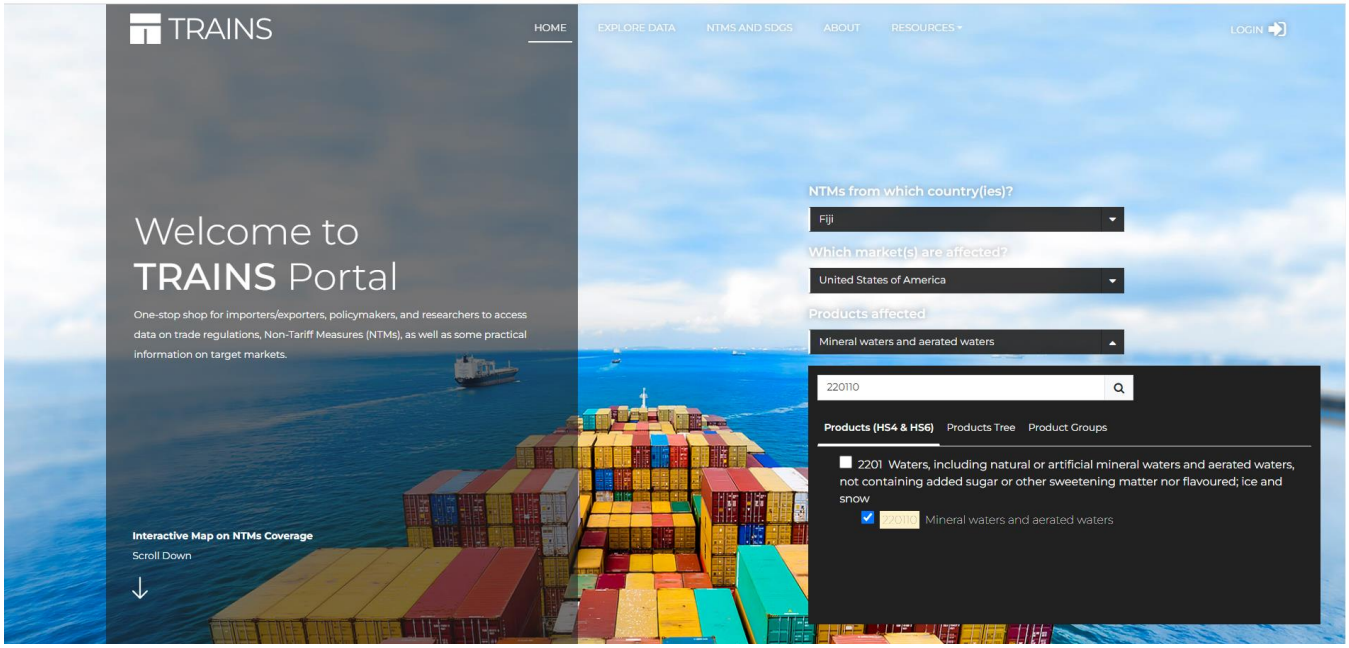
Lastly, select code 220110 in "*Products affected*". Users can either directly type the HS code in the search box; scroll down in the "Products (HS4 & HS6)" tab; or click the right section, chapter, heading, and sub-heading in "*Products Tree*".

Figure 3 shows these three entries as inputs to the search box. Now, click the "*Search*" button.

The TRAINS database displays 45 non-tariff measures (NTM) (20 NTMs per page), as shown in Figure 4. However, the search results include requirements imposed by Fiji on bottled water both exported to and imported from the United States. In this example, we are interested only in any requirements for exported bottled water. To filter the results accordingly, users need to deselect the import case by clicking the "IMPORT" button under the "Import or Export NTM" option in the detailed search bar on the left side. When active, the button appears blue; when the button is white, it is inactive.

Figure 3.
Search filter in TRAINS Online for NTM data

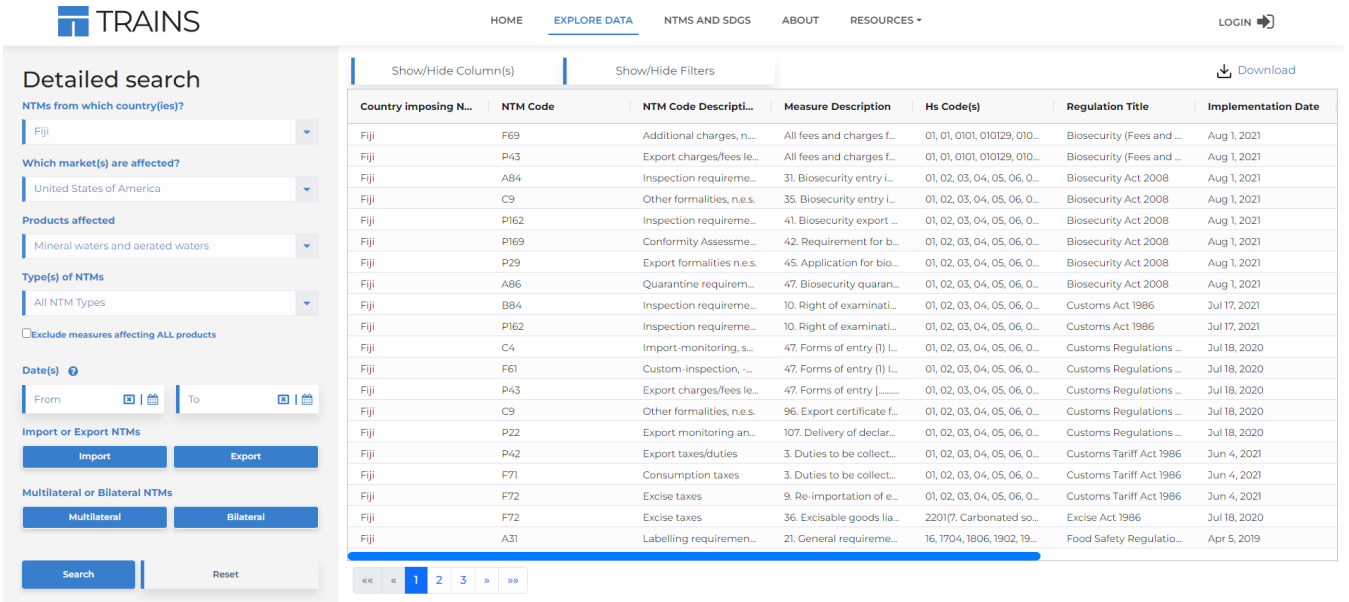
Filters used to see NTMs imposed by Fiji when trading mineral water with the United States



Source: UNCTAD, 2024. TRAINS Online

Figure 4.
Results table in TRAINS Online for NTM data

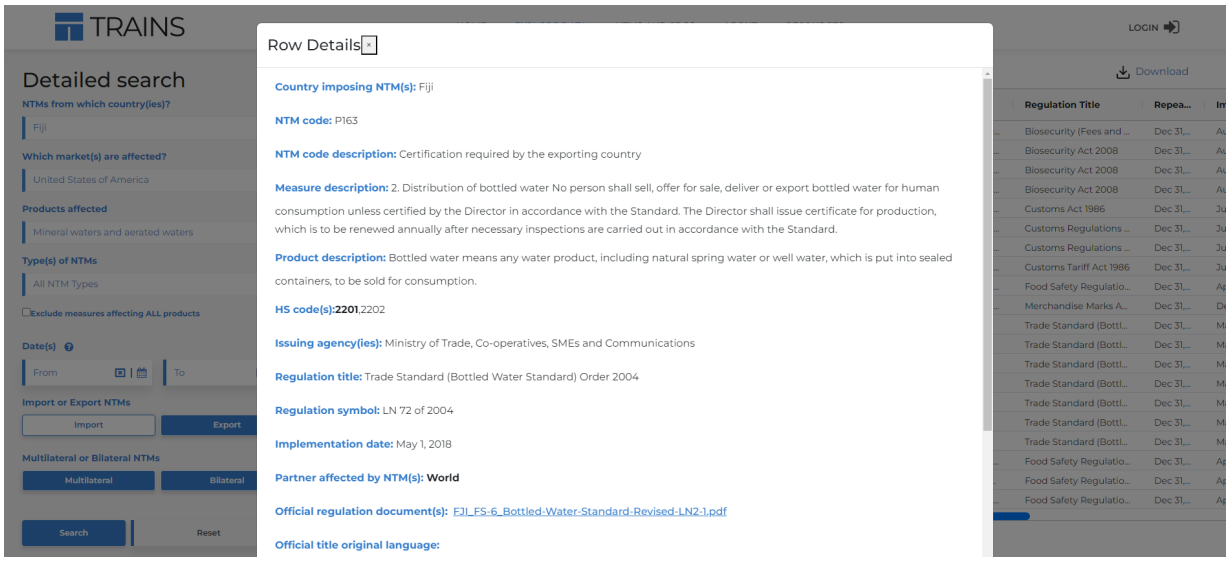
List of NTMs imposed by Fiji when trading mineral water with the United States



Source: UNCTAD, 2024. TRAINS Online

Figure 5.
Pop-up window with more information on a specific NTM in TRAINS Online

Details on certification requirements for exporting bottled water from Fiji



Source: UNCTAD, 2024. TRAINS Online

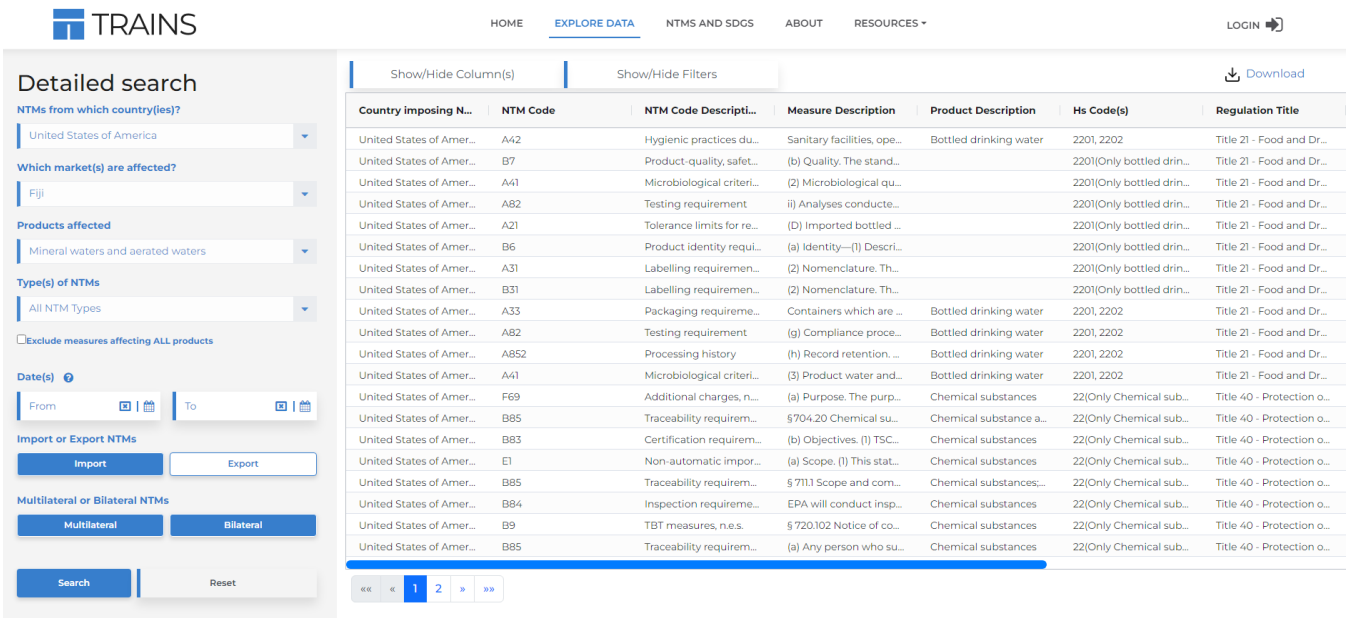
After adjusting the filter and clicking the "Search" button, the relevant requirements will be displayed. There are 20 NTMs imposed by Fiji on bottled water exported to the United States. The default columns in the results include "Country or economy Imposing NTM (s)", "NTM Code", "NTM Code Description", "Measure Description", "HS Code(s)", "Regulation Title", and "Implementation Date". Users can view additional information columns or hide these from view by using the "Show/Hide Column(s)" button.

