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International Merchandise Trade Statistics: Compilers Manual, Rev.1

All draft chapters

(as of 21 November 2011)

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Compilers Manual 2010

Part I   Legal framework and data sources

Chapter 1 Legal framework

Annotated outline

Scope. This chapter covers country practices in the establishment and maintenance of the legal framework (and its elements) within which trade statistics are collected, compiled and disseminated. It includes, for instance, the relevant laws and regulations (legal status) concerning customs records and other data sources, the laws and regulations governing the relationship between the compiling agency and data suppliers, the rights of the national statistical offices to survey traders or enterprises, and by the same token the duty of enterprises to respond. The chapter deals also with the legal issues related to the rights of enterprises and individual traders to ensure adequate data confidentiality.

Structure. The chapter might consist of several sections focusing on:
(i) Description of general legal framework for trade statistics;
        a.   The importance of the legal framework: an overview of general issues
        b.   Legal status of customs records;
        c.   Legal status of other sources;
        d.   Confidentiality of traders data ;
        e.   Institutional arrangements;
(ii) Examples of existing legal frameworks in several countries and their impact on the organization of the national trade statistics programmes.

Chapter 1 Legal framework

A. The importance of the legal framework for trade statistics

1.1.   *Importance of the legal framework*. International merchandise trade statistics may generally enjoy support from the Government as well as from the business community, because of its relevance for many economic policies and market analyses. However, competing interests, such as reporting burden for companies and traders, fear of breaches of confidentiality or institutional competition, may still make it difficult for the data compiler to obtain the necessary basic trade information. In other words, it may be difficult for the data compiler to comply with the international recommendations and to produce complete and high quality trade statistics, if the necessary basic trade data are not provided or are not accessible in a timely and comprehensive way. Provision of data includes data provided by traders through customs declarations to the customs administration, data provided by the customs administration to the trade statistics compiling agency, data provided by other national agencies to the data compiling agency, or data provided directly by companies through surveys to the data compiling agency. Each of these data exchange relations could be governed by a legal agreement. A legal framework will help trade statisticians in the collection, compilation and dissemination of international merchandise trade statistics. It is therefore of the utmost importance that legal acts or other regulations are in place to enable the trade statistician to do its job and to safeguard at the same time the confidentiality of the data provider.

1.2.   *Types of legal acts*. Legal acts relevant for trade statistics exist at least at three different levels, namely (i) legal acts governing the declaration of customs documentation; (ii) legal acts regulating the collection, processing and dissemination of trade statistics and the working relations of the concerned agencies; and (iii) legal acts protecting the confidentiality of information. The latter kinds of acts are usually incorporated in the acts under (i) and (ii). Whereas legal acts are constructed and adopted by the national (or regional) legislative bodies, international organizations set out international guidelines and recommendations. If the country becomes party of an international convention or adopts international recommendations, it then needs to incorporate those recommendations in the national laws. Especially in the field of trade, many international agreements exist to properly govern the international transactions in goods and services. In a similar sense, international recommendations for trade statistics should be properly reflected in national laws or regulations of the country. The compilation and dissemination of international merchandise trade statistics should also follow the fundamental principles of official statistics, such as independence, impartiality etc. Furthermore, the trade statistician will be able to do his or her job more efficiently, if these national laws or regulations also cover institutional arrangements.

B. Legal acts governing customs records

1.3.   *International conventions relevant to customs recording*. The World Customs Organization is the international platform at which countries reach agreements on customs regulations while the World Trade Organization is the body concerned with international trade laws. Two examples of the most relevant for IMTS conventions adopted by the WCO are *the*

International Convention on the simplification and Harmonization of Customs Procedures (known as Kyoto Convention), which provides standards for various customs procedures and describes corresponding good practices, and *the International Convention on the Harmonized Commodity Description and Coding System* (known as Harmonized System Convention), which sets out the commodity classification. The most important example of the international legislation adopted by the WTO is *the WTO Agreement on Customs Valuation.* All these and some other relevant international conventions will be discussed in more detail in the subsequent chapters.

1.4.   *National laws*. When a country becomes a signatory to a WCO convention, the content of that convention needs to be properly reflected in national law. Generally, the national law adds further details applicable to the national needs and circumstances. As an example, the customs procedures in the legal acts of the United States are part of a broader package of homeland security measures. Customs procedures are directly linked to border protection and national security. The United States Code contains the general and permanent laws of the United States by subject matter. It is divided by broad subjects into 50 titles and published by the Office of the Law Revision Counsel of the U.S. House of Representatives. More than half of these titles make reference to laws and regulations enforced by the administration for Customs and Border Protection. For instance, Title 13 ("The Census Act") contains a whole chapter on "Collection and Publication of Foreign Commerce and Trade Statistics". Box 1 below shows an excerpt of section 301 of this chapter. The Secretary mentioned in this Box is the US Secretary of Commerce. Another example of law is Title 19 called "Customs Duties" which contains most references to customs procedures.

> **Box 1 – United States Code - Title 13 (Census)**
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> This box gives an excerpt of Chapter 9 "Collection and Publication of Foreign Commerce and Trade Statistics", section 301 "collection and publication", parts (a) and (b).
>
> (a) The Secretary is authorized to collect information from all persons exporting from, or importing into, the United States and the noncontiguous areas over which the United States exercises sovereignty, jurisdiction, or control, and from all persons engaged in trade between the United States and such noncontiguous areas and between those areas, or from the owners, or operators of carriers engaged in such foreign commerce or trade, and shall compile and publish such information pertaining to exports, imports, trade, and transportation relating thereto, as he deems necessary or appropriate to enable him to foster, promote, develop, and further the commerce, domestic and foreign, of the United States and for other lawful purposes.
> (b) The Secretary shall submit to the Committee on Ways and Means of the House of Representatives and the Committee on Finance of the Senate, on quarterly and cumulative bases, statistics on United States imports for consumption and United States exports by country and by product. Statistics on United States imports shall be submitted in accordance with the Harmonized Tariff Schedule of the United States Annotated for Statistical Reporting Purposes and general statistical note 1 thereof, in detail as follows:
> > (1) net quantity;
> > (2) United States customs value;
> > (3) purchase price or its equivalent;
> > (4) equivalent of arm's length value;
> > (5) aggregate cost from port of exportation to United States port of entry
> > (6) a United States port of entry value comprised of (5) plus (4), if applicable, or, if not applicable, (5) plus (3); and
> > (7) for transactions where (3) and (4) are equal, the total value of such transactions.
> The data for paragraphs (1), (2), (3), (5), and (6) shall be reported separately for nonrelated and related party transactions, and shall also be reported as a total of all transactions.

1.5.   Ideally, the national law or regulations on statistics require that statistically relevant information on foreign trade in possession of any institution be made available to the authorized compiling agency. Box 2 below gives an example of such legal arrangement that the customs administration of Canada should provide the Statistics Canada, which is the country's trade statistics compiling agency, with the relevant data.

> **Box 2 – Excerpt of the Statistics act of Canada**
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> Return of exports and imports from Customs
> **25.** For the purposes of this Act and subject to section 17, the Solicitor General of Canada shall cause to be sent to the Chief Statistician returns of imports and exports into and from Canada and details of the means of transportation used therefor, in such manner and at such times as the Governor in Council may prescribe on the recommendation of the Minister and the Solicitor General of Canada. 1970-71-72, c. 15, s. 23; 1976-77, c. 28, s. 41; 2005, c. 38.

1.6.   *Contents of national regulations and advantages of custom records*. National customs law usually requires that importers and exporters of goods report particulars of their transactions to customs for the purposes of collection of duties and taxes and for health, environmental and/or

other control purposes and for statistical purposes. In many countries, a person who fails to lodge the required declaration, or knowingly or recklessly lodges an inaccurate declaration, is liable for an offence. Such regulations make customs records a readily available and generally, reliable source of data.[1] The benefits of using customs records include, for example, wide coverage, particularly in the case of imports, minimum reporting burden on traders and relative low cost to obtain statistical information from the administrative data source (as compared to the cost of possible alternative sources of data, like enterprise surveys (see Chapter 4)).

1.7.   *International recommendations for trade statistics*. The United Nations Statistical Commission is the international stage at which countries adopt the international recommendations for trade statistics. At its 41st session in 2010, the Statistical Commission adopted the revised recommendations for international merchandise trade statistics (IMTS 2010). If these recommendations can be reflected in the national laws or regulations, especially where the recommendations involve new data items, this will allow the responsible agency to more effectively collect, process and disseminate the necessary information for high quality trade statistics.

C. Legal acts regulating non-customs data sources and institutional arrangements

1.8.   *Legal acts regulating non-customs data sources*. As will be discussed in more detail in Chapter 2 and further parts of the Compilers Manual, international trade statistics are based largely on information from customs documents, but are not limited to this. Certain kinds of transactions do not pass through customs and need therefore be obtained from other data sources. The results of a 2006 survey on country practices in the compilation of international merchandise trade statistics showed that besides customs declarations countries also use postal records, tax records, currency exchange records, enterprise surveys, aircraft and ship registers, foreign shipping manifests and reports of commodity boards (see Chapter 3 for more details on the survey results). All those additional data sources can be necessary or useful to complete or verify the trade statistics.

1.9.   The legal acts regulating the content of such data sources, the ways they are maintained by various governmental agencies and the access to them are of great importance for the trade compiler.The main national organizations involved in the compilation of trade statistics are national statistical offices, customs offices and central banks. In some countries, the ministry of trade or other specialized governmental or private bodies may be assigned separate responsibilities. Such agencies (e.g., commodity boards, ministries of commerce/economy, trade development boards etc.) may also play an important role, for example, by providing additional information.

1.10.   *Legal foundation of institutional arrangements*. It is good practice that compilers initiate, whenever appropriate, modifications to national legislation or relevant administrative regulations in order to establish a solid foundation for enhancing the quality and timeliness of trade statistics. This includes identifying governmental agencies involved in trade statistics and setting up a clear division of responsibility between them. It is desirable that legal provisions clearly define the

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[1] The reliability of customs records may vary depending on the degree of customs control and the cooperation of traders.

role of the governmental agencies in trade statistics, so that agencies will be in a position to establish the necessary institutional arrangements detailing their involvement in data collection, exchange, processing and compilation and in the dissemination of official country trade statistics. For instance, compilers could establish a working arrangement with the organizations keeping records relevant to trade statistics (e.g., records of imports and exports of electrical energy, pipeline shipments of natural gas and crude oil, maintained by specialized governmental agencies). Institutional arrangements are separately discussed in Chapter 5.

D. Legal acts protecting confidentiality of traders and trade information

1.11.   *Confidentiality of customs declarations*. In general, customs declarations do not enjoy the same level of confidentiality as other statistical instruments. By design, customs declarations are used to assess tariffs, fees and taxes, and to enforce multiple agencies' requirements for admissibility of goods into the country or to enforce the country's exports laws and regulations. Once transmitted to the statistical agency, in many cases, that agency treats the information as confidential, but in most cases does not subject all data to rigorous disclosure reviews, but instead applies 'passive disclosure' methods where importers/exporters inform the agency of possible disclosure situations for investigation and for some form of statistical suppression.

1.12.   *Confidentiality of trade information*. Confidentiality of information in the case of international merchandise trade statistics concerns confidentiality of personal information (for instance, the trader could be identified by name and address, or by a publicly accessible identification number) and confidentiality of business information. In general, the confidentiality of personal information should be protected by law in every country. The compiling agency may also establish appropriate regulation to safeguard confidentiality in the exchange of basic information among agencies. However, regardless of the legal status of confidential information, whether personal, commercial or operational, this information should not be excluded from the trade statistics and should be reported in aggregate form so that the confidential aspects of these operations are not identified (See Chapter 26 for details). It is further desirable that national legislation defines right and responsibilities regarding access to the micro-data, highlighting the appropriate principles and procedures. The responsible agency should cooperate with the national legislature to establish such laws.

E. Case Studies

1.13.   *Case Study (2)* – The Statistics Act of Ghana

1.14.   *Case Study (3)* – The Confidentiality Act of Turkey

Compilers Manual 2010

Part I Legal framework and data sources

Chapter 2   Customs declarations and related customs records

Annotated outline

Scope. This chapter describes customs declarations as the most prevalent source of trade data. It will define the declaration and the declarant, and elaborates on the use of important customs procedures of the Revised Kyoto Convention, which can ensure comparability among international trade statistics, if countries apply the convention uniformly. The chapter will describe issues and practices related to the time of lodgement, and will go into the information which is required to complete the customs declaration. Further the chapter will describe the additional information available to customs and its use for statistical purposes.

Structure. The chapter might consist of the following:
(i) Definition of customs declaration, declarant and importer/exporter;
(ii) Customs procedures under the Revised Kyoto Convention;
(iii)Lodgement of declarations and data collection issues;
(iv)Other procedures and the use of customs procedure codes;
(v) Information needed to fill customs declarations;
(vi)Adding enterprise identification to link with the national trade and business
        register;
(vii)   Use of electronic declarations;
(viii)   Country practices in training of filling the declaration;
(ix)Additional records available at Customs;
(x) Access and use of information available at customs.

Chapter 2   Customs declarations and related customs records

A. Customs declarations as the most prevalent source of trade data

2.1.   At most ports of entry goods are brought into (withdrawn from) the economic territory of a country under various customs procedures with associated declarations that contain many statistically important particulars of such movements. So far only within a few customs unions (for instance, European Union, the Southern African Customs Union, or the Customs Union of Belarus, Kazakhstan and Russia), customs procedures have been lifted in favor of free market circulation. Transactions among all other countries and between union and non-union countries are regulated through customs procedures. Therefore, IMTS 2010 treats those customs records as the most prevalent source of data and recommends that statisticians take advantage of it (IMTS 2010, paras xx-xx). Recognizing the need to ensure better international comparability and to increase the relevance of trade data for national policy purposes, compilers should cooperate with the national customs authorities in promoting the application of international guidelines on customs procedures laid out by WCO.[2] A summary of terminology and customs procedures is provided below.

2.2.   *The customs (goods) declaration and the declarant.* The declaration is "any statement or action, in any form prescribed or accepted by the customs, giving information or particulars required by the customs".[3] The declarant is "any natural or legal person who makes a customs declaration or in whose name such a declaration is made".[4] The revised Kyoto Convention notes that a declarant need not be the owner of the goods but may be any person having the right to dispose of the goods (e.g., the carrier, the forwarding agent, the consignee or an agent approved by the customs agency).[5] The term "customs declaration" includes not only traditional declarations in the form of paper documents but also declarations made through electronic and oral means and actions required on the part of passengers under the dual-channel (red/green) system. The "data content" of those declarations may vary significantly; normally, the most comprehensive data records are provided when goods are cleared for home use or declared for outright exportation (see paras. Xxxx below). In this regard it should be noted that the role of customs is changing due to an increased emphasis on security and a global proliferation of trade agreements. Some assumptions about customs records are no longer as true as they used to be. As a result of these changes, some of the customs procedures that statistical agencies have relied upon to identify certain types of trade are no longer widely used. For instance, in-transit shipments are now often declared as normal imports (and subsequent re-exports) and therefore inflate the country's trade levels.

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2 Most of those procedures are formulated in *International Convention on the simplification and harmonization of Customs procedures,* which was signed at Kyoto on 18 May 1973 and revised in June 1999;the WCO has also the *Glossary of International Customs Terms* to facilitate uniformity in use of customs terminology (see xxxx).
3 WCO *Glossary* (see xxxx); see also revised Kyoto Convention, general annex, chap. 2, E19/F8, goods declaration.
4 WCO Glossary (see xxxx), see also the revised Kyoto Convention, general annex, chap. 2, E14/F7.
5 SeeKyoto Convention, annex B.1, note to standard 5, and guidelines to the revised Convention, general annex, Chap. 3, standards 3.6 and 3.7.

B. Structure of the revised Kyoto Convention

2.3.   *The Body.* The revised Kyoto Convention comprises a Body, a General Annex and Specific Annexes. The main body of the convention contains the scope, structure and management of the convention, and defines the ratification process of this convention by the contracting parties. For instance, Article 9 of the convention specifies that "any Contracting Party which ratifies this convention or accedes thereto shall be bound by any amendments to this Convention, including the General Annex, which have entered into force at the date of deposit of its instrument of ratification or accession." It continues with "any Contracting Party which accepts a Specific Annex or Chapter therein shall be bound by any amendments to the Standard contained in that Specific Annex or Chapter which have entered into force at the date of which it notifies its acceptance to the depositary."

2.4.   Given Article 9 Contracting Parties can ratify the revised Kyoto Convention without signing off on the Chapters of the Specific Annexes. For instance, Austria, Azerbaijan and Belgium are all contracting parties to the revised Kyoto Convention, but they did not sign off on any of the chapters of the Specific Annexes. As at 8 January 2008, 56 countries had become Contracting Party to the convention (see Annex 1 of this Chapter). Only Algeria, Australia, Japan, Korea, New Zealand, Uganda, United States and Zimbabwe had also accepted most of the chapters of the Specific Annexes.

Box2.1
General Annex – Example of Standards

Goods declaration format and contents

Standard. The contents of the Goods declaration shall be prescribed by the Customs. The paper format of the Goods declaration shall conform to the UN-layout key. For automated Customs clearance processes, the format of the electronically lodged Goods declaration shall be based on international standards for electronic information exchange as prescribed in the Customs Co-operation Council Recommendations on information technology.

Standard. The Customs shall limit the data required in the Goods declaration to only such particulars as are deemed necessary for the assessment and collection of duties and taxes, the compilation of statistics and the application of Customs law.

Standard. Where, for reasons deemed valid by the Customs, the declarant does not have all the information required to make the Goods declaration, a provisional or incomplete Goods declaration shall be allowed to be lodged, provided that it contains the particulars deemed necessary by the Customs and that the declarant undertakes to complete it within a specified period.

Standard. If the Customs register a provisional or incomplete Goods declaration, the tariff treatment to be accorded to the goods shall not be different from that which would have been accorded had a complete and correct Goods declaration been lodged in the first instance.

The release of the goods shall not be delayed provided that any security required has been furnished to ensure collection of any applicable duties and taxes.

2.5.   *The General Annex – Customs terminology*. The General Annex and each Specific Annex to this Convention consist, in principle, of Chapters which subdivide an Annex and comprise (a) Definitions; and (b) Standards, some of which in the General Annex are Transitional Standards. Each Specific Annex also contains Recommended Practices in addition to Standards. Each Annex is accompanied by Guidelines, the texts of which are not binding upon Contracting Parties.

2.6.   The General Annex defines and explains all customs terms and operations which are applicable to a variety of specific customs procedures (defined in the Specific Annexes). Chapter 2 of the General Annex gives a lot of useful definitions, such as "clearance", "Customs law" or "Customs territory". Chapter 3 defines in detail "Clearance and other Customs formalities" which includes descriptions of the "Goods declaration" and of "Examination of the goods". The General Annex furthermore has – among others – chapters on "Duties and Taxes", "Security", "Customs control", "Application of information technology", "Relationship between the Customs and third parties" and "Information, Decisions and Rulings supplied by the Customs".

2.7.   The annexes of the original convention were replaced by a General Annex and by Specific Annexes. As examples of standards in the General Annex, the "Goods declaration format and contents" is given in the Box 2.1. More information can be found in the 2008 Supplement to the Compilers Manual or, of course, in the text of the revised Kyoto Convention, see http://www.wcoomd.org). Therevised Kyoto Convention differentiates between Standards and Recommended Practices. Standards have to be followed strictly and have to be included in the Customs Law of the country. "Transitional Standard" means a Standard in the General Annex for which a longer period for implementation is permitted. Recommended Practices are not mandatory; so countries add these to their legislation on a voluntary basis

2.8.   *Specific Annexes – Customs Procedures*. The Specific Annexes contain all details on customs procedures. Such information is very relevant for the compilation of IMTS. The table of contents of the Specific Annexes and accompanying guidelines is given in Table 2.1.