By clicking on a row corresponding to an individual NTM, it is possible to view more detailed information. To do so, select the row corresponding to an individual NTM. This step is shown in figure 5. For example, a few rows down, there is an NTM requiring certification (P163, under "NTM Code") according to the Trade Standard (Bottled Water Standard) Order 2004 (listed under "Regulation Title"). When a user clicks on this NTM, a pop-up box appears, displaying comprehensive information about the selected measure. This includes a detailed description indicating that the certification must be issued by the director and renewed annually, found under "Measure Description." If available, the pop-up also provides a link to download the relevant regulation document under "Official Regulation Document(s)".

Users may explore each of the NTMs that Fiji imposes when a company exports bottled water to the United States. These are the first set of requirements to be complied with by a Fijian firm exporting bottled water to the United States.

The second set of requirements is the import requirements imposed by the United States. The list of NTMs imposed by United States when importing mineral water from Fiji is shown in Figure 6. The steps necessary to access this list are described below.

Figure 6.
Results table in TRAINS Online for NTM data, filtered for United States



Source: UNCTAD, 2024. TRAINS Online

This second search allows the user to identify the NTMs enforced by the United States that must be met when bottled water is imported.

Begin by selecting the United States in the "NTM from which country(ies)?" filter. This will display the requirements imposed by the United States. Next, in the "Which market(s) are affected?" filter, select "Fiji" to specify the requirements for goods traded with Fiji from the perspective of the United States. Lastly, in the "Products affected" filter, select code 220110. Either type the HS code directly into the search box; or scroll through the "Products (HS4 & HS6)" tab; or navigate through the "Products Tree", selecting the appropriate section, chapter, heading, and sub-heading.

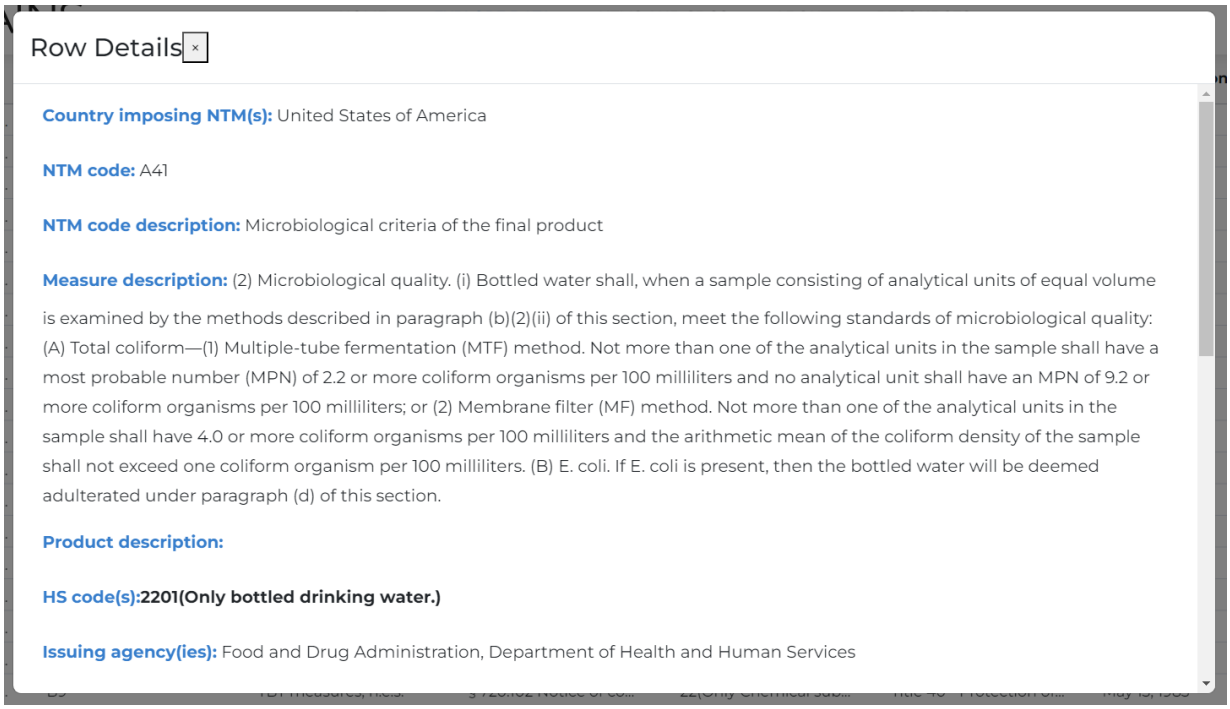
Applying these filters will reveal the specific requirements that the United States imposes on bottled mineral water when trading with Fiji. The completed entries in the search option would look as in Figure 3 but with the country names Fiji and United States of America swapped. Now, click the "*Search*" button.

Similarly to the first search, the second search result displays the requirements imposed by the United States on bottled water, including both exports to and imports from Fiji. In this instance, the focus is solely on the requirements for bottled water imported from Fiji into the United States. Therefore, it is necessary to deselect the export case by clicking the "EXPORT" button under the "Import or Export NTM" option in the detailed search bar on the left side. This leaves only the "IMPORT" button active. Once a user clicks the "Search" button, the requirements of interest will appear as in Figure 6, which shows the details of certification requirements for importing bottled water into the United States from Fiji.

The search result shows various SPS and TBT requirements, which are under Chapters A and B respectively. The third row from the top shows the SPS

requirement that certain microbiological criteria be met in the final product, corresponding to code A41 in the Classification of NTMs. By clicking this row, it is possible to see detailed information about this measure, as shown in Figure 7. The pop-up box details that bottled water shall not have more than a certain number of coliform organisms on average and must not have any E. coli, pursuant to the Federal Regulations Title 21 – Food and Drugs.

Figure 7.
Pop-up window with more information on a specific NTM in TRAINS Online



Source: UNCTAD, 2024. TRAINS Online

In this case, the full text of the relevant regulation can be found online on the website of the United States government, and TRAINS states the precise name of the official legal text. As some countries do not publish their legislation online, TRAINS offers, whenever possible, the full text of the actual regulation for reference.

The UNCTAD TRAINS database also includes "Issuing agency(ies)" and "Regulation symbol".

Users can conduct a similar search in the Global Trade Helpdesk (https://globaltradehelpdesk.org/en). The search result appears in the "*Requirements*" section under the question "*Does your product meet the mandatory requirements?*". It is important to highlight that both portals draw the information from the same source, namely, from TRAINS Online. There is no overlap in the work; data is collected only once following UNCTAD's methodology and is then disseminated through both portals.

Users from the private sector looking for trade requirements should keep in mind that the data on NTMs available through TRAINS is not updated in real-time but only reflects the measures in force at the time of data collection. TRAINS provides a link to a table indicating the years of data collection for each available country/economy. Therefore, since the latest data upload, there may have

been new developments or changes in trade requirements.[9] For example, UNCTAD is conducting data collection and updates in 57 countries in 2024.

Using NTM data for Policymakers (1): Reviewing a country's regulations and comparing with best practice

Non-tariff measures and the Sustainable Development Goals

The 2030 Agenda for Sustainable Development states that "international trade is an engine for inclusive economic growth and poverty reduction and contributes to the promotion of sustainable development".[10] In fact, NTMs are strongly linked to the Sustainable Development Goals (SDGs), especially those associated with health and safety, the environment and climate, public security, and peace.

To understand how non-tariff measures interact with sustainable development, it is helpful to distinguish between direct and indirect linkages between NTMs and the SDGs:

- **Direct linkages** are those where NTMs are intended to have a direct effect on sustainability. Many policies that give rise to NTMs directly tackle issues related to the SDGs, such as food, nutrition (UNCTAD, 2024), health, sustainable energy, sustainable production and consumption, climate change (UNCTAD, 2023), and the environment. For example, target 15c of the SDGs is to "enhance global support for efforts to combat the poaching and trafficking of protected species"; an NTM that prohibits the import and export of endangered species would be directly linked to SDG 15.
- **Indirect linkages** are where NTMs affect trade as a means for economic development. Regardless of the objectives of the NTM, they can increase trade costs and, consequently, impair economic development and thus indirectly hamper sustainable development.

These different linkages to sustainable development show that good policymaking requires finding a balance between reducing trade costs related to NTMs (indirect effects) and achieving public policy goals through NTMs (direct effects).

The toolkit

A government's revision of its own regulatory structure is an important element of ensuring that policymaking favours development and that trade remains an engine for sustainable growth. Studying both the effectiveness and the cost of NTMs may reveal areas for improvement. Impact assessments can be conducted not only before issuing a new NTM but also as an ex-post exercise. Governments may consider reviewing each of the NTMs applied to a sector and the impact of the whole set of NTMs.

A toolkit developed by UNCTAD allows policymakers to analyse both the cost and effectiveness of NTMs in a sector of interest.[11] The core idea is to check that the regulations fulfil their intended, nontrade objective at the lowest possible cost to the economy. The methodology reviews the import requirements of inputs for a selected value chain where the end-product is exported. The analysis is based on three pillars: design of the regulation; implementation; and compliance. The three pillars are presented in Figure 8.

[9] Please see a detailed description of the UNCTAD methodology for NTM data collection in chapter 3.

[10] https://sustainabledevelopment.un.org/topics/trade/decisions

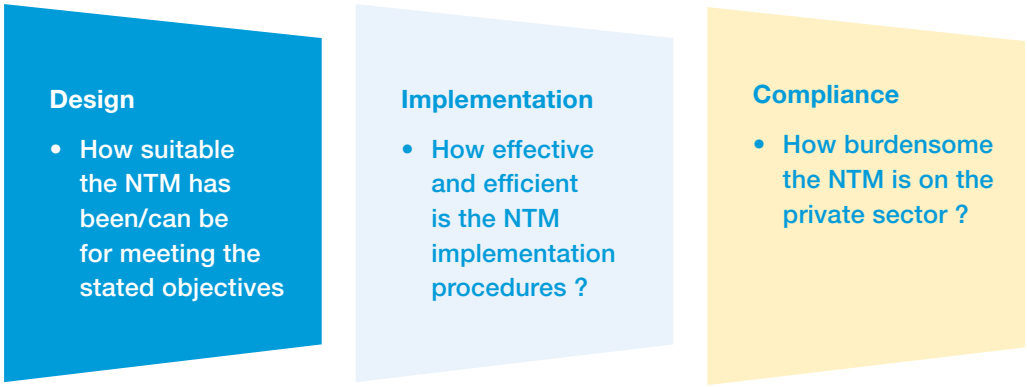
[11] See https://unctad.org/publication/assessing-cost-effectiveness-non-tariff-measures-toolkit and UNCTAD (2020).

The design of the NTM is scrutinized to identify where legal streamlining could be possible. Further, the enforcement, implementation including costs, stakeholder coordination, and effectiveness, are assessed. The third pillar investigates the cost of compliance for businesses, including administrative formalities faced by the private sector, transparency, and time constraints.

The *NTM Cost-Effectiveness Toolkit* provides a step-by-step implementation procedure, together with specific tools, including templates for surveys, guidelines for in-depth structured interviews, a cost-assessment spreadsheet, and other useful elements that can be used to review import NTMs applicable to intermediate inputs within national value chains. The toolkit enables users to review NTMs in terms of the three main pillars of the toolkit – design, implementation, and compliance. The goal of the toolkit is to encourage good regulatory practices.

Figure 8.
The UNCTAD NTM Cost-Effectiveness Toolkit

Tools used to review import NTMs applicable to intermediate inputs within critical national value chains.



Source: UNCTAD (2020)

The NTM Cost-Effectiveness Toolkit uses TRAINS Online as a starting point when it reviews the NTMs enforced by the country under analysis for importing the inputs and exporting the final product.

Using NTM data for Policymakers (2): Policy analysis towards new market access

The NTM data available in TRAINS Online can be used for further analysis within a country or economy. When a country is looking to negotiate a trade agreement, or seeking to access a new export market, it is essential to consider the internal regulatory structure as well as the requirements of the import market.

Indeed, if a country's production standards are closely aligned with the import regulations of its partner, businesses can more easily adapt their products to meet both domestic and international requirements. This alignment simplifies the process of meeting foreign market standards and reduces the costs associated with regulatory compliance. Significant differences, however, can result in higher costs for adapting products and production processes to meet the requirements of the new trade partner. Therefore, for a meaningful assessment

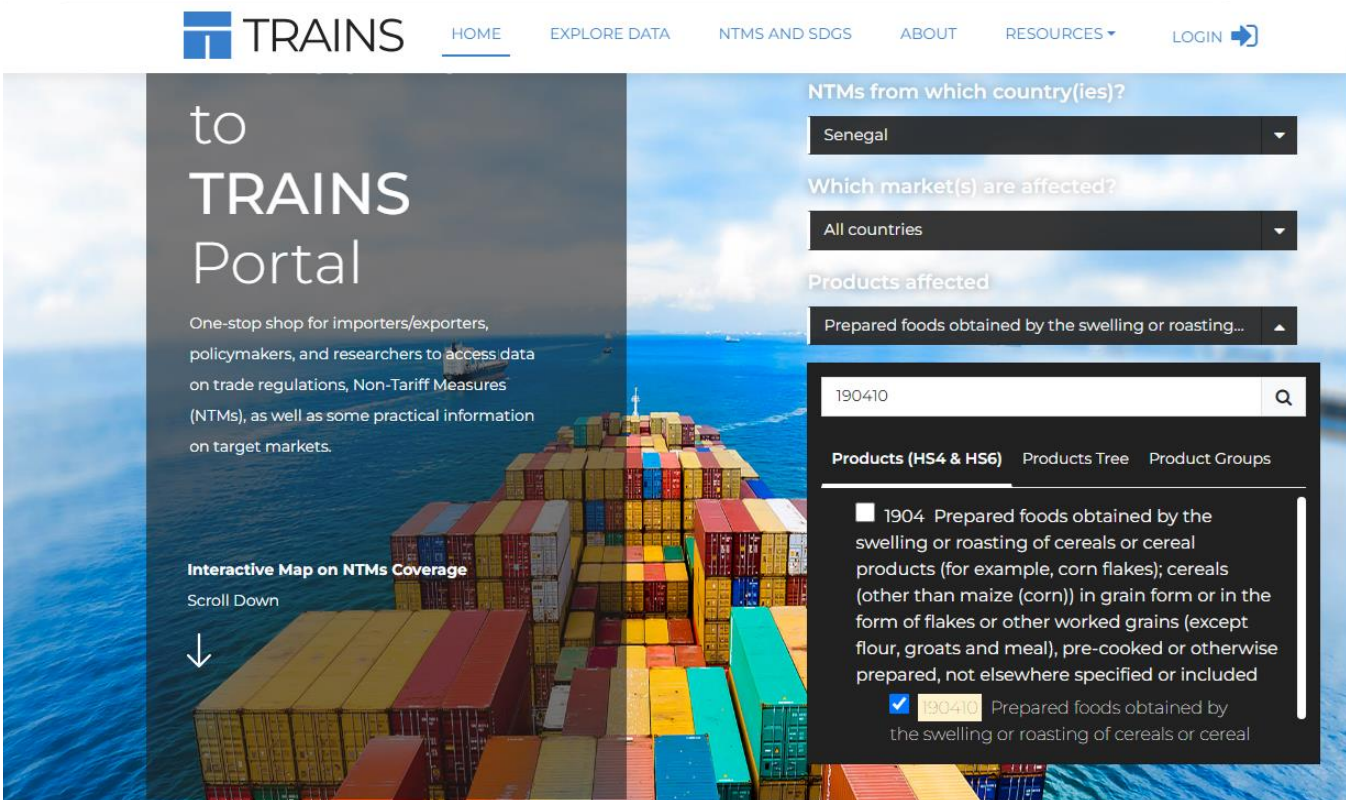
of international trade options going forward, policymakers first need to review the technical regulations currently applied at home. Thus, understanding domestic requirements, in conjunction with import regulations of the trade partner, may be advantageous. UNCTAD TRAINS database offers comparable NTM data collected using the same methodology in both markets.

In line with the WTO SPS and TBT agreements, regulations applied to imports should also apply to domestic production. TRAINS users can therefore look at their country's own import measures to gain insights into domestic production requirements.

So, in addition to using the data on import NTMs to explore the requirements of the export market, it is useful to examine domestic NTMs. Evaluating the two sets of regulations provides a comprehensive understanding of the regulatory environment. By reviewing both sets of regulations, policymakers and businesses can identify overlaps and potential gaps, ensuring that all regulatory aspects are addressed comprehensively.

Figure 9.
TRAINS Online, search filters for Senegal NTMs on cornflakes

Filter used to see NTMs imposed by Senegal on cornflakes when trading with any country



Source: UNCTAD, 2024. TRAINS Online

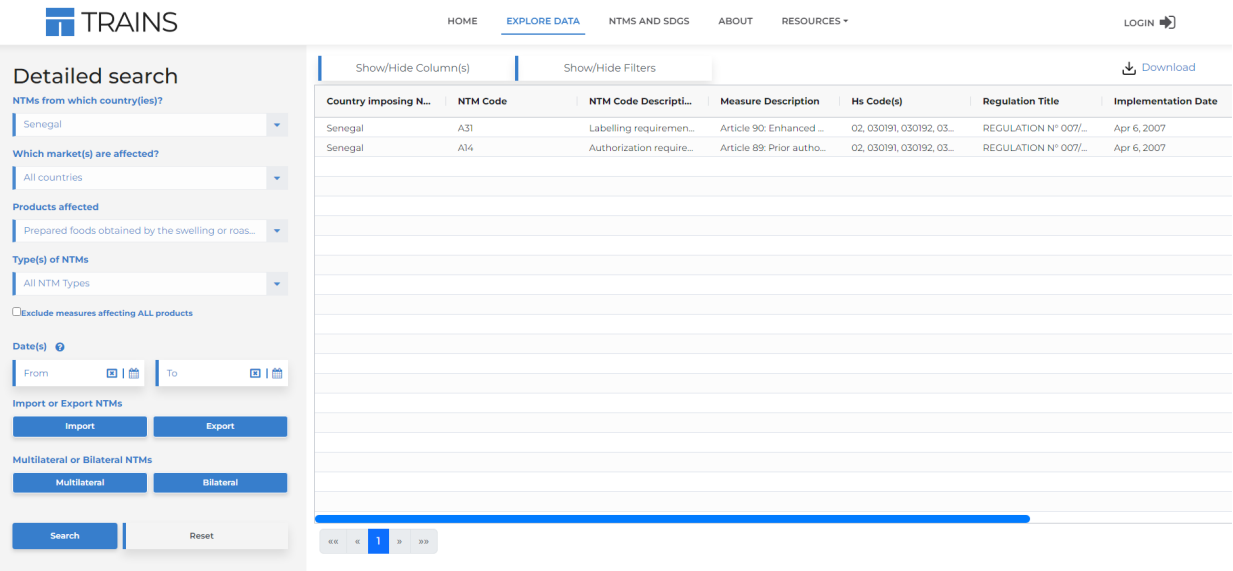
For example, Senegal may be interested in exporting Cornflakes (HS code 190410) to Canada. This product has economic significance in Senegal. It is a high value-added product that shows economic transformation towards processing and manufacturing. For such products, regulators should pay particular attention to the costs and benefits of regulation.

Following the discussion above, this example describes how to retrieve and analyse the import NTMs of Senegal and Canada for this product.

- In TRAINS Online, under "NTM from which countr(ies) or econom(ies)?", select "Senegal" as the applying country.
- Then, under "Which Markets are affected?", choose "Select All", to search for NTMs affecting all countries.
- Lastly, the affected product is selected via the HS code 190410.
- Clicking "Search" will direct the user to the results. This will show results for Senegal's NTMs. Results are shown in Figure 9 and 10, and box 3.

Figure 10.
TRAINS Online, results table for NTM data, filtered for Senegal

List of NTM imposed by Senegal when trading cornflakes



Source: UNCTAD, 2024. TRAINS Online

Box 3.
TRAINS Online, details on regulation A14 imposed by Senegal on imports of cornflakes

Row Details

Country imposing NTM(s): Senegal

NTM code: A14

NTM code description: Authorization requirement for SPS reasons for importing certain products

Measure description: Article 89: Prior authorization system for novel foods. The production and marketing of novel foods are subject to prior authorization issued by the national food safety agency, at its request, to the person responsible for their preparation, cultivation or first marketing. The said body shall obtain the opinion of the said body shall obtain the opinion of the Advisory Council for Food Safety Risk Analysis, which shall inform the WAEMU Commission thereof.