2.9.   Together, all of these customs procedures determine the exact coverage of the trade statistics by customs (i.e. what should be included or excluded from IMTS). The most common case for imports is given by declaring goods via "Clearance for home use", whereas for exports it is given by declaring goods via the procedure of "Outright exportation". Goods transactions via those general cases are always included in the trade statistics. "Transit", "Trans-shipments" and "Temporary admissions" will generally be excluded.[6]

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6 For further details see IMTS 2010, para. 8.5.

Table 2.1 List of specific annexes and their guidelines

Specific Annexes		Specific Annex guidelines	
A	Arrival of goods in a Customs territory	A1	Formalities prior to the lodgement of the Goods declaration
		A2	Temporary storage of goods
B	Importation	B1	Clearance for home use
		B2	Re-importation in the same state
		B3	Relief from import duties and taxes
C	Exportation	C1	Outright exportation
D	Customs warehouses and free zones	D1	Customs warehouses
		D2	Free zones
E	Transit	E1	Customs transit
		E2	Transshipment
		E3	Carriage of goods coastwise
F	Processing	F1	Inward processing
		F2	Outward processing
		F3	Drawback
		F4	Processing of goods for home use
G	Temporary admission	G1	Temporary admission
H	Offences	H1	Customs offences
J	Special procedures	J1	Travellers
		J2	Postal traffic
		J3	Means of transport for commercial use
		J4	Stores
K	Origin	J5	Relief consignments

C. Customs Procedures and IMTS

2.10.   *Relevant customs procedures.* Most of the international transactions of goods pass through the Customs administrations of the exporting and the importing countries and are subject to customs procedures. Important exceptions in many countries are for instance transactions concerning Electricity, Gas and Water, Mobile Equipment which does not enter or leave the territory of the compiling economies and Crude Oil and other products transported via pipelines. Box 2.2 provides on overview of the most important customs procedures for imports and exports.

Box 2.2
Definition of relevant customs procedures

1. Imports

Clearance for home use
Specific Annex B of the Revised Kyoto convention defines "clearance for home use" as the Customs procedure which provides that imported goods enter into free circulation in the Customs territory upon the payment of any import duties and taxes chargeable and the accomplishment of all the necessary Customs formalities. It further defines that "goods in free circulation" means goods which may be disposed of without Customs restriction.

Customs warehouses
Specific Annex D defines that "Customs warehousing procedure" means the Customs procedure under which imported goods are stored under Customs control in a designated place (a Customs warehouse) without payment of import duties and taxes. Customs can establish public and private customs warehouses, for which Customs shall lay down the requirements for the establishment, suitability and management and the arrangements for Customs control. The arrangements for storage of goods in Customs warehouses and for stock-keeping and accounting shall be subject to the approval of the Customs. As mentioned above, the authorized operations are strictly defined. Goods are allowed to stay in the warehouse for at least one year, unless the goods are perishable.

Free zones
"Free zone" means a part of the territory of a Contracting Party where any goods introduced are generally regarded, insofar as import duties and taxes are concerned, as being outside the Customs territory. National legislation shall specify the requirements relating to the establishment of free zones, the kinds of goods admissible to such zones and the nature of the operations to which goods may be subjected in them. Customs shall lay down the arrangements for Customs control including appropriate requirements as regards the suitability, construction and layout of free zones and have the right to carry out checks at any time on the goods stored in a free zone.

Inward processing
"Inward processing" is defined as the Customs procedure under which certain goods can be brought into a Customs territory conditionally relieved from payment of import duties and taxes, on the basis that such goods are intended for manufacturing, processing or repair and subsequent exportation. Specific Annex F further defines that inward processing shall not be limited to goods imported directly from abroad, but shall also be granted for goods already placed under another Customs procedure and that it should not be refused solely on the grounds of the country of origin of the goods, the country from which they arrived or the country of destination.

Processing of goods for home use
"Processing of goods for home use" means the Customs procedure under which imported goods may be manufactured, processed or worked, before clearance for home use and under Customs control, to such an extent that the amount of the import duties and taxes applicable to the products thus obtained is lower than that which would be applicable to the imported goods. The granting of the procedure of processing of goods for home use shall be subject to the conditions that:
a) the Customs are able to satisfy themselves that the products resulting from the processing of goods for home use have been obtained from the imported goods;
b) the original state of the goods cannot be economically recovered after the manufacturing, processing or working.

2. Re-imports

Re-importation in the same state
"Goods exported with notification of intended return" means goods specified by the declarant as intended for re-importation, in respect of which identification measures may be taken by the Customs to facilitate re-importation in the same state.
"Re-importation in the same state" means the Customs procedure under which goods which were exported may be taken into home use free of import duties and taxes, provided they have not undergone any manufacturing, processing or repair abroad and provided that any sums chargeable as a result of repayment or remission of or conditional relief from duties and taxes or of any subsidies or other amounts granted in connection with exportation must be paid. The goods that are eligible for re-importation in the same state can be goods that were in free circulation or were compensating products.

3. Exports

Outright exportation
Specific Annex C states that "outright exportation" means the Customs procedure applicable to goods which - being in free circulation - leave the Customs territory and are intended to remain permanently outside it. The Customs shall not require evidence of the arrival of the goods abroad as a matter of course.

Outward processing
"Outward processing" means the Customs procedure under which goods which are in free circulation in a Customs territory may be temporarily exported for manufacturing, processing or repair abroad and then re-imported with total or partial exemption from import duties and taxes.

Drawback
"Drawback" means the amount of import duties and taxes repaid under the drawback procedure. "Drawback procedure" means the Customs procedure which, when goods are exported, provides for a repayment (total or partial) to be made in respect of the import duties and taxes charged on the goods, or on materials contained in them or consumed in their production.

2.11.   *Exclusions from IMTS*. Specific Annex E of the revised Kyoto Convention covers Customs Transit, Transshipment and Temporary Admission. Goods entering or leaving a country under any of these three customs procedures are excluded from IMTS, since the goods do not enter the local economy or – more precisely – do not add or subtract from the stock of goods of the country. Box 2.3 provides information about these customs procedures.

Box 2.3
Definition of customs procedures indicating exclusion from IMTS

Transit
"Customs transit" means the Customs procedure under which goods are transported under Customs control from one Customs office to another. The Customs shall allow goods to be transported under Customs transit in their territory:
(a)   from an office of entry to an office of exit;
(b)   from an office of entry to an inland Customs office;
(c)   from an inland Customs office to an office of exit; and
(d)   from one inland Customs office to another inland Customs office
Goods being carried under Customs transit shall not be subject to the payment of duties and taxes. The Customs at the office of departure shall take all necessary action to enable the office of destination to identify the consignment and to detect any unauthorized interference.

Transshipments
"Transshipment" means the Customs procedure under which goods are transferred under Customs control from the importing means of transport to the exporting means of transport within the area of one Customs office which is the office of both importation and exportation. The Customs should accept as the Goods declaration for transshipment any commercial or transport document for the consignment concerned which meets all the Customs requirements. This acceptance should be noted on the document.

Temporary Admission
"Temporary admission" means the Customs procedure under which certain goods can be brought into a Customs territory conditionally relieved totally or partially from payment of import duties and taxes; such goods must be imported for a specific purpose and must be intended for re-exportation within a specified period and without having undergone any change except normal depreciation due to the use made of them.

National legislation shall enumerate the cases in which temporary admission may be granted and temporary admission shall be subject to the condition that the Customs are satisfied that they will be able to identify the goods when it is terminated. The Customs shall fix the time limit for temporary admission in each case. Temporary admission with total conditional relief from duties and taxes should be granted to the goods referred to in the Annexes to the Convention on Temporary Admission (Istanbul Convention) of 26 June 1990:

(a) "Goods for display or use at exhibitions, fairs, meetings or similar events".

(b) "Professional equipment".

(c) "Containers, pallets, packings, samples and other goods imported in connection with a commercial operation"

(d) "Goods imported for educational, scientific or cultural purposes"

(e) "Travellers' personal effects and goods imported for sports purposes"

(f) "Tourist publicity material"

(g) "Goods imported as frontier traffic"

(h) "Goods imported for humanitarian purposes"

(i) "Means of transport"

(j) "Animals"

2.12.   *Specific transactions.* Box 2.4 provides information on specific transactions under the revised Kyoto Convention.

Box 2.4
Specific transactions under the revised Kyoto Convention

Customs formalities in respect of postal traffic.
According to the Kyoto Convention, clearance of goods in postal traffic "shall be carried out as rapidly as possible and customs control shall be restricted to the minimum".[7] It states also that the customs declaration should not be required unless goods are dutiable, taxable or subject to special customs control. Trade statistics compilers, while collecting data available from customs, should establish permanent working arrangements with the national postal services to obtain information on goods in postal traffic not reflected in the customs records. (see also chapter 3).

Admission of urgent consignments.
The Kyoto Convention stipulates that the declarant should be authorized to lodge the goods declaration before the arrival of urgent consignments, and provisions should exist for a simplified goods declaration procedure, including an oral declaration.[8] However, customs may request the subsequent furnishing of more detailed information. Compilers should systematically collect this detailed information and decide whether to subsequently revise the provisional data obtained from the simplified declarations, and should contact the main recipients of the urgent consignments if such information is not available from the customs information.

D. Verification of the declared information

2.13.   The Kyoto Convention recognizes the rights of the national customs administrations to ensure the accuracy of the information contained in the declarations by various means, including examination of the goods and any reference documents.

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7 See Kyoto Convention, annex F.4, standard 3, and revised Convention, specific annex J, chap. 2, standard 3 and guidelines to the general annex, chap. 6.

8 See Kyoto Convention, annex F.5, standard 7 and 9; note 2 to standard 9; and the revised Convention, general annex, chap. 3, standard 25 and specific annex J, chap. 5 on relief consignments.