Product description: Novel foods

HS code(s): 19, 02, 030191, 030192, 030193, 030194, 030195, 030199, 0302, 0303, 0304, 0305, 0306, 0307, 0308, 0401, 0402, 0403, 0404, 0405, 0406, 040719, 040721, 040729, 040790, 0408, 0409, 0410, 0504, 070190, 0702, 0703, 0704, 0705, 0706, 0707, 0708, 0709, 0710, 0712, 0713, 0714, 0801, 0802, 0803, 0804, 0805, 0806, 0807, 0808, 0809, 0810, 0811, 0813, 0814, 09, 1006, 11, 120190, 1202, 1206, 120710, 120729, 120730, 120740, 120750, 120760, 120770, 120791, 120799, 1208, 1211, 1212, 1302, 1501, 1502, 1503, 1504, 1506, 1507, 1508, 1509, 1510, 1511, 1512, 1513, 1514, 1515, 1516, 1517, 1518, 16, 17, 1803, 1804, 1805, 1806, 20, 21, 2201, 2202, 2203, 2204, 2205, 2206, 2208, 2209, 2501, 3501, 3502, 3503, 3504, 3505, 3507

Issuing agency(ies): LE CONSEIL DES MINISTRES DE L'UNION ECONOMIQUE ET MONETAIRE OUEST AFRICAINE (UEMOA)

Regulation title: REGULATION N° 007/2007/CM/UEMOA ON PLANT, ANIMAL AND FOOD SAFETY IN UEMOA

Regulation symbol: Règlement

Implementation date: Apr 6, 2007

Partner affected by NTM(s): World [Valid From: 06 Apr 2007]

Official regulation document(s): SEN_REGLEMENT N° 007 2007 CM UEMOA.pdf

Official title original language: REGLEMENT N° 007/2007/CM/UEMOA RELATIF A LA SECURITE SANITAIRE DES VEGETAUX, DES ANIMAUX ET DES ALIMENTS DANS L'UEMOA

Measure description original language: Article 61 : Contrôle des produits issus des biotechnologies modernes L'importation des végétaux et produits végétaux issus des biotechnologies modernes sur le territoire de l'Union est subordonnée à une autorisation préalable de l'autorité compétente en matière de biosécurité. La Commission, au travers du sous-comité de sécurité sanitaire des végétaux, en est informée par l'Autorité compétente en matière de biosécurité. Article 71 : Contrôle des produits issus des biotechnologies modernes L'importation sur le territoire de l'Union, d'animaux, de produits animaux ou d'origine animale issus

des biotechnologies modernes est subordonnée à une autorisation spéciale et préalable de l'Autorité compétente en matière de biosécurité. La Commission, au travers du Comité Vétérinaire, en est informée par l'Autorité compétente en matière de biosécurité Article 89 : Régime de l'autorisation préalable pour les aliments nouveaux La production et la commercialisation d'aliments nouveaux sont subordonnées à une autorisation préalable délivrée par l'organisme national de sécurité sanitaire des aliments, à sa demande, à la personne responsable de leur préparation, de leur mise en culture ou de leur première mise sur le marché. Ledit organisme recueille l'avis du Conseil consultatif d'analyse des risques de sécurité sanitaire des aliments qui en informe la Commission de l'UEMOA.

Product description original language: - Végétaux, produits végétaux et autres articles réglementés, y compris les produits issus des biotechnologies modernes tels que définis dans le présent Règlement; - Animaux, produits animaux, produits d'origine animale, alimentation animale et de la santé publique vétérinaire, y compris les produits issus des biotechnologies modernes; - Produits alimentaires, y compris les produits issus des biotechnologies modernes. - Aliments nouveaux

Supporting/related regulations:

Measure objective:

Years Of Data Collection: 2021

Repeal Date: Dec 31, 9999

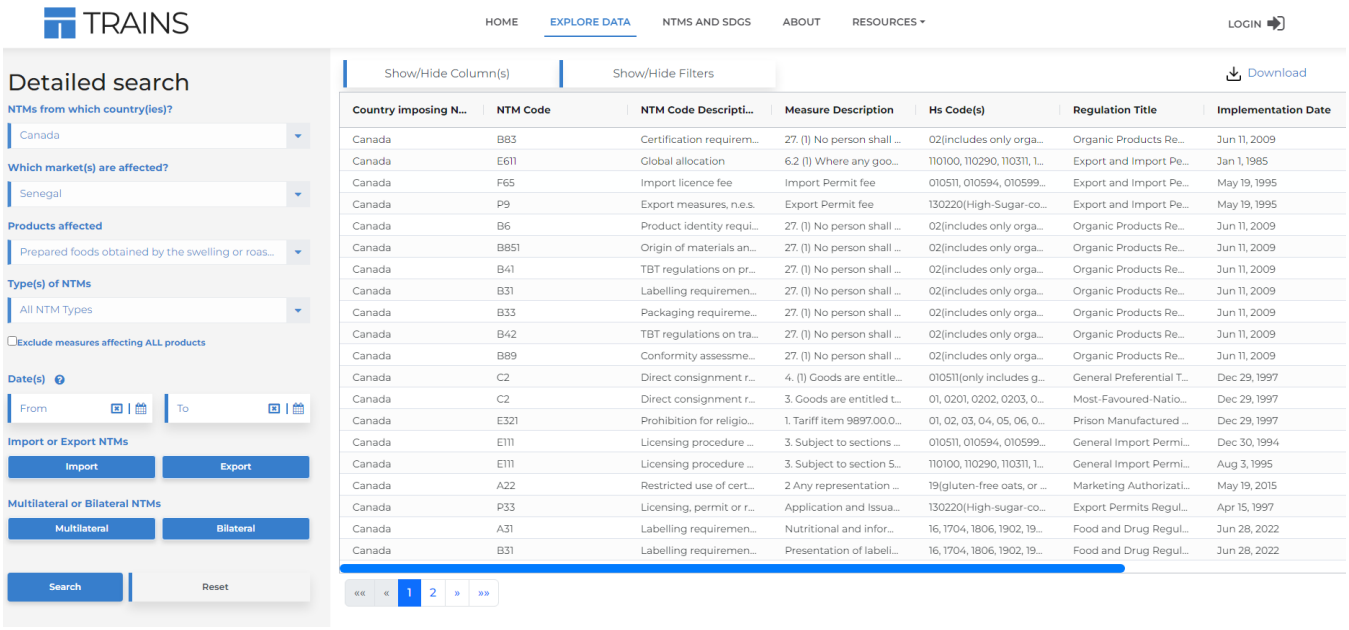
In this case, Senegal applies very few measures. There is no export NTM, and only two import NTMs. Besides a labelling requirement, cornflakes, there is an authorization requirement for novel foods. Since cornflakes are considered part of this group of products, Cornflake producers/exporters also need to comply with this authorization requirement.

In instances where countries have numerous measures, a detailed examination of the database can reveal patterns or similarities among regulations. For example, different regulators may impose similar technical certifications or ministry licenses. In such cases, reviewing coordination among countries, such as mutual recognition of certificates, can be beneficial.

In a second step, the search looks for NTMs in target countries; in this case, Canada. The results show 34 Canadian NTMs on trade of cornflakes with Senegal. More developed countries tend to have a higher number of NTM relative to less developed countries (UNCTAD, 2019). This reflects both consumer demand for quality and the higher capacity of industry in more developed countries.

Figure 11.
TRAINS Online, results table for NTM data, filtered for Canada

List of NTMs imposed by Canada when trading cornflakes with Senegal



Source: UNCTAD, 2024. TRAINS Online

Canada has 2 export NTMs and 32 import NTMs; 7 of them carry the code A22 (Restricted use of certain substances in foods and feeds and their contact materials). These are restrictions on different substances in breakfast cereals, but also in infant foods, as cereals fall within this group. This is shown in Figure 11.

There are also 8 NTMs on "Organic Food, Feed and Drink", e.g. Packaging requirements (B33), TBT regulations on production processes (B41), TBT regulations on transport and storage (B42), Product identity requirements (B6), Certification requirements (B83), Origin of materials and parts (B851). These only apply to the products if they are organic. These are cases of Partial Coverage, i.e., when an NTM does not apply to every product imported under the said HS code; 190410 in this case.[12] The concept of Partial Coverage indication is described in the Guidelines.

By analysing the data, we can conclude that Senegalese companies may need to invest in upgrading capacities if they want to export to Canada, assuming this would be a new market for Senegal, or to any other country that may have a significantly different NTM structure than its own. Nevertheless, knowing that Senegal is already exporting this product to the United States, it would be beneficial to investigate the NTMs in the United States and compare these to the NTMs in the potential new market, Canada. Although the results are not included in this document, the differences could be substantial. For instance, the United States has only 8 NTMs for this product, including one export measure. There is only one SPS measure requiring testing of

[12] For example, the certification requirement for organic products states that "No person shall import or market a product as an organic product in Canada unless the product (a) is an organic product under these Regulations. A person who wishes to obtain an organic certification for an agricultural product shall apply to a certification body".

products containing cacao, (code A82), along with a tolerance limit and a testing requirement for residues. The objective of the analysis, in this case, is to assess the adaptation requirements for companies wishing to access the Canadia market, knowing that they already comply with the United States' NTM requirements.

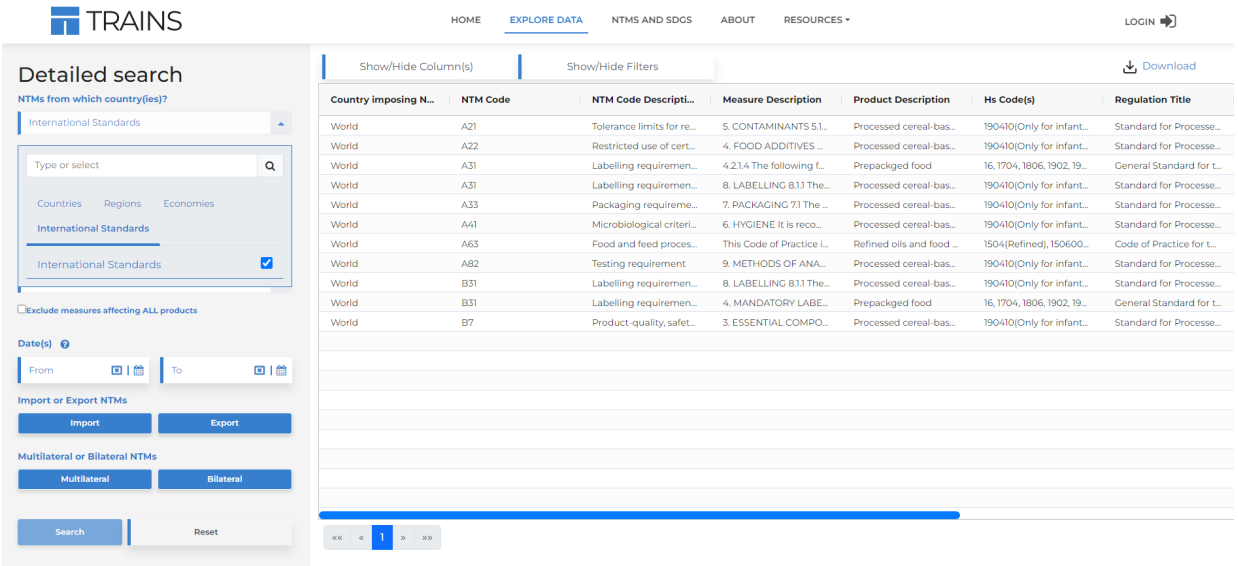
Using the data to monitor international regulatory cooperation

Regulatory differences between technical measures across countries are a major driver of trade costs. Technical measures usually cannot be eliminated due to their critical public policy objectives, and so regulatory convergence is seen as a way forward. Regulatory cooperation and convergence through harmonization, equivalence, or mutual recognition has therefore become important in policymaking. Harmonization of measures reduces trade costs, as products do not need to be customized to meet requirements particular to each export market (UNCTAD, 2012; Knebel and Peters, 2019).

Regulatory cooperation and convergence can take many paths. UNCTAD (2024c) analysis shows that the regulations of the largest global markets (i.e., the United States, the European Union, China, and India) are very different from each other and from those of most developing countries. For exporters, this implies that convergence towards one market will likely cause regulatory divergence with other large markets and other developing countries. Disdier et al. (2015) assess this risk of "lock in" or "hub-and-spoke" trade structures: adopting a specific set of regulations from a developed market may increase exports to that market but at the expense of higher domestic prices, lower South-South trade, and less diversification into new markets. The authors find that adopting international standards increases overall exports.