2.14.   *Examination of goods*. Although the detailed examination of goods is considered a prerogative of any country, the Convention recommends that "the customs authorities should in as many cases as possible be content with a summary examination of goods declared for home use."[9] In summary examinations, the customs "may carry out some, though not necessarily all, of the following checks - counting the packages, noting their marks and numbers, and ascertaining the description of goods. Detailed examination may be done and involves thorough inspection of the goods to determine as accurately as possible their composition, quantity, tariff heading, value and, where necessary, origin."[10] In many cases, no customs inspection is carried out at all. In most cases, the trade statistician is not aware of whether inspection has been done or not.

2.15.   *Reference documents accompanying customs declarations*. The Convention acknowledges the need for the customs to use reference documents to support or verify statements made in the declarations. The most typical examples of such documents are import licenses, documentary evidence of origin, health or phytopathalogical certificates, commercial invoices, and transport documents.[11] Compilers should make standing arrangements with the customs authorities to have access, as permitted by law, to whichever of those documents are collected, and that they use them as additional sources of information.

E. Lodgement of declarations and data-collection issues

2.16.   A declaration can exist not only as a printed document but also in electronic form. For example, many countries use electronic declarations for a significant percentage of imports. Many developing countries use the Automated System for Customs Data and Management (ASYCUDA), a computerized system developed by UNCTAD.[12] The electronic declarations significantly facilitate the processing of data. Trade data compilers should cooperate with customs in developing electronic declaration forms and ensure that they contain all statistically significant data fields. Data requirements of customs may not always fulfill the statistical needs. Compilers should try to address this issue with customs, when it arises. In this regard, the statistical agencies could seek to take advantage of greater access to information such as shipping manifests.

2.17.   *Time of lodgement and time of data recording*. The revised Kyoto Convention does not provide strict standards regarding the timing of lodgement. It states only that national legislation should define the time limit for lodgement which will enable the declarant to assemble the

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9 The compiler should be aware that "summary examination may be considered sufficient, for example, where goods of the same description are imported frequently by a person known by the Customs to be reliable, where the accuracy of the particulars given in the declaration can be checked against other evidence, or where the import duties and taxes involved are low". See Kyoto Convention, annex B.1, recommended practice 39; and revised Convention, general annex, chap. 6, standard 6.4. See also guidelines to the general annex, chap. 3, standard 3.33, and chap. 6.

10 see Kyoto Convention, annex B.1, note to recommended practice 38. See also the guidelines to the revised Convention, general annex, Chapter 3, standard 3.33.

11 see Kyoto Convention, annex B.1, note to standard 15, and guidelines to the revised Convention, general annex, chap. 3, standard 3.16.

12 ASYCUDA can be configured to suit the national characteristics of individual customs regimes, for further detail see the ASYCUDA web site at http://www.asycuda.org.

particulars needed for making the declaration and to obtain the required supporting documents. Governments are free to select the beginning of the time limit; the revised Kyoto Convention names, as the examples, the time when goods are unloaded, presented at the customs office or released.[13] It follows that lodgement of the declaration and the actual time when goods cross the border of the economic territory of a country may, in some cases, vary significantly. However, since time of lodgement generally approximates crossing of the border of the economic territory of a country, it is recommended by IMTS 2010 as the time of trade data recording in the case of customs-based systems of data collection.

2.18.   *Lodgement of provisional or incomplete declarations*. If the declarant, at the time of lodgement of the declaration, is unable to provide all the required information the customs authorities may accept a provisional or incomplete declaration and release the goods under condition that the declarant will provide the missing information afterwards within the specified period. [14] It follows that lodgement of the proper (final) declaration and the time when goods cross the border of the customs territory may be far apart. Compilers should (a) use provisional or incomplete declarations to identify time of lodgement and collect provisional data, and (b) use final declarations in order to revise/complete trade data.

2.19.   *Release of the declaration after release of goods*. Compilers should take into account the use of a standing authority for release of goods before presentation of the declaration. Such authority is given to a growing number of traders in order to enable speedy release of the imported/exported goods without waiting for collection of the documents needed for completion of the declaration.[15]Compilers should include the data from such declarations in the monthly statistical reports corresponding to the months when the goods actually enter or leave the economic territory of a country.

2.20.   *Periodic lodgement of declaration*. When goods are imported (exported) frequently by the same company/person, the Convention recommends that customs allow a single goods declaration to cover all importations (exportations) by that person for a particular reference period. [16] That facility may be granted if the company/person keeps proper commercial records and where necessary control measures can be taken. The Convention recognizes the right of customs to require that the declarant produce, at the time the goods actually cross the border, a commercial or official document such as an invoice, waybill or dispatch note, etc. giving the main particulars of the concerned consignment. Compilers should periodically review such documents, if permitted by law, in order to be able to assign the trade to the appropriate month (based on time of crossing the border), especially in cases when trade is significant in value (amount) and/or the reference period of the reporting by the trader does not coincide with a period used for statistical reporting (normally the calendar month).

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13 See Kyoto Convention, annex B.1, note 1 to standard 22, and the guidelines to the revised Convention, general annex, chap. 3, standard 3.23.
14 See Kyoto Convention, annex B.1, recommended practice 12 and the revised Convention, general annex, chap. 3, standard 3.13 and its guidelines.
15 See Kyoto Convention, annex B.1, note to recommended practice 24 and the revised Convention, general annex, chap. 3, standard 3.25 and its guidelines.
16   See Kyoto Convention, annex B.1, recommended practice 25; annex C.1, standard 14; .the revised Convention, general annex, chap. 3, transitional standard 3.32 and its guidelines.

2.21.   *Absence of declarations*. In some cases, mostly when duties and taxes are not collected, national law may not require that declarations be lodged. Compilers are encouraged to collect from the customs any information which may help to identify shipments of undeclared goods, and to use non-customs data sources including estimation to ensure proper coverage of the trade statistics.

2.22.   In general, for most customs procedures the revised Kyoto Convention leaves it to national legislation to decide what customs records are to be kept, whether or not a goods declaration should be lodged or what information it should contain. Compilers of trade statistics should, therefore, cooperate with the customs to design such forms of customs records which, while not adding additional administrative or financial burden to customs and traders, allow the collection of basic data for the purposes of trade statistics.

F.   Other customs declarations and procedures

2.23.   *Other customs procedures relevant to trade statistics.* In addition to the customs procedures relevant to trade statistics and listed in the revised Kyoto Convention, countries and customs unions use many other procedures.[17]Box 2.5 provides a sample of the procedures which are usually included in trade statistics:

Box 2.5
Examples of national customs procedures indicating inclusion in IMTS
- *Goods on consignment*;
- *Border trade* (trade between residents of adjacent areas of bordering countries as stipulated by national legislation);
- *Barter trade*;
- *International aid* (aid or donations given gratis between Governments or by international organizations);
- *Gifts and donations* (to be included if to significant scale as defined by national law);
- *Contracting projects* (exports of equipment or materials to be used for construction projects carried out by country residents);
- *Goods on lease* (imports or exports under a financial lease arrangement) (see IMTS 2010, para. xx);
- *Equipment or materials invested by foreign-invested enterprises* (the import of equipment, parts or other materials by a foreign-invested enterprise as part of its total initial investment);
- *Duty-free shop* (the duty-free import of commodities for sale in specific shops to specific individuals according to specific customs regulations);
- *Seizure and subsequent resale by the State*.

2.24.   *Variety of forms and names of goods declarations.* A review of country and customs union practices reveals a variety of forms of goods declarations. Usually, there are several forms of declaration, each of which is applied to a number of customs procedures. The names of declarations may vary from one country or customs union to another even if the forms are applied for similar customs procedures. The list of names include such designations as import/export declaration form, cargo customs declaration, electronic export information, Single Administrative Document, entry/exit summary form, warehouse or free zone entry/dispatch form.

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17 The Kyoto Convention lists, inter alia, the most widely used regimes, such as clearance for home use and outright exportation (in some countries up to 90 percent of all declarations).

G. Information required to complete a goods declaration

2.25.   *Information required to complete a goods declaration*. The information normally required indeclaration forms and relevant for compilation of trade statistics (either for inclusion into statistics, or for verification purposes) are provided in chapter 8, table 8.2.[18, 19]

2.26.   Customs declarations may also contain information which can be used to analyze the structure of trade, not only by parameters recommended by IMTS 2010 but also by other parameters important for a given country or customs union (e.g., identification of goods under export or import controls, province/state within the country from which the goods originate etc.). Such practice is not in conflict with international recommendations. To the contrary, compilation of additional information needed for a country is encouraged.

H. Training in how to complete customs documents

2.27.   The proper completion of customs declarations requires some specialized knowledge. To assist traders and to ensure faster processing, detailed instructions regarding completion of the declarations are normally prepared by customs. Customs usually conducts training for its own staff as well as for the business community. Compilers should participate in those training efforts to sensitize traders to the statistical needs that are met by the declarations.

I. Reporting thresholds and retention of records

2.28.   Certain goods that are not strictly controlled can be declared in less detail or be made exempt from reporting requirements; this can also apply when the value (or quantity) is below a certain customs-defined threshold.[20] Compilers should be aware of those transactions and decide whether and how to include them in the trade statistics to avoid unwarranted loss of coverage. If the value of the trade is considered significant it should be included in the statistics. Compilers should develop, in cooperation with the customs administration, adequate data collection or estimation procedures for these transactions. Those procedures may rely on the use of commercial documents available to the customs or may be based on appropriate non-customs sources of data. Compilers may also establish a threshold for statistical purposes, i.e., set a value below which transactions might not be processed and included in the detailed trade statistics, or may be included in the trade statistics as an estimate based on a sampling approach. That approach is useful where resources may not be sufficient to process all the transactions on a timely basis. In those cases, clear notes should be included with the statistics, explaining what has been done.

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18 Not all types of information are mandatory for many customs procedures.

19 See examples of customs documentation provided in par I, annex A below.

20 For example, in the United States, most import transactions valued at less than $1,500 may be reported "informally", with only minimal information reported.

2.29.   National law usually requires that, for control purposes, copies of goods declarations, along with any supporting documentation, be kept for several years.[21]Compilers should work with customs to develop a retention policy for those documents that support statistical needs.

J.   Case Studies

2.30.   Case Study – Customs procedures used in COMESA: (a) nomenclature of customs procedure codes, (b) how it is used in ASYCUDA; (c) how it is extracted through Eurotrace

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21 For example, in the United States, exporters or their agents must maintain copies of shipping documents for three years after exportation.

Compilers Manual 2010

Part I   Legal framework and data sources

Chapter 3 Non-customs data sources

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<u>Annotated outline</u>

Scope. This chapter describes non-customs sources of information, which can be useful to supplement customs data and to assist in the cross-checking of customs data; they are not generally recommended as substitutes for customs data. Non-customs administrative sources include foreign shipping manifests, currency exchange records and records of monetary authorities (International Transactions Reporting System), parcel post and letter post records, aircraft and ship registers, administrative records associated with taxation and reports from Commodity Boards etc.

Structure. The chapter might consist of the following sections:
(i) Foreign Shipping Manifest;
(ii) Currency exchange records and records of monetary authorities;
(iii)Parcel post and letter post records;
(iv)Aircraft and ship registers;
(v) Administrative records associated with taxation;
(vi)Data Exchanges;
(vii)   Additional sources.

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Chapter 3 Non-customs data sources

A. Additional data sources - Overview

3.1.   For 88.4% of countries customs declarations remain the main source of data (see Table 3.1). However, there is a considerable difference in country practices as only 55.6% of developed countries confirmed that customs declarations are the main source of data compared with 97.9% of developing and transitional countries. Developed countries use more additional data sources, such as administrative records associated with taxation (59.3%) and enterprise surveys (51.9%) as compared with developing and transitional countries where these percentages are only 21.3% and 19.1%, respectively. This is one of the consequences of the abolition of customs controls among countries of the European Union and the significant simplification of customs procedures among other developed countries.

3.2.   More active use of non-customs sources is also due to the fact that certain kinds of transactions do not pass through customs and need therefore be obtained from other data sources, maintained by other agencies. Table 3.1 shows that besides customs declarations countries also use to a varying degree postal records, tax records, currency exchange records, enterprise surveys, aircraft and ship registers, foreign shipping manifests and reports of commodity boards. All those additional data sources can be necessary or useful to complete or verify the trade statistics.

Table 3.1 Questions on sources of data

Question	All 121 countries or areas			Developed			Developing and transitional		
	Yes	No	N/A	Yes	No	N/A	Yes	No	N/A
Are customs declarations the main source of data?	88.4	9.1	2.5	55.6	40.7	3.7	97.9	0	2.1
Do you use the following as additional sources of data:									
Parcel and letter post records	30.6	62.8	6.6	11.1	85.2	3.7	36.2	56.4	7.4
Administrative records associated with taxation	29.7	62	8.3	59.3	37	3.7	21.3	69.1	9.6
Currency exchange records or other records of monetary authorities	28.1	65.2	6.7	22.2	74.1	3.7	29.8	62.8	7.4
Enterprise surveys	26.4	63.6	10	51.9	44.4	3.7	19.1	69.1	11.8
Aircraft and ship registers	23.1	68.5	8.4	40.7	55.6	3.7	18.1	72.3	9.6
Foreign shipping manifests	14.9	79.3	5.8	7.4	92.6	0	17.0	75.5	7.5
Reports of commodity boards	9.9	75.2	14.9	3.7	88.9	7.4	11.7	71.3	17

3.3.   Transactions of the following items generally may not appear in customs records:
- Goods delivered through postal or courier services
- Electricity
- Petroleum, gas and water through pipelines
- Border trade (i.e. informal sector trade between residents of adjacent areas of bordering countries)
- Sales and purchases made by aircraft and ships in foreign ports
- Sales and purchases of aircraft, ships and other mobile equipment
- Transactions on high sea

For these items the compiling agency will have to use additional data sources to complete the country's merchandise trade statistics. Those data sources are given below. In some countries, the responsible agency has made arrangements with or sends surveys to large companies and/or commodity boards to report the exports of certain goods at a monthly or quarterly basis.

B. Additional data sources – often used to supplement customs records

1.   Parcel post and letter post records

3.4.   The treatment of parcel post and letter post shipments by customs offices is governed by the acts of the Universal Postal Union, which is currently composed of 189 Member States. The acts, which consist of the Constitution of the Universal Postal Union, the general regulations of the Postal Union and the Universal Postal Convention (UPC), are binding on all member States.

3.5.   Among other matters, UPC deals with the issue of items (letter post, parcels) which are subject to customs control. It provides, for example, that items weighing less than two kg and with the value of their contents less than 300 special drawing rights, should bear a special form (CN22). All other items should be accompanied by form CN23. The CN22 form contains a description of content by separate articles, their net weight and value. The CN23 form, usually referred to as a customs declaration, requires additional information; the information should be provided by the sender and should include such statistically important indicators as country of origin of goods, tariff number and customs value. The items and the respective forms are to be presented to customs, which then makes its decision regarding clearance based on the information provided in those forms.

3.6.   If values declared on the CN22, CN23 or other postal forms exceed the threshold value adopted for trade statistics purposes, then compilers should include those goods in trade statistics in full detail, i.e., commodity classification, value, quantity and partner country. If the value of the transaction does not exceed the threshold, then the transaction should be treated consistent with policy for compiling statistics from other low-valued customs records (for observations on thresholds see xxxx). The agency responsible for compilation of trade statistics should contact postal authorities in order to ensure that the necessary information is collected and passed to that agency on a regular basis.

3.7.   The compilation of data with regard to items delivered by private parcel delivery services (e.g., couriers, express carriers etc.) should follow a similar pattern, utilizing all information available. The agency responsible for compiling the statistics should make special arrangements

either through customs or directly with the parcel carriers to ensure that the necessary information is passed to them.

3.8.   With the rapid expansion of electronic commerce, the international movement of goods by post and by parcel delivery services (both government and privately operated) is becoming more and more important; the compiling agency should develop a strategy with the aim of developing a compilation procedure which ensures that those merchandise flows are adequately reflected in trade statistics.

3.9.   [Paragraph on electronic commerce referring to the report of the ESCWA / UNCTAD consultant]

2.   Aircraft and ship registers

3.10.   When aircraft and ships cross the borders of countries as items of trade and the appropriate customs records are created, those records should be used as the main source of information. However, in some countries international trade in aircraft and ships may not be recorded by customs even if they cross borders; also, customs records may be incomplete or non-existent if those items do not cross customs borders. Under such circumstances, countries use national shipping registers for evidence of a trade transaction using change of ownership as indicated in the register as the basis for compilation of trade statistics. In addition to the use of registers, documented financial leasing agreements may indicate whether a change of economic ownership has occurred. Sales and purchases of aircraft and ships are discussed in more detail in Chapter 21.

3.   Enterprise surveys

3.11.   Obtaining information on international transactions of electricity, petroleum, gas and water through pipelines or on sales and purchases made by aircraft and ships in foreign ports or on high sea, can be done by contacting the relevant companies. If such transactions are highly concentrated in just a few companies, the compiling agency should do a regular census (monthly or quarterly) to complete the IMTS. If for certain kinds of transactions, there are too many companies involved to hold a regular census, then the compiling agency should conduct regular enterprise surveys for these specific sectors (airlines and/or shipping companies).

3.12.   *Border Trade*. Border trade, including shuttle trade, is trade between residents of adjacent areas of bordering countries. Such trade is typical in low quantities but at high frequencies. Given the relatively low value of the individual transactions, such kind of trade is allowed and not recorded by the customs administration. However, for certain countries, like Uganda, cross-border trade is economically significant and trade statisticians may want to capture the volume and commodity detail of these transactions on a quarterly or annual basis. The case study of Uganda is given in the second part of this chapter.

3.13.   *Integrated approach to data collection*. In the case of the use of non-customs data sources, such as enterprise surveys it is recommended that countries take an integrated approach to data collection and make use of business registers and enterprise identification numbers in

order to obtain the required information with minimal costs and burden on enterprises. The integrated approach to data collection is of particular importance for the fulfilment of additional information requirements, such as for goods for processing (including obtaining information on change of ownership), intra-firm trade etc., which often cannot be satisfied by the use of customs declarations only.

4.   Data exchanges between countries

3.14.   In some circumstances, particularly where non-reporting or errors in collected data are prevalent, a data exchange[22] between partners can improve data quality and reduce the burden on traders and statistical compilers; exchanges could cover all transactions or only a subset of transactions thought to involve special problems. Exchange may be a permanent arrangement or may as limited to a specific time frame to deal with a temporary situation. Given the confidentiality aspect of the data exchange it may be necessary to have a signed agreement between the partners.

3.15.   Before undertaking a data exchange, it is important to do detailed trade data reconciliation studies to fully understand the differences between the two partners' statistics and the adjustments which will be needed to derive each partner's export data from counterpart import statistics. Because of the greater customs scrutiny paid to imports, it is usually more feasible to derive exports from counterpart imports.

3.16.   *Advantages*. Data exchange can substantially reduce reporter burden and improve data quality, particularly if exports of a partner have a significant portion which may not have been reported. It can also foster greater communication and cooperation between the customs and statistical agencies in the two countries.

3.17.   *Disadvantages*. The exchange may increase the burden on importers if they have to report additional data elements to meet the exporting partner's needs, and may reduce each partner's flexibility to modify its classifications and processes. Because of the need to align classification and processing schedules, it would be difficult to implement data exchanges with multiple trading partners. It may also be difficult to implement a data exchange when there are significant amounts of trade transiting one partner en route from the other to a third country, or with distant partners where timing differences may be lengthy. More details on Data Exchange are given in Chapter 9.