Figure 12.
TRAINS Online, list of NTMs contained in international standards

Filtered results for cornflakes



Source: UNCTAD, 2024. TRAINS Online

International standards

International standards are also recorded in the TRAINS Online database. This can be used as a reference for policy-making. For agri-food sectors, policymakers can use the TRAINS database to find the best practices proposed by Codex Alimentarius, IPPC, and WOAH international standards, the three important standard-setting bodies in this sector. For industrial products, this feature is not available as international standards are not uniquely defined in these sectors.

The international standards can be displayed in the TRAINS database by selecting the country/economy imposing NTM as "International Standards". For example, the selection of [International Standards] in the field [NTM from which country(ies) or econom(ies)?], together with product code [190410], displays 11 NTMs, as depicted in Figure 12.

Table 1.
Title tables and figures

NTM types and codes	Senegal	International Standards
A14: Authorization requirement	1	
A21: Tolerance limits for residues		1*
A31: Labelling requirements	1	1 and 1*
A41: Microbiological criteria of the final product		1*
A63: Food and feed processing		1
A82: Testing requirement		1*
B31: Labelling requirements		1 and 1*
B7: Product-quality, safety or -performance		1*

Note: * refers to recommended measures that apply only to cornflakes for infants and young children.
Source: UNCTAD, 2024. TRAINS Online

The standards listed should be considered a long-term aspirational target for most developing countries, as they recommend more than twice as many measures as the average developing country currently enforces. However, they can be viewed as a "menu" from which to choose the most appropriate measures for the needs of a country.

As an overview, it can be helpful to map out the requirements and standards recommendations as shown in Table 1. It lists all measure types on the left and adds columns for each country or international standard of interest. Then it assigns a "1" in the corresponding column if the NTM type is applied by that country/standard. It is now quickly visible which NTM types match between countries/standards, and which do not. In the process of mapping the measures, it is important to review the results in detail to verify whether they apply to the product of interest. For example, in this case, most recommendations by international standards relate only to cornflakes "for infants and young children" (see results columns on HS codes and Regulation Title). In Table 1, we mark these measures with an asterisk (*). Policymakers will need to assess which standards recommendations are relevant.

In the example, both Senegal and the international standards apply the SPS labelling requirement (NTM code A31) – a regulatory match. There are many additional recommendations by the international standards that Senegal is not applying, but most only relate to cornflakes for infants and young children. And Senegal's authorization requirement (A14) has no match in the international standards.

In addition to reviewing the respective international standards, it is also useful to review the measures of key import markets and other successful exporters. These can be added in additional columns to Table 1 to get an overview.

It is important to note that this kind of table only provides an overview of types of NTM. Of course, there may be many differences in the details. For example, the labelling requirements (A31) applied by Senegal may still differ from the recommendations of international standards.

An in-depth comparison of the full text of regulations is needed to fully develop Senegal's best course of regulatory action. Regulatory coordination and cooperation with other partners, for example in a regional context, and convergence towards international standards can lead to significant trade cost reductions.

Chapter V

Researchers: Using NTM data for economic analysis

The UNCTAD TRAINS NTM database is an (unbalanced) panel dataset covering many countries with comparable data on NTMs from 2013 until today. NTMs are coded using a classification system and affected products are classified using the Harmonized System 6-digit codes. The dataset is bilateral, i.e., both the affected exporter and importer are identified. The dataset has been used for many scientific papers.

Incidence measures and statistics for impact analysis

The TRAINS NTM database provides detailed information at the HS6 digit level for products, making it an invaluable resource for statistical analysis of NTMs. Users can identify the most common types of NTM and assess their prevalence across different countries or economies and for specific product groups. This analysis produces incidence measures, such as the frequency index, coverage ratio, and prevalence score. These incidence measures serve as descriptive statistics that can also be used as variables in more complex assessments.

For example, analysts can identify common NTMs and assess their prevalence across countries and product groups using incidence measures proposed here. The analysis of these measures offers insights into regulatory patterns and policy preferences, revealing which sectors are more heavily or lightly regulated. Computed aggregated indicators and ad-valorem equivalent (AVE) analysis translate the impact of NTMs into a tariff-equivalent, expressed as a percentage of the value of the import, offering a clearer understanding of their economic significance. This allows policymakers to compare NTMs directly with traditional tariffs and quantify their trade restrictiveness. Indicators and AVEs are discussed in more detail below.

The data is available for bulk download, suitable for statistical processing. Users can access this data in the "Researcher file" in CSV or STATA format. The accompanying explanatory note outlines the data-cleaning process and the variables produced from raw data.[13] In this file, the combination of variables identifying each observation is the enforcing country or economy, partner country, HS product code at 6-digit, NTM code, and year of data collection.

Additionally, computed aggregated indicators are available for download in Excel format, using the latest data available. This ensures that users have access to high-quality, up-to-date information for their analyses. The ad-valorem equivalent (AVE) computed values are also available for download from UNCTAD's website.

Incidence measures

Incidence measures offer an overview of how products and sectors are regulated, thus providing valuable insights into a country's regulatory landscape. These measures can help identify common regulatory practices for non-tariff measures (NTM), shedding light on regulatory trends and policy preferences. By analyzing these patterns, stakeholders can determine which sectors are relatively more heavily regulated. Trend analysis of NTMs can reveal shifts in policy focus and regulatory intensity.

These indicators also enhance transparency. They reveal the policy tools each country uses for different products and sectors. Comparing data across different countries can be particularly useful for regional integration or market access considerations.

[13] https://trainsonline.unctad.org/bulkDataDownload

Incidence indicators are standard metrics used to preliminarily explore NTMs through an "inventory approach." While they do not measure the restrictiveness or economic burden of NTMs, they describe the widespread use and variety of these policy tools, making them a useful starting point for data analysis.

UNCTAD analysis has identified that developed countries typically have more extensive regulatory coverage, affecting a broader range of sectors and with a higher number of NTMs. The objectives of these measures often include ensuring consumer safety and product quality. Chapters A and B, which cover Sanitary and Phytosanitary (SPS) and Technical Barriers to Trade (TBT) measures, are particularly prevalent in developed countries. This more elaborate regulatory approach by developed countries, especially in these two chapters, may reflect an emphasis on ensuring safety or product quality.

The gap between NTMs in developed and developing countries could indicate that least developed countries (LDCs) may be 'missing' regulations in certain areas, meaning that some sectors are not adequately regulated. For example, LDCs often have fewer regulations in crucial areas such as food safety, sustainable development such as environmental protection, and technological advancement. The prevalence of regulation, particularly technical regulation, is closely linked to an industry's production capacity, the quality of infrastructure, and the enforcement capability within the country. A thorough examination of regulatory patterns and trade structures in developing countries can help identify priority areas for new regulatory instruments. Furthermore, analyzing the incidence of NTMs in developed and developing countries and LDCs can facilitate regulatory cooperation.

Specifically, three key indicators, namely Frequency Index, Coverage Ratio and Prevalence Score, highlight how NTMs are used as policy instruments. The **Frequency Index** (FI) is essentially the percentage of products affected by one (or more) NTM(s). The numerator is always the number of HS 6-digit products affected by at least one NTM. There are alternatives for the denominator, as the Frequency Index may be computed over:

a) The total existing number of products. If calculated at HS6 level, there are around 5200 products.
b) Only the traded lines, i.e., the count of product items 's' that are imported (or exported) and excluding those that have zero trade value.

For example, if a country imports only 2000 products, and has NTMs on 1000 of those products, the FI will be close to 20% if M_s=5200, and 50% if M_s=2000.

The caveat on alternative (b) is that the Frequency Index value could be endogenous, as certain NTMs could arguably raise costs in such a way that imports are precluded. Alternative (a) is neutral in this sense. The downside of alternative (a) is that considering traded and non-traded products alike may render the economic meaning irrelevant.

Coverage Ratio (CR) is the share of trade subject to NTMs.

Usually, the CR is computed using the average trade value for the last three years (bilateral and by HS6), so that there would be fewer zero values than for a single year. This is relevant because this indicator uses traded products only.

Prevalence Score (PS) counts how many measures apply to a given product. It can be used, for example, to determine what group of products is affected by the largest number of NTMs on average. For instance, it can indicate whether agricultural products are affected by more measures than industrial products. It can also be used

to compare the average number of measures among different countries.

The alternatives again concern the denominator chosen. The PS may be computed over:

c) Only those products that are subject to NTMs (only positive values), traded or non-traded.

d) The total existing products, including those that are not subject to NTMs (including zero values).

e) Only traded products that are subject to NTMs (only positive values).

f) Only traded products, but including those that are not subject to NTMs (including zero values).

For example, the PS may be equal to 2.3 NTMs on average on all traded products, including those traded but not subject to NTMs (option d), or 5.1 when considering only products subject to at least one NTM (zero values are not included in the average calculation) (option c).

The advantage of including the zeroes in the average is that it shows the average 'weight' of NTMs. When calculating the average tariff for a country or sector, normally all zero tariffs are also included in the calculation. It is advisable to do the same for the number of NTMs. On the other hand, the share of products with no NTM will affect the result. In other words, the Frequency Index affects the Prevalence Score.

At the same time, when presenting values per chapter of the NTM classification, e.g., the average number of SPS measures or TBT measures, it is preferable not to include the zeroes. This is because the number of products affected by an SPS (or by another type of NTM) within the set of all imported products can be small. The average value of the number of NTMs will be small, not because few SPS measures are being applied, but because the number of products not subject to SPS measures is very large, and there are a lot of zeroes.

There is one other option for calculating the Prevalence Score, depending on the data available. Prevalence can be computed using each NTM code once or by including any other repetitions the data may show (a variable using this type of 'repetition' may be called 'Full Count').

Alternatives for the count of repetitions of an NTM (for each reporter, partner, and HS6 product code):

g) Each NTM code is counted once, so the Prevalence Score is the number of different types of NTM in place, i.e., there is no repetition, and no code is used more than once (for the same reporter, partner and product).

h) Every measure in each separate legal text is included in the count (including any repetitions that the legislation may indicate). This is the 'Full Count'.

As stated above, options (g) and (h) depend on the data available. It is possible that two separate legal requirements impose NTMs that happen to fall under the same code in the NTM classification, e.g., two sanitary certifications that affect the same product.

The concept and formulas for each option are straightforward. Nonetheless, there are choices to be made when computing these indices, and these choices affect the absolute value of the indices. However, provided that the method chosen for computing these incidences is standardized when comparing countries and sectors, and across time, there is no absolute right or wrong. The reasons behind the choices that have been made for the indicators that are displayed in TRAINS are explained in UNCTAD (2019).

How to access the data for researchers

Users can access the data by downloading a STATA file. The STATA file contains one row for each distinct combination of the five variables (reporter, partner, product, NTM code, year of data collection). For example, code A84 'inspection requirement' on product 020711 'poultry meat', applied by Country A on imports from country B, in force during data collection in 2022. There are additional variables indicating how many of these code-product-country-country combinations were present in the original dataset, so it is possible to compute the PS. This additional variable could be called "'Full Count'" and can be compared with the ordinary Prevalence Score.