C. Additional data sources used for supplementing and verifying of customs records

1.   Foreign shipping manifests

3.18.   Foreign shipping manifests may contain some of the same information that is relevant to trade statistics as that found on customs declarations; they may be of use as a source in cross-checking and/or supplementing information gathered from customs declarations. Quantities in weight and number are usually available, as are information on freight costs, general description

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22 A data exchange usually involves the use of one country's imports data as a substitute or input into another country's exports data.

of the commodities (but the commodity code may be missing), names and addresses of the parties to the transaction and country of shipment. Such other information as labour charges for packing, value of packages and fees for cartage to dock, marine insurance, inland freight and some other commissions may also be available. The main deficiency of foreign shipping manifests is that the value of the goods is frequently missing and if the value is provided, it may summarize a number of tariff lines, be entered in the currency of the exporting country and be on a free-on-board (FOB) basis.

3.19.   In some countries, port administrations produce certain statistics from shipping manifests for port management purposes. Those statistics may also be used to cross-check the data collected from customs declarations. Ideally, there should be collaborative agreements between the statistical office, customs and port administrations, aimed at mutual assistance in compilation of trade-related statistics.

2.   Currency exchange records and records of monetary authorities

3.20.   Under an International Transactions Reporting System (ITRS), banks and other financial institutions are required to collect information on all transactions between residents and non-residents which have a corresponding financial flow and which are settled through them. That information is then supplied to the central bank for regulatory and/or statistical purposes. Those records may provide a supplementary source of information and information to cross-check the customs-based trade statistics. However, in utilizing ITRS data, compilers should be careful to separate merchandise flows from service, income, transfers, and financial flows.

3.21.   Trade data from in ITRS differ in nature from those from a customs-based system as a result of being derived from records of financial flows rather than from the documentation of physical flows of merchandise. Although ITRS may be used to provide an early broad estimate of total merchandise trade, commodity or country detail is invariably less detailed. Quantity data may not be covered at all.

3.22.   There may be potential biases in the data if there are exchange controls that may encourage understatement of exports and overstatement of imports; those may be harder to identify because an ITRS does not provide the possibility of inspection. Timing issues also arise for an ITRS since a financial transaction is measured at the time it is handled through the banking system. That may result in a time different from when the goods changed ownership (as required for balance of payments and national accounts statistics) or when the goods were exported or imported (as used in customs-based trade statistics). Another disadvantage of ITRS is that it can combine two or more transactions in a single bank settlement. Especially, in those cases where these transactions concern both imports and exports, the ITRS becomes less useful as source of information.

3.23.   The advantage of ITRS is that sometimes it can provide more timely total data than a survey or customs system. For example, ITRS may be faster because customs declarations from some border posts may take longer to arrive, or the central bank and/or commercial banks may have computerized systems that are faster than the systems used in the customs and/or statistical offices.

3. Reports of commodity boards

3.24. Commodity boards are quasi-governmental or commercial organizations established in some countries that monitor the production and shipment of goods considered economically important for a country; they may also market the products internationally on behalf of the producers. Those boards often issue reports that show the volume of commodities exported during a particular period - monthly, quarterly or yearly. The reports may include details, such as quantity of products sold (e.g., in metric tons), the value of the sales, country of destination of the commodities, and (probably) the administrative costs expended. If commodity board reports are consistently available, they may serve as supplementary sources or for cross-checking of customs records, especially regarding the quantity information. In such a case compilers are advised to analyze data from these reports and to use them as appropriate.

4. Administrative records associated with taxation

3.25. When customs records are not available or are incomplete, it is sometimes possible for administrative records associated with taxation to be used in deriving trade statistics. This is particularly true where value added tax (VAT) systems are in place. The European Union is an example of a group of countries where such a system is in place.

5. Merging and cross-checking data obtained from customs and non-customs sources

3.26. *Issues*. Merging customs and non-customs data includes adding non-customs to the customs data and substituting non-customs for the customs data. To merge and cross-check data collected from customs and non-customs sources is quite a complex and time-consuming activity. Compilers should be aware of the following issues that need to be addressed:

    (a) Different data elements available from different sources;

    (b) Conceptual differences between sources;

    (c) Provision of different levels of detail;

    (d) Delays in data forwarding, and the unsynchronized provision of data;

    (e) Overlaps in the information provided (e.g., data on goodson consignment supplied by customs, and data on sales of the same reported by the controlling governmental agency);

    (f) Incompatibility of computer data files since as source agencies may use different computer systems (the use of different hardware and software is a problem in numerous cases);

    (g) Difficultly in organizing efficient data processing since source agencies may use various data submission media (hard copies, portable storage, electronic transmision, e-mail etc.);

(h) Additional strain on resources since data entry from certain sources (e.g., postal forms, passenger manifests) may involve the use of a disproportionate amount of time and resources;

(i) The need to cross-check data from complementary sources (e.g., customs and commodity boards) and to assess which sets are of greater reliability.

3.27.   *Possible solutions*. Country experience indicates that certain steps can be taken to alleviate the problems mentioned above. Compilers may consider:

(a) Conducting an ongoing campaign to sensitize customs officers and employees of other source agencies to the importance of trade statistics for government and economic policy;

(b) Running training programs for staff involved in data compilation (both those of the compiling agency and those of the source agencies, particularly on statistical standards and requirements, conceptual standards and the use of appropriate software);

(c) Conducting regular meetings between staff of compiling and source agencies (including staff of large importing and exporting enterprises) to establish more stable and efficient working arrangements; complementing such meetings by periodical follow-ups by phone and visits;

(d) To the extent possible, establishing a direct computer link with data suppliers to eliminate data-transmission problems and to allow for better and faster verification of incoming data; using standard classifications and appropriate correlation tables to identify and linking the various sets of data;

(e) Coordinating the installation of computer hardware and software in the compiling and source agencies to ensure their compatibility;

(f) Establishing effective controls in the compiling agency to ensure timely replacement of preliminary data from one source by final data obtained from another source (e.g., partner data on a country of consignment basis received from customs may be replaced by data on a country of last known destination basis (for the same goods) received from other governmental agencies, if the latter are judged to be of better quality);

(g) Developing estimation and imputation procedures to deal with the issue of missing data fields (e.g., estimates of quantity units for the current month can be based on current values and on the unit value of the previous month).

3.28.   More information on merging customs and non-customs data can be found in Chapter 7.

D. Case study

3.29.   *Country practice of obtaining information on goods transactions through Postal and Courier Services – (United States)*

3.30.   *Country practice of conducting a survey among airline and shipping companies to obtain information on purchases and sales in foreign ports – (Turkey)*

3.31.   *Country practice of conducting a survey on cross-border trade – (Uganda)*

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Part I   Legal framework and data sources

Chapter 4 Enterprise surveys and other surveys

Annotated outline

Scope. This chapter describes challenges and good practices in enterprise and other surveys, which are needed to obtain information on transactions which are not be processed through customs, e.g., trade in electricity, ships' stores and bunkers, on which the information requirements by customs are reduced or on which additional information is required. Experiences from the European Unions's survey-based Intrastat system will be described as relevant for this chapter. Surveys may be desirable in general as they can be designed to satisfy the needs of various fields of statistics and to allow linking trade and business/ industry statistics.

Structure. The chapter might consist of the following:
(i)   General description of enterprise surveys;
(ii)   Use of enterprise identification numbers used on customs forms in enterprise surveys;
(iii)   Organization of surveys;
(iv)   Advantages and disadvantages of surveys;
(v)   Merging administrative data and survey data;
(vi)   Examples of good country practices;
(vii)   Cross-border surveys.

Chapter 4 Enterprise and other surveys

A. General description of enterprise and other surveys

4.1. *Purposes of surveys in trade statistics*. Enterprise or other surveys, like border surveys or household surveys, can be useful to obtain information on transactions which are not processed through customs. Specifically, the following items recommended in IMTS 2010 to be included as part of merchandise trade may require surveys as the principal data source: (a) "goods acquired by all categories of travellers, including non-resident workers, to a significant degree as defined by national law", more generally referred to as "shuttle trade"; (b) trade in electricity, gas, oil and water; (c) goods dispatched or received through postal or courier services; (d) fish catch, minerals from the seabed and salvage; and (e) bunkers, stores, ballast and dunnage, acquired or landed by national aircraft and vessels outside the economic territory of the compiling economy.

4.2. Because Customs records are the main and usually preferred data source of trade information, enterprise surveys are not extensively applied for the compilation of merchandise trade statistics. In customs unions, where customs records might not exist for trade among the members of the union, enterprise surveys can be the main source of information for trade statistics such as in the European Union. Customs unions are discussed separately in Chapter 10. This chapter focuses on surveys for complementary information on the specific issues mentioned above.

4.3. *Requirements*. Carrying out enterprise surveys requires the commitment of additional resources on the part of the national statistical authorities. Enterprise surveys require more time in planning, execution and follow-up than it would take to obtain information from administrative sources. Moreover, a business register (or similar kind of frame of businesses) is required to draw a representative sample of enterprises for the purpose of the survey. The sample should be adequate for the concerned economic sector and on dimensions like enterprise size and geographical location.

B. Use of business registers and frames

4.4. *Business registers*. Business registers generally provide the central sampling frame for enterprise surveys. The establishment of such a register is essential for the full co-ordination of source data that relate to the same business units. Countries with a high proportion of small and micro enterprises complement the business register with area frames based on agricultural, economic and population censuses. The central frame, consisting of a business register in combination with area frames, represents the backbone of the collection processes of source data that interface with businesses through direct profiling, surveys, feedbacks and use of administrative records. The central frame contains data about the firms, name, address, economic activity, variables about size and information about the life cycle of the firm. For operational reasons, a unique identifier could be assigned to each entity in the central register. Ideally, this identifier could be selected taking into consideration the business number used by the administrative authorities to ensure that administrative data are correctly applied to the various entities on the register.

C. Organization of surveys

4.5.   *General strategy.* Consultation with business respondents before survey and questionnaire design and updates is an essential requirement. It is important identifying the adequate respondent for the surveys. Frequently, the statistical questionnaires are filled by accountants and this may require the participation of other person(s) of the enterprise with a good knowledge of the survey questions. The choice of the survey data collection method (mail, telephone, electronic, interview, etc.) depends on the country's resources, preferences and characteristics. The use of a modular approach with an annual continuous survey instrument may be preferable to facilitate flexibility for updates and harmonization.

4.6.   *Survey forms*. Special data-collection forms or an electronic data request could be designed and sent to the selected enterprises on a regular basis. Such surveyscould request similar information to that contained in customs declarations. Enterprises may be required to report cumulative trade from the beginning of the year, with the last month's trade separately identified, and to keep documents confirming their export-import transactions for a certain period of time for verification purposes. Those documents may include copies of contracts, invoices, certificates of origin of goods etc.

4.7.   It is advised that a simplified form be used for enterprises whose foreign trade turnover does not exceed an established minimum. Such a form may require that information be provided only on the statistical value of exports or imports for aggregated groups of commodities by partner country.

4.8.   *Determining the adequate sample of enterprises for the survey.* The strategy to determine the adequate sample of enterprises for a survey depends on the specific population of enterprises in the concerned economic sector. Some economic sectors are dominated by only a few large companies. In such case all those companies should be surveyed. This is generally the case for the trade in electricity, gas, and oil, as well as for courier services and in the case of national aircraft operators acquiring and landing goods abroad.

4.9.   Other economic sectors have many enterprises participating in international trade. This could hold for the shipping sector, which generally consists of a few large, but many medium-sized and small companies in the population of enterprises and adequate sampling should then be applied. Ideally, the information on the shipping companies is available from the Business Register and sampling could be done in a stratified way based (for instance) on enterprise size and location. It is generally advised to sample all large companies and an adequate proportion of the medium- and small-size companies.

4.10.   In case of fishery (to determine fish catch) there is often a wide spectrum of small- and medium-sized enterprises as well as significant activity in the informal sector (e.g., family owned), which requires obtaining information through a combination of economic and population censuses. This may imply the need to supplement an enterprise survey with an adequate household survey (based on area frame sampling – since only coastal areas are of importance).

D. Advantages and disadvantages of surveys

4.11.   *Advantages*. Once in place, enterprise surveys will have certain advantages. For example, survey forms are designed to conform to acceptable methodology, satisfy the needs of various fields of statistics and can be revised as frequently as necessary.[23] Also, established contacts at the enterprises may allow compilers to obtain prompt confirmations or corrections in the case of doubts about the reliability of the information submitted.

4.12.   *Challenges in the use of surveys*. Major problems encountered in running a survey include: (a)frequent correction by enterprises of data previously submitted, leading to substantial revision in the preliminary data; (b)the high cost of implementation; (c)the additional reporting burden caused by the survey for the enterprises; (d)the difficulty in ensuring proper completion and submission of survey questionnaires; (e) not all information collected through customs documentation may be available to filers of enterprise surveys. It may be helpful for countries at the initial stage of organizing such surveys to take advantage of the experience of other countries through bilateral contacts.

E. Examples of surveys for airline and shipping companies

4.13.   *Survey of airline operators*. Good contacts with national airline operators need to be established in order to obtain data on the acquisition or landing of bunkers, stores, ballast and dunnage by national aircraft outside the economic territory of the compiling economy. Airline operators could either complete a monthly questionnaire of transactions involving bunkers, stores, ballast and dunnage, or send a pre-determined set of data records every month. In either case submission could be done electronically. The required elements of the transaction are preferably the same as for the data collected through the Customs declarations. Necessary elements are the date of the transaction, the trade flow (imports, re-imports, exports or re-exports), the HS commodity code, the trading partner country and the value, net weight and supplementary quantity of the transaction.

4.14.   *Survey of shipping companies*. In a very similar way as for the airline operators, a survey can be conducted with shipping companies. It is advised to sample all large companies and an adequate proportion of the medium- and small-size companies. With the large companies a similar arrangement for the regular collection of data could be set up as with the airlines, but in the case of the sample of medium- and small-size shipping companies a standard monthly questionnaire would be the best. At certain intervals, the sample of enterprises would be changed for methodological reasons, but also to reduce the burden on the companies.

[Add country example from Statistics Norway]

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23 Compilers may find it practical to use the same survey form to collect data on a physical movement basis for consistency with IMTS, Rev.2 recommendations and on a change of ownership basis to obtain information needed for SNA/Balance of Payments statistics.

F. Examples of border surveys

4.15.   *The need for border surveys*. Information on shuttle trade, i.e., "goods acquired by all categories of travellers, including non-resident workers, to a significant degree as defined by national law", could be obtained through border surveys. If shuttle trade is economically significant, like for instance in the case of Uganda, thorough and regular border surveys are advised.

[Example Uganda – Informal Cross Border Survey]

4.16.   *Example Turkey– survey for shuttle trade*. Turkey's shuttle trade estimations are based on a 'Survey for Shuttle Trade' (see box below) conducted quarterly by the Turkish Statistics Institute at specific border crossings. To estimate the shuttle trade, the expenditures on the goods are expanded by the number of foreign visitors who are involved in shuttle trade, which is estimated by using the ratio of foreign visitors who in the 'Departing Visitors Survey' report having purchased products in bulk to be sold abroad, to the total number of foreign visitors who responded to this survey. 'the Turkish Survey for Shuttle Trade' has been conducted since 2003.

Figure 4.1
Example Turkey – Survey form for shuttle trade

G. Examples of surveys used in the Intrastat system

[Add example of Germany]

H. Examples of enterprise surveys providing additional information

4.17.   *Survey on Insurance and Freight Costs for Import Trade*. The Census and Statistics Department of China, Hong Kong SAR, has been compiling a set of import statistics valued on free on board (FOB) basis to facilitate analysis on merchandise trade balance and comparison of trade statistics with other economies. The imports FOB valuation was derived from the imports CIF valuation based on data obtained from the Survey on Insurance and Freight Costs for Import Trade (IMS), which is a sample survey conducted since 1996 on a monthly basis. The main objective of IMS is to collect information on the insurance premium and freight cost incurred for imports of goods. Under the current sample design, trade items in import declarations are stratified by two variables, namely Harmonized System (HS) Section and mode of transport. Within each stratum, a proportionate random sample is drawn from the monthly import declarations, with the selection probability of each element proportional to its trade value. The total sample size determined by desired precision and resources availability is around 3 000 trade items per quarter. Data are collected by contacting the trader or company on the import declaration using the Computer-Assisted Telephone Interviewing (CATI) approach. Various measures, such as implementation of validation checks in the CATI system, on-line monitoring on the performance of individual field officers and verification of a sample of the enumerated cases by field supervisors, are adopted to safeguard the quality of the collected data. Further details of IMS and its results are provided on the website of the UN Statistics Division.

4.18.   *Survey on Trade Involving Outward Processing of China, Hong Kong SAR, in the Mainland of China.* Hong Kong's outward processing (OP) in the mainland of China (the Mainland) involves the exportation of all or part of the raw materials or semi-manufactures from or through Hong Kong to the Mainland for processing with a contractual arrangement for subsequent re-importation of the processed goods into Hong Kong. As trade of OP nature cannot be delineated under the existing system of recording merchandise trade statistics, the Census and Statistics Department has been conducting the Survey on Trade Involving Outward Processing in the Mainland of China (OPS) to assess the economic impact of OP activities.OPS is a monthly sample survey which has been conducted since the third quarter of 1988. All import and export declarations in respect of Hong Kong's trade with the Mainland and re-exports of the Mainland origin to other places are employed as the sample frame for the survey. Under the current sample design, the declarations are firstcategorised by trade flow and commodity groups. For re-exports of the Mainland origin, the declarations are furthercategorised by three markets, namely the USA, the EU and other places. Stratified sampling method is adopted for sample selection. The total sample size is about 28 500 declarations per quarter. Data are collected from the traders and enterprises on the declarations using the Computer-Assisted Telephone Interviewing (CATI) approach.

I.   Merging of data from enterprise surveys with customs data

4.19.   *Merging of data from different sources.* One issue for data compilers is how to incorporate data from enterprise surveys. As mentioned already in paragraphs 3.26 and 3.27 many difficulties need to be overcome to merge data from customs and non-customs data sources. For merging enterprise survey data with customs data the most important difficulties are: (a) Different data elements available;(b)Provision of different levels of detail; (c)Delays in data forwarding, and the unsynchronized provision of data. The amount of detail that is required to incorporate this information into the IMTS while preserving all essential subtotals is not always possible to collect through an enterprise survey. The practice in the US is that adjustments for coverage issues in the IMTS are made in the Balance of Payments Accounts, where less detail is required with acknowledgement of the coverage issue provided in the IMTS metadata. This further discussed in Chapter 26. In Chapter 7 the merging of different data sources will be discussed in detail.

J.   Response burden of enterprises and traders

4.20.   *Integration of business surveys*. Where possible, it is recommended to align enterprise surveys used for IMTS purposes with enterprise surveys designed for other economic statistics of the country. In designing integrated data collections, it has become an important objective to achieve consistency in statistics of the different industries and sectors. Standardization of surveys and questions across the questionnaires of different industries contributes to consistency and facilitates an integrated statistical production process. Integration should be comprehensive and encompass survey design, sample frame, and questionnaire design. Respondents are increasingly reluctant to complete the many separate survey requests sent to them each year through traditional survey questionnaires. For integration and analysis of trade statistics by enterprise, it is important to decide at which level of the statistical unit the data are integrated (enterprise level, at the level of the economic activity or the local establishment level

Compilers Manual 2010

Part II   Data compilation

Chapter 5 Institutional arrangements

Annotated outline

Scope. The chapter is intended to describe challenges and good practices in setting up effective institutional arrangements (in particular inter-institutional agreements) in the context of their characteristics identified in IMTS 2010. It will provide details of positive country experiences in setting up such arrangements under various country circumstances both in short and long term perspective.