The explanatory note that accompanies the STATA file describes the variables available. These are the NTM data and account for the number of occurrences in the original data, with reference to the characteristics of the NTM, such as whether it affects products fully or partially, or if it is a horizontal measure. For example, the variable 'ntm_all' represents the global number of NTMs of all characteristics. The column 'ntm_fullcoverage' indicates the number of occurrences for each combination of the five variables mentioned above but only for NTMs that affect the product fully. The column named 'ntm_PartialCoverage' does the same thing for NTMs that apply partially to the product. Users may combine both if they want to study NTMs that affect the products both fully and partially.[14]

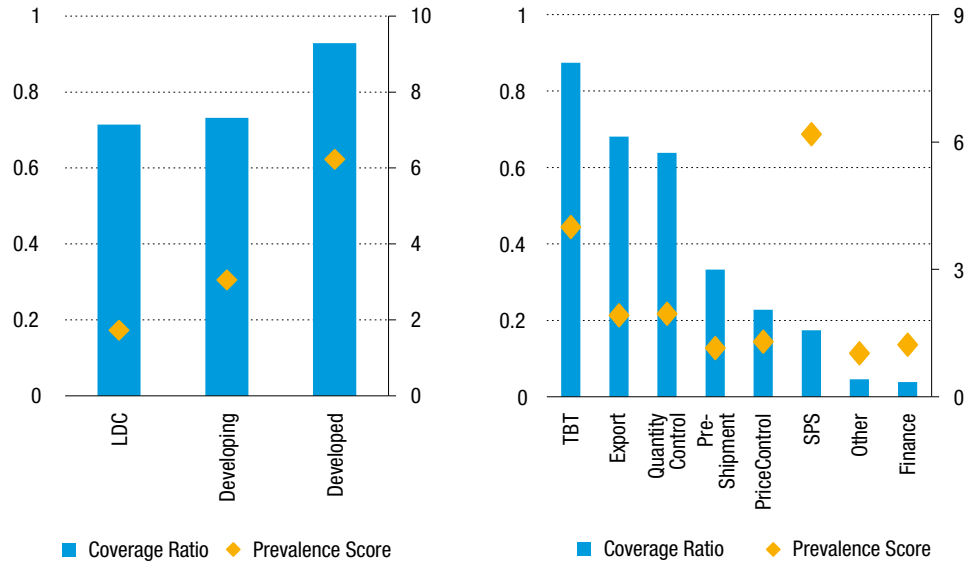
The options used to compute the NTM indicators that are shown in the figures 13 to 15 are the following:

- Including bilateral NTMs (those affecting sone countries/ economies only).
- Considering only traded lines.
- For the Coverage Ratio, import measures are matched with import trade values, and export measures with export trade values.
- The denominator used to compute the Prevalence Score includes those products traded that are not subject to NTMs (including zero values).
- No repetitions, no code is used more than once (for the same reporter, partner, HS6 product, or year).

[14] For explanations on full and partial coverage, please refer to the Guidelines on data collection. For description of the variables in the 'STATA researcher file' please refer to the explanatory note downloadable from the TRAINS website.

Figure 13.
Incidence measures, Coverage Ratio, and Prevalence Score

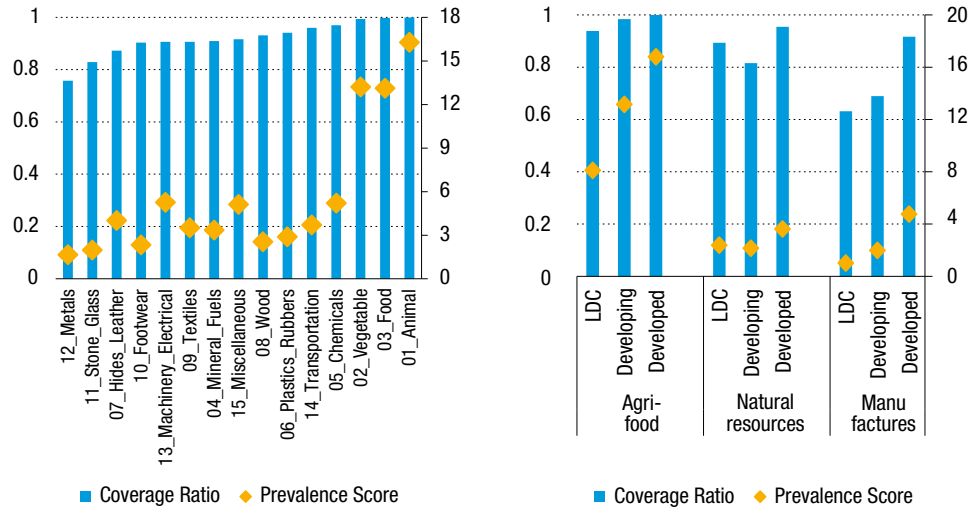
Left-hand graph: NTM data disaggregated by region; right-hand graph: NTM data disaggregated by chapter



Source: UNCTAD, 2024.

Figure 14.
Incidence measures, Coverage Ratio, and Prevalence score

Left-hand graph: NTM data disaggregated by product group; Right-hand graph: NTM data disaggregated by level of development and sector



Source: UNCTAD, 2024.

Figures 13 and 14 present data from the latest year of data collection available for each country or economy.

In Figure 14, the left-hand graph suggests that agri-food products (vegetable products, animal products and food) have the highest Coverage Ratio, and that the number of NTMs on each product is highest for agri-food products, i.e., the Prevalence Score is high. This calls for special attention to this group of products. Many of these NTMs are SPS and TBT regulations, and the ministries or departments regulating those products may not be aware that they could be affecting trade, and thus indirectly economic performance, since their main concern is usually security, protection of the environment, or protection against pests or diseases. It may be good practice to review the coherence of all measures put in place jointly and look for streamlining opportunities.

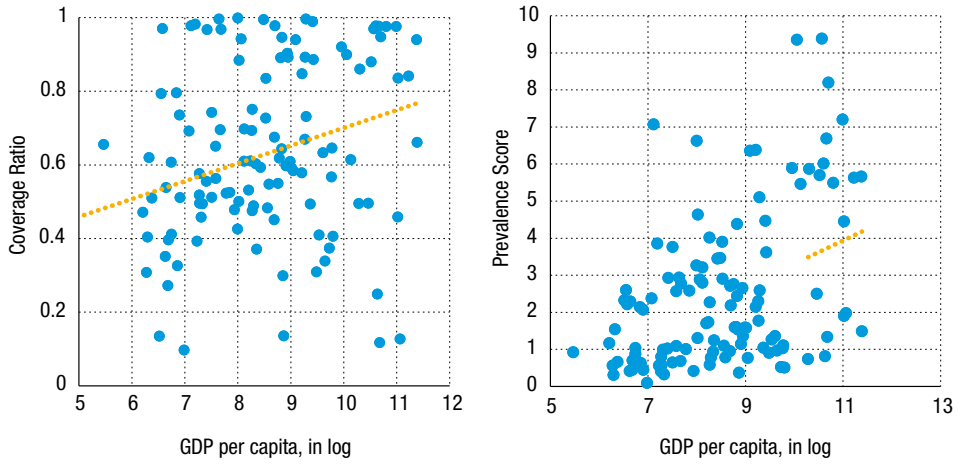
At the same time, in Figure 13 the right-hand graph shows that developed countries impose more NTMs than other countries. The SPS Agreement allows countries to set their own levels of protection, but requires scientific evidence that the NTMs are necessary for reducing risk to a level that is tolerable in that country. Otherwise, those NTMs may be restricting trade in an undesired way.

Using scatter plots, Figure 15 shows the association of Gross Domestic Product (GDP) with coverage ratio in the left-hand graph and with prevalence scores in the right-hand graph. This strengthens the idea that economic development is closely associated with an increase in the incidence of NTMs. The correlation between SPS and GDP is particularly strong.

Transparency in NTMs is key to understanding what measures are in place in which parts of the world and affecting which sectors. The indicators computed and shown here are a first step in profiling NTM use, and can shed light on areas which could be considered by policymakers to minimize trade costs. Countries may also use these results to negotiate agreements that go beyond tariffs and include provisions for NTMs.

Figure 15.
Incidence measures and GDP

Left-hand graph: Coverage Ratio; Right-hand graph: Prevalence Score



Source: UNCTAD, 2024.

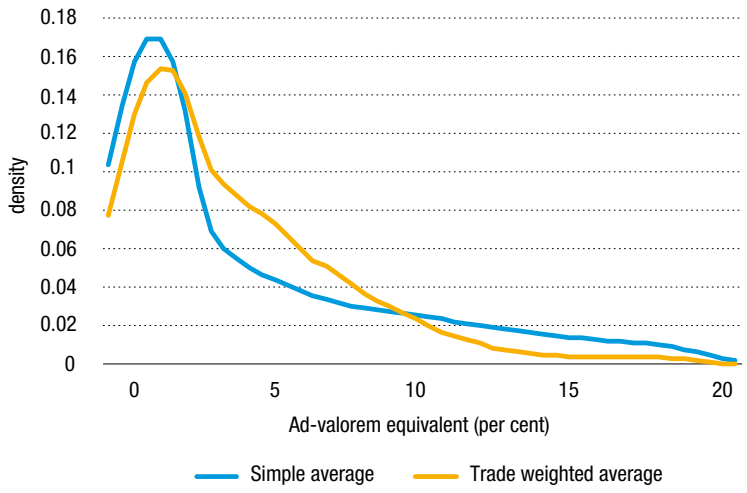
Note: GDP is presented in natural logarithms

Finally, the indicators can be used, not only as descriptive statistics, but also as variables in other economic analyses. They can be computed by disaggregating according to country, or country and sector, for example. In this way, any of the incidence measures can be incorporated into econometric models to evaluate the impact of NTMs on trade flows. By analyzing these measures, researchers can gain insights into how NTMs influence the cost structure for exporters and importers, and overall economic welfare.

Ad-valorem equivalents (AVEs)

Whilst incidence measures illustrate the variety of NTMs without indicating the costs to exporters and importers, Ad valorem equivalent (AVE) analysis can be used to conduct impact analysis. AVE analysis converts an NTM into a tariff-equivalent percentage, allowing for a more intuitive understanding of their economic significance. By converting NTMs into their AVE, it becomes possible to compare their effects directly with traditional tariff measures. This comparison is crucial for policymakers in understanding the true cost burdens imposed by NTMs on international trade. Incorporating AVE into the analysis enhances the ability to quantify the trade restrictiveness of NTMs, providing a clearer picture of how they affect market dynamics.

Figure 16:
Distribution of ad-valorem equivalents of border NTMs



Source: UNCTAD, 2024.

In general terms, the ad-valorem equivalent of a non-tariff measure is the uniform tariff that will result in the same trade impacts on the import of a product as the presence of the NTM in question. The AVEs in this database represent the additional costs that the presence of NTMs has on imports. Overall, the AVE are to be interpreted as the cost associated with the compliance with NTMs at the border, given existing levels of trade as of 2017.[15]

In economic terms, the AVEs represent the NTM wedge between the domestic and foreign price of the good. In this regard, when used in GTAP simulations, the AVEs should be implemented as iceberg shocks[16] and should not be used to recalibrate initial tariffs to account for the NTM. One further consideration is that the AVEs do not provide any information on whether importers and exporters bear the costs associated with NTMs (UNCTAD 2024c).

Analysis of the data suggests NTMs are more costly that tariffs. The trade weighted average of the AVEs is about 4.7 percent (trade weighted average) and 8.1 percent (simple average). Figure 16 provides the probability distribution graph of the AVEs.

UNCTAD provides a GTAP database containing the AVEs of border NTMs, based on the NTM TRAINS data. The estimation of AVEs is based on Kee and Nicita (2022) and originally estimated at the 6-digit level for products. It was then aggregated and made consistent with the GTAP version 11 Data Base.[17] This data can be used directly within the GTAP model (UNCTAD 2021).

Latest updates of the AVE database available capture costs of compliance with NTMs imposed at the border and/or customs. These are customs regulations and include traditional quantitative restrictions, price control measures, as well as other NTMs such as traceability, licensing, processing, and inspections.

As with most of the econometric literature estimating AVEs, the effects of NTMs on international trade are isolated using incidence measures of NTMs as explanatory variables. It is the basic statistical NTM indicator which is used as an input for the analysis.

[15] The aggregation employs trade weights based on 2017 import flows.

[16] Iceberg cost is a metaphorical expression to refer to modelling techniques that simulate the situation where only a fraction of the value of the good shipped arrives to destination, the rest having 'melted' in transit. Iceberg costs types represent non-revenue generating price wedges. Other alternatives may model NTMs as having a similar role as tariffs, which may be biased since there is no income generating effect as in the case of tariffs. See: United Nations and World Trade Organization (2012)

[17] https://unctad.org/node/35422 Ad-valorem equivalent of border measures: GTAP version 10; https://unctad.org/node/35423 Ad-valorem equivalent of border measures: GTAP version 9; https://unctad.org/node/35424 Ad-valorem equivalent for technical and non-technical measures: GTAP version 10; https://unctad.org/node/35425 Ad-valorem equivalent for technical and non-technical measures: GTAP version 9 Version 11 is forthcoming

Annex I. NTM indicators by country or economy using latest available year

	Import Frequency Index	Import Coverage Ratio	Import Prevalence Score	Import Full Count		Export Frequency Index	Export Coverage Ratio	Export Prevalence Score	Export Full Count
AFG	0.180	0.308	0.563	0.590	AFG	0.157	0.601	0.283	0.284
ARE	0.876	0.948	8.199	13.043	ARE	0.474	0.720	1.647	2.322
ARG	0.997	0.990	4.473	5.098	ARG	0.980	0.741	2.284	3.078
ARM	0.539	0.594	3.453	4.871	ARM	0.284	0.313	0.333	0.735
ATG	0.260	0.374	0.531	0.531	ATG	0.052	0.042	0.114	0.124
AUS	0.947	0.976	7.201	8.896	AUS	0.383	0.253	1.015	1.254
AZE	0.996	0.978	2.189	2.303	AZE	0.247	0.011	0.482	0.483
BDI	0.420	0.656	0.922	0.985	BDI	0.404	0.503	0.487	0.531
BEN	0.306	0.692	2.382	2.723	BEN	0.332	0.709	1.169	1.248
BFA	0.157	0.352	0.417	0.477	BFA	0.237	0.780	0.245	0.246
BGD	0.996	0.968	2.935	3.321	BGD	0.112	0.049	0.242	0.258
BHR	0.787	0.615	5.466	9.853	BHR	0.557	0.559	2.257	3.385
BHS	0.268	0.495	0.742	0.805	BHS	0.102	0.439	0.202	0.260
BLR	0.940	0.946	4.387	5.608	BLR	0.359	0.636	0.420	0.438
BOL	0.257	0.501	1.305	1.539	BOL	0.252	0.473	0.284	0.290
BRA	0.758	0.848	6.385	8.414	BRA	0.954	0.821	1.961	2.145
BRB	0.209	0.406	0.509	0.519	BRB	0.154	0.492	0.263	0.265
BRN	0.266	0.496	2.500	3.216	BRN	0.268	0.421	0.485	0.494
BWA	0.635	0.891	1.605	1.741	BWA	0.143	0.901	0.484	0.549
CAN	0.999	0.976	5.498	7.842	CAN	0.152	0.470	0.211	0.231
CHE	0.804	0.940	5.666	6.721	CHE	0.833	0.956	2.202	2.876
CHL	0.620	0.634	1.363	1.671	CHL	0.181	0.249	0.231	0.235
CHN	0.907	0.940	6.362	10.762	CHN	0.641	0.714	2.403	3.058
CIV	0.489	0.696	0.686	0.703	CIV	0.032	0.525	0.055	0.055
CMR	0.143	0.495	0.328	0.349	CMR	0.179	0.769	0.509	0.532
COD	0.370	0.472	1.169	1.439	COD	0.323	0.288	1.073	1.305
COG	0.220	0.479	0.424	0.431	COG	0.278	0.106	0.419	0.422
COL	0.458	0.644	2.445	2.992	COL	0.084	0.190	0.133	0.155
COM	0.255	0.458	0.996	1.083	COM	0.124	0.580	0.560	0.560
CPV	0.167	0.532	1.710	1.899	CPV	0.354	0.414	0.354	0.354
CRI	0.319	0.494	1.051	1.146	CRI	0.135	0.160	0.204	0.233
CUB	0.993	0.903	2.660	5.688	CUB	0.261	0.246	0.261	0.282
DMA	0.987	0.893	1.365	1.436	DMA	0.026	0.318	0.071	0.079
DZA	0.720	0.727	3.901	4.686	DZA	0.454	0.539	0.514	0.522
ECU	0.466	0.675	2.720	3.135	ECU	0.156	0.327	0.264	0.347
EGY	0.999	0.942	2.890	3.131	EGY	0.042	0.178	0.050	0.053
ETH	0.951	0.971	2.218	2.356	ETH	0.342	0.887	0.602	0.665

	Import Frequency Index	Import Coverage Ratio	Import Prevalence Score	Import Full Count		Export Frequency Index	Export Coverage Ratio	Export Prevalence Score	Export Full Count
EUN	0.986	0.970	9.391	14.763	EUN	0.399	0.472	0.456	0.456
FJI	0.671	0.835	2.909	3.131	FJI	0.474	0.839	1.492	1.577
GAB	0.797	0.592	1.583	2.225	GAB	0.605	0.199	0.654	0.654
GEO	0.998	0.995	3.465	4.744	GEO	0.439	0.424	0.684	0.763
GHA	0.363	0.564	2.574	2.851	GHA	0.214	0.905	0.622	0.681
GIN	0.196	0.326	0.633	0.659	GIN	0.234	0.596	0.615	0.790
GMB	0.336	0.794	2.600	2.944	GMB	0.443	0.656	3.182	4.446
GRD	0.301	0.585	0.772	0.782	GRD	0.057	0.310	0.185	0.188
GTM	0.141	0.371	1.245	1.462	GTM	0.058	0.206	0.105	0.109
GUY	0.674	0.609	1.593	1.916	GUY	0.691	0.977	0.943	1.240
HKG	0.239	0.118	1.337	1.588	HKG	0.259	0.090	0.458	0.460
HND	0.209	0.523	1.011	1.240	HND	0.132	0.546	0.182	0.182
IDN	0.580	0.693	4.021	6.025	IDN	0.217	0.611	0.925	1.051
IND	0.485	0.742	3.764	5.107	IND	0.472	0.397	1.047	1.480
ISL	0.381	0.459	1.903	2.018	ISL	0.020	0.006	0.045	0.046
ISR	0.146	0.249	0.819	1.120	ISR	0.041	0.023	0.125	0.126
JAM	0.329	0.548	0.788	0.793	JAM	0.179	0.786	0.439	0.491
JOR	0.392	0.603	0.942	1.010	JOR	0.296	0.352	0.361	0.374
JPN	0.963	0.977	6.017	8.336	JPN	0.959	0.783	1.857	3.074
KAZ	0.990	0.996	5.107	6.754	KAZ	0.917	0.746	1.540	1.545
KEN	0.250	0.556	1.028	1.185	KEN	0.274	0.681	0.600	0.637
KHM	0.954	0.982	3.862	4.871	KHM	0.808	0.875	2.353	2.407
KOR	0.900	0.861	5.875	7.118	KOR	0.871	0.844	1.651	1.950
KWT	0.799	0.880	5.704	8.356	KWT	0.181	0.117	0.760	1.097
LAO	0.988	0.997	2.937	3.306	LAO	0.312	0.448	1.224	1.800
LBN	0.253	0.597	1.146	1.219	LBN	0.061	0.117	0.089	0.090
LBR	0.497	0.135	2.326	2.420	LBR	0.396	0.242	0.499	0.527
LKA	0.472	0.611	1.735	2.178	LKA	0.220	0.300	0.765	1.049
LSO	0.074	0.097	0.098	0.105	LSO	0.046	0.287	0.058	0.062
MAR	0.542	0.697	3.215	4.992	MAR	0.284	0.378	0.868	1.033
MEX	0.987	0.892	1.777	2.190	MEX	0.065	0.062	0.079	0.084
MLI	0.158	0.396	0.707	0.875	MLI	0.180	0.979	0.758	0.943
MMR	0.929	0.978	7.078	9.839	MMR	0.988	0.991	2.793	3.766
MOZ	0.471	0.620	1.548	1.680	MOZ	0.368	0.243	1.313	1.431
MRT	0.160	0.512	0.652	0.722	MRT	0.451	0.330	1.007	1.352
MUS	0.229	0.579	2.147	3.007	MUS	0.327	0.769	0.624	0.648
MWI	0.195	0.510	0.665	0.791	MWI	0.246	0.926	0.586	0.932
MYS	0.503	0.670	2.302	2.767	MYS	0.354	0.506	0.826	0.979
NAM	0.274	0.484	1.102	1.231	NAM	0.355	0.871	1.222	1.353
NER	0.180	0.404	0.310	0.414	NER	0.184	0.498	0.254	0.268
NIC	0.333	0.651	1.091	1.259	NIC	0.130	0.393	0.237	0.248