Structure. The chapter might consist of several sections focusing on:
(i)   Typical national agencies involved in the compilation of IMTS such as customs administrations, national statistical offices, central banks, ministries of trade and other institutions;
(ii)   Purposes of institutional arrangements;
(iii)   Characteristics of effective institutional arrangements;
(iv)   Governance and mechanism of cooperation under different country circumstances such as diverse legal frameworks and resource availability; examples of good practices (several country cases to be described);
(v)   Immediate steps for improving the institutional arrangements (e.g., creating an inter-agency working groups to review the current inter-agency cooperation and to identify the areas where it should be strengthened etc);
(vi)   Longer term strategies for building effective institutional arrangements;
(vii)   Institutional arrangements and data quality.

Chapter 5 Institutional arrangements

A. Introduction

5.1.   The chapter is intended to describe challenges and good practices in setting up effective institutional arrangements in the context of their characteristics identified in IMTS 2010. It provides details on good practices and challenges in setting up such arrangements under various country circumstances both in short and long term perspective.

5.2.   Usually several governmental bodies participate in activities resulting in official country trade statistics. The most important are national statistical offices, customs administrations, central banks, tax authorities, the ministry of trade and other specialized governmental bodies (e.g., commodity boards, trade development boards, etc.).The institutional arrangements are understood as a set of laws and regulations and agreements between the involved agencies on the division of the responsibilities in the collection, processing, compilation and dissemination of external trade statistics of a country.

5.3.   The mandate and the main areas of activity of those agencies are usually defined by national law. However, national legislation provides only a foundation on which detailed institutional arrangements should be worked out.

B. Purposes of institutional arrangements

5.4.   The overarching purpose of the institutional arrangements is to ensure that national and international users have at their disposal high quality national trade statistics in a timely and convenient manner and that the statistical process is carried out with a maximum possible efficiency. In order to achieve this goal, details of the responsibilities of the involved agencies should be elaborated, agreed upon and documented.

5.5.   In particular, establishment and maintenance of effective institutional arrangement is necessary to ensure that (i) the needs of all interested governmental agencies and general public are taken into account, (ii)the applicable international standards are followed by all involved agencies, (iii) all available resources are used in the most effective way, (iv) proper quality assurance procedures covering various aspects of the data production and dissemination are developed and executed in a transparent manner, and (v) the public confidence in the disseminated data is assured, so that the statistics are used to the maximum extent possible.

C. Characteristics of effective institutional arrangements

5.6.   Depending on the country's legal framework, the structure of its government, available resources and other considerations various institutional arrangements might exist and result in acceptable trade statistics. At the same time not all types of such arrangements can be equally effective. In this connection, IMTS 2010 identifies several key characteristics of the effective institutional arrangements, namely:

(a) Designation of only one agency responsible for the dissemination of official trade statistics;

(b) Clear definition of the roles and responsibilities of all agencies involved; and

(c) Establishment of formalized working arrangements between the involved agencies.

IMTS 2010 specifically recommends "that countries consider the establishment of the institutional arrangements necessary to ensure the compilation of high quality trade statistics as a matter of high priority and periodically review their effectiveness"[24].

5.7.   *The responsible agency.* It is a good practice that the agency designated to be responsible for the compilation and dissemination of official trade statistics is given a necessary authority and responsibility to monitor and coordinate various aspects of the whole statistical process. The existence of such an agency is also essential from the user perspective as it provides a clear designation of a single source of official data and of the contact point for any inquires. This raises the user confidence in data quality and promotes a wider and more effective data use. In particular, the agency should be responsible for:

(a) Formulation of the methodological foundations of the country trade statistics in accordance with the internationally adopted statistical standards and the best national practices;

(b) Development and the implementation of the appropriate inter-agency data compilation arrangements;

(c) Dissemination of the official trade statistics to users both domestically and internationally, and

(d) Focal point for consultation with the major trading partners on the data reconciliation and data exchange and representation of the country at various regional/international forums dealing with foreign trade statistics;

5.8.   *Rights and responsibilities of the involved agencies*. It is a good practice to ensure that the collective responsibilities of those agencies cover all elements of the statistical process and are distributed in a manner that leads to the most effective use of the available resources. The definition of the rights and responsibilities of all involved agencies should be unambiguous in order to minimize the misunderstandings which might lead to a duplication of work or to an omission of something significant.

5.9.   *Formalized arrangements between the agencies*. It is a good practice that the establishment of formalized arrangements between the agencies is documented through appropriate means such as the Memorandum of Understanding (MoU), which would, inter alia, include provisions for holding inter-agency working meetings and for the access to micro data that those agencies collect. The formal arrangements should be complemented by the informal working agreements between the relevant units of the involved agencies to ensure the speedy implementation of the agreements.

24*International Merchandise Trade Statistics: Concepts and Definitions 2010* […], para. 8.17

D. Governance and mechanisms of cooperation

5.10.   The kinds of institutional arrangements, their governance and mechanism of cooperation depend on many factors. The most typical institutional arrangements are when the national statistical office is designated as the agency responsible for the dissemination of official statistics and coordinates data collection and processing. Responding to the UNSD questionnaire 78% of countries confirmed that the compilation and dissemination of IMTS are normally the responsibility of national statistical offices[25]. However, in the remaining countries the official international merchandise trade statistics are compiled and disseminated by other governmental agencies such as statistical departments of the customs administrations or central banks.

1.   Statistical office as the responsible agency

5.11.   As noted above this is the most common practice. In this case the statistical office holds overall responsibility for trade statistics including issuance of methodological guidelines, raw data editing and processing, database maintenance and dissemination of official statistics. Customs administration holds the responsibility for collection of the basic records and for supplying the statistical office with these records on a regular basis; normally customs carry out some editing of records before passing them to the statistical office. Central banks and other governmental agencies provide additional information on trade flows not covered by customs records. The statistical office further edits all input data and merges them into an integrated database.

5.12.   The reliance by the statistical office on data from sources external to itself requires close cooperative relationships with all governmental departments and agencies involved. The statistical office and the customs agency - the largest data supplier - along with other source agencies, should establish a memorandum of understanding so that the roles and responsibilities of each party with regard to all aspects of the production and distribution of official statistics are clearly defined. The memorandum should be updated as needed.

5.13.   In general, a good MoU should cover such topics like:

 (a) goals and expected results,

 (b) involved agencies, their: responsibilities and roles,

 (c) activities to undertake.

 [Needs further elaboration; the MoU between UNSD and OECD was indicated as a possible example]

2.   Customs administration as the responsible agency

5.14.   In this case all activities, from collection of basic records to dissemination of official trade statistics, are the responsibility of customs. The statistical office in cooperation with central bank normally makes any additional adjustments necessary to publish aggregated trade data in

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[25] *International Merchandise Trade Statistics: Supplement to the Compilers Manual.* [2008]. Para 1.3

accordance with the SNA/BOP requirements. In order to ensure that the detailed trade statistics disseminated by customs is of necessary quality the customs administration should use data sources additional to its own records and implement an appropriate quality assurance programme.

5.15.   Two conflicting requirements that customs usually face are: (a) the need to diminish barriers to the flow of trade, which leads to the simplification and reduction of reporting requirements on traders; and (b) increased pressure from users (both government agencies and the business community) to supply more trade data of increased quality and detail within a shorter time frame. To meet these requirements and to ensure that any necessary additional sources of data are being used and that compilation procedures comply with the recommended methodology, customs should closely cooperate with other agencies, particularly with the statistical office.

3.   Central bank as the responsible agency

5.16.   In a small number of countries the central bank is responsible for compilation and dissemination of trade statistics. Under this arrangement the bank receives the customs records on a regular basis, and compiles and disseminates the trade statistics in a manner similar to that of the statistical office-led compilation described above.

5.17.   The reviews of national practices in the institutional arrangements prove that many countries face serious challenges in this area and need substantial improvements. Achieving well-functioning institutional arrangements capable of the implementation of IMTS 2010 recommendations can be rather a long process and would require developing and persistent implementation of a long term strategy. At the same time there exist a number of steps which interested countries can undertake in a short run and which can yield positive results in near future.

E. Towards improved institutional arrangements

5.18.   The timing and content of concrete steps aiming to improve the existing institutional arrangements depend on national legal framework, institutional history as well as other circumstances and priorities. However, the following good practices should be taken into consideration, as applicable.

5.19.   *Establish a permanent coordination Committee* which would consist of the representatives of the top management of the involved agencies and which would act as an "upper-level" body concerned with the formulation and monitoring the implementation of a long term strategy aiming to ensure high quality of official trade statistics. The committee will promote a systematic cooperation between the involved agencies in the identification and enactment of the measures which are within their prerogatives. To make sure that the work of such a committee is effective it is a good practice that its members agree on and document the objectives and the rules of procedure of the committee.

5.20.   *Develop the Committee's work programme*. In order to facilitate functioning of such a committee its work programme should be elaborated as soon as possible, the agendas of the forthcoming meetings should be circulated well in advance and the meeting's minutes be kept, so that the process is transparent and the implementation of the reached decisions can be evaluated. The logistics of the activities should be distributed among the representatives of each participating agency in order not to overburden the responsible agency.

5.21.   *Establish a permanent technical working group(s).* To ensure that the strategic and managerial decisions of the permanent Committee are implemented it is a good practice to establish a permanent technical working group (or groups) reporting to the Committee and dealing on the regular basis with the host of detailed technical issues such as review of the compliance of data collection procedures with the adopted trade statistics methodology, organization of effective data processing and data exchange including use of compatible IT platforms, coordination of outreach activities etc. It is a good practice that the working group formulates its work programme and periodically reports on its implementation to the Committee.

5.22.   *Activities of the permanent Committee and technical working group.* It is advised that the following activities are including in the work programme of the Committee and working group, as applicable, and taking into account their respective mandates.

5.23.   *Formulate a long term strategy of improving trade statistics*. Some essential