	Import Frequency Index	Import Coverage Ratio	Import Prevalence Score	Import Full Count		Export Frequency Index	Export Coverage Ratio	Export Prevalence Score	Export Full Count
NOR	0.517	0.661	1.490	1.686	NOR	0.832	0.360	0.998	2.004
NPL	0.271	0.511	0.452	0.459	NPL	0.045	0.016	0.058	0.058
NZL	0.949	0.976	6.693	8.233	NZL	0.931	0.965	3.126	4.047
OMN	0.866	0.921	5.897	8.803	OMN	0.570	0.583	1.499	2.194
PAK	0.186	0.393	0.564	0.636	PAK	0.155	0.201	0.297	0.450
PAN	0.222	0.410	1.271	1.634	PAN	0.001	0.001	0.001	0.001
PER	0.346	0.619	1.601	1.989	PER	0.090	0.168	0.202	0.221
PHL	0.840	0.884	4.642	6.780	PHL	0.334	0.619	0.980	1.477
PNG	0.342	0.525	2.589	2.974	PNG	0.339	0.756	0.932	1.081
PRY	0.281	0.451	0.954	1.086	PRY	0.174	0.328	0.342	0.342
PSE	0.550	0.610	2.800	2.903	PSE	0.189	0.129	0.210	0.210
QAT	0.894	0.842	5.633	9.754	QAT	0.318	0.158	0.531	0.597
RUS	0.836	0.886	3.622	4.597	RUS	0.814	0.479	1.229	1.589
RWA	0.378	0.538	2.298	3.185	RWA	0.304	0.558	1.568	1.959
SAU	0.876	0.900	9.357	13.388	SAU	0.533	0.655	2.300	3.030
SEN	0.255	0.577	0.801	0.970	SEN	0.193	0.300	0.669	0.994
SGP	0.222	0.127	1.979	2.460	SGP	0.125	0.063	0.239	0.240
SLB	0.995	0.968	2.780	3.615	SLB	0.459	0.988	2.061	3.021
SLV	0.305	0.489	0.780	1.055	SLV	0.011	0.022	0.014	0.014
SUR	0.101	0.136	0.376	0.384	SUR	0.101	0.107	0.281	0.328
SWZ	0.231	0.476	0.589	0.638	SWZ	0.072	0.366	0.129	0.143
SYC	0.278	0.339	0.971	1.446	SYC	0.206	0.524	0.683	0.910
TCD	0.159	0.272	0.454	0.492	TCD	0.124	0.996	0.316	0.378
TGO	0.181	0.412	0.876	1.016	TGO	0.139	0.303	0.300	0.309
THA	0.330	0.550	2.767	3.621	THA	0.269	0.524	1.001	1.095
TJK	0.745	0.796	2.146	2.721	TJK	0.559	0.838	0.622	0.907
TTO	0.367	0.567	1.034	1.043	TTO	0.381	0.872	0.539	0.616
TUN	0.652	0.751	2.275	2.391	TUN	0.466	0.624	0.730	0.893
TUR	0.777	0.731	2.598	2.854	TUR	0.348	0.457	0.395	0.434
TZA	0.504	0.735	2.073	2.284	TZA	0.284	0.871	0.984	1.124
UGA	0.454	0.607	1.040	1.099	UGA	0.220	0.828	0.423	0.437
URY	0.387	0.646	1.107	1.253	URY	0.077	0.446	0.085	0.085
USA	0.759	0.836	4.455	5.633	USA	0.207	0.344	0.453	0.486
VEN	0.270	0.309	0.912	1.109	VEN	0.069	0.135	0.071	0.073
VNM	0.999	0.999	6.629	8.404	VNM	0.343	0.550	1.018	1.225
VUT	0.440	0.426	3.272	3.876	VUT	0.183	0.752	0.719	1.072
ZAF	0.252	0.299	1.538	1.757	ZAF	0.057	0.065	0.135	0.146
ZMB	0.212	0.518	0.413	0.430	ZMB	0.209	0.725	0.322	0.334
ZWE	0.235	0.496	0.571	0.627	ZWE	0.266	0.570	0.387	0.493

NTM indicators by country or economy and by type using latest year of data collection

for import NTM

	FI_Technical	FI_NonTechnical	CR_Technical	CR_NonTechnical	PS_Technical	PS_NonTechnical
AFG	0.102	0.149	0.113	0.265	3.419	1.448
ARE	0.876	0.522	0.948	0.546	8.312	1.758
ARG	0.676	0.996	0.700	0.989	3.593	2.051
ARM	0.519	0.156	0.555	0.277	6.184	1.571
ATG	0.165	0.231	0.317	0.082	1.685	1.094
AUS	0.939	0.913	0.970	0.962	5.319	2.416
AZE	0.296	0.990	0.545	0.944	3.380	1.200
BDI	0.140	0.356	0.411	0.602	3.915	1.051
BEN	0.225	0.262	0.676	0.638	7.509	2.645
BFA	0.149	0.021	0.344	0.064	2.658	1.026
BGD	0.996	0.189	0.968	0.236	2.629	1.674
BHR	0.784	0.197	0.613	0.227	6.449	2.063
BHS	0.146	0.218	0.214	0.421	3.121	1.315
BLR	0.768	0.797	0.586	0.845	4.616	1.054
BOL	0.182	0.239	0.496	0.472	5.041	1.611
BRA	0.750	0.514	0.804	0.672	6.866	2.400
BRB	0.156	0.139	0.199	0.326	2.210	1.183
BRN	0.238	0.245	0.465	0.456	7.505	2.923
BWA	0.294	0.588	0.554	0.852	3.055	1.200
CAN	0.999	0.847	0.976	0.842	4.346	1.364
CHE	0.508	0.786	0.548	0.926	8.910	1.445
CHL	0.610	0.026	0.523	0.129	2.179	1.302
CHN	0.887	0.578	0.934	0.828	5.962	1.859
CIV	0.462	0.118	0.644	0.477	1.194	1.136
CMR	0.089	0.105	0.455	0.366	2.409	1.086
COD	0.137	0.366	0.286	0.471	3.820	1.764
COG	0.100	0.203	0.236	0.440	1.266	1.467
COL	0.424	0.349	0.617	0.436	4.826	1.141
COM	0.241	0.138	0.449	0.246	3.383	1.314
CPV	0.160	0.020	0.518	0.210	10.558	1.265
CRI	0.253	0.096	0.438	0.184	3.736	1.095
CUB	0.992	0.993	0.903	0.903	1.631	1.049
DMA	0.237	0.978	0.254	0.874	1.431	1.049
DZA	0.712	0.347	0.725	0.357	4.896	1.196
ECU	0.439	0.292	0.650	0.481	5.293	1.347
EGY	0.473	0.991	0.498	0.932	3.095	1.438
ETH	0.951	0.190	0.970	0.343	2.110	1.118

	FI_Technical	FI_NonTechnical	CR_Technical	CR_NonTechnical	PS_Technical	PS_NonTechnical
EUN	0.971	0.758	0.953	0.875	7.675	2.553
FJI	0.487	0.651	0.699	0.811	4.038	1.448
GAB	0.791	0.193	0.557	0.218	1.471	2.171
GEO	0.713	0.971	0.770	0.971	2.938	1.412
GHA	0.336	0.335	0.419	0.534	6.622	1.048
GIN	0.179	0.076	0.296	0.118	2.942	1.404
GMB	0.334	0.219	0.794	0.607	5.604	3.332
GRD	0.255	0.075	0.321	0.305	2.726	1.000
GTM	0.138	0.045	0.251	0.189	8.693	1.094
GUY	0.666	0.074	0.606	0.113	2.265	1.136
HKG	0.208	0.088	0.113	0.055	5.793	1.516
HND	0.201	0.045	0.500	0.122	4.606	1.869
IDN	0.556	0.247	0.551	0.381	6.419	1.838
IND	0.418	0.427	0.621	0.676	7.344	1.625
ISL	0.380	0.004	0.459	0.001	4.995	1.000
ISR	0.144	0.075	0.246	0.097	5.135	1.043
JAM	0.327	0.034	0.537	0.209	2.120	2.790
JOR	0.295	0.265	0.549	0.357	2.282	1.017
JPN	0.961	0.432	0.976	0.684	5.492	1.706
KAZ	0.962	0.775	0.988	0.828	4.236	1.332
KEN	0.238	0.157	0.541	0.488	3.079	1.888
KHM	0.953	0.355	0.964	0.395	3.539	1.377
KOR	0.868	0.551	0.844	0.632	5.650	1.757
KWT	0.764	0.392	0.860	0.552	6.481	1.921
LAO	0.332	0.971	0.604	0.987	4.246	1.574
LBN	0.226	0.063	0.590	0.114	4.621	1.580
LBR	0.164	0.364	0.032	0.108	9.976	1.904
LKA	0.210	0.440	0.485	0.564	5.699	1.230
LSO	0.036	0.046	0.080	0.053	1.440	1.000
MAR	0.536	0.085	0.646	0.237	5.819	1.132
MEX	0.983	0.130	0.891	0.067	1.617	1.436
MLI	0.144	0.130	0.352	0.277	3.813	1.204
MMR	0.656	0.915	0.791	0.974	6.122	3.347
MOZ	0.470	0.066	0.619	0.220	3.138	1.120
MRT	0.137	0.048	0.326	0.373	4.244	1.497
MUS	0.187	0.180	0.536	0.504	10.270	1.240
MWI	0.151	0.099	0.461	0.393	3.684	1.086
MYS	0.405	0.314	0.603	0.494	4.696	1.270
NAM	0.140	0.228	0.177	0.420	5.805	1.261
NER	0.146	0.038	0.340	0.084	1.861	1.020
NIC	0.269	0.136	0.568	0.276	3.054	1.991
NOR	0.491	0.155	0.644	0.200	2.698	1.063

	FI_Technical	FI_NonTechnical	CR_Technical	CR_NonTechnical	PS_Technical	PS_NonTechnical
NPL	0.135	0.163	0.439	0.378	2.095	1.034
NZL	0.944	0.921	0.975	0.935	5.728	1.395
OMN	0.856	0.248	0.920	0.343	6.406	1.678
PAK	0.172	0.113	0.171	0.342	2.481	1.216
PAN	0.220	0.025	0.402	0.055	5.644	1.252
PER	0.339	0.039	0.613	0.156	4.591	1.109
PHL	0.677	0.594	0.742	0.799	4.698	2.463
PNG	0.324	0.202	0.518	0.292	6.686	2.079
PRY	0.212	0.115	0.392	0.267	3.870	1.151
PSE	0.494	0.200	0.539	0.373	5.148	1.275
QAT	0.894	0.388	0.841	0.412	5.682	1.430
RUS	0.663	0.628	0.745	0.748	4.324	1.204
RWA	0.347	0.183	0.518	0.406	5.686	1.769
SAU	0.792	0.736	0.824	0.738	9.462	2.530
SEN	0.252	0.026	0.576	0.269	3.076	1.065
SGP	0.213	0.205	0.114	0.118	7.823	1.528
SLB	0.994	0.214	0.968	0.144	2.497	1.385
SLV	0.299	0.116	0.446	0.252	2.213	1.015
SUR	0.082	0.079	0.100	0.119	3.642	1.003
SWZ	0.191	0.078	0.390	0.201	2.203	2.156
SYC	0.176	0.267	0.168	0.338	3.528	1.306
TCD	0.117	0.080	0.229	0.170	2.689	1.731
TGO	0.147	0.161	0.286	0.357	4.559	1.283
THA	0.319	0.245	0.532	0.360	7.274	1.808
TJK	0.728	0.097	0.653	0.263	2.794	1.138
TTO	0.350	0.203	0.533	0.360	2.326	1.083
TUN	0.554	0.474	0.716	0.412	2.578	1.785
TUR	0.768	0.124	0.723	0.292	3.184	1.233
TZA	0.385	0.393	0.645	0.633	4.036	1.321
UGA	0.452	0.092	0.606	0.290	2.005	1.469
URY	0.378	0.086	0.512	0.319	2.639	1.262
USA	0.738	0.261	0.819	0.357	5.535	1.420
VEN	0.212	0.148	0.237	0.180	3.509	1.142
VNM	0.999	0.586	0.999	0.671	5.349	2.194
VUT	0.275	0.343	0.291	0.363	9.483	1.926
ZAF	0.166	0.136	0.205	0.189	8.331	1.128
ZMB	0.165	0.114	0.307	0.400	1.635	1.258
ZWE	0.202	0.137	0.475	0.239	2.006	1.215

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ISBN 978-92-1-003359-6

Layout and Printing at United Nations, Geneva
2423023 **(E)** – December 2024 – 216

UNCTAD/DITC/TAB/2024/6

United Nations publication
Sales No. E.24.II.D.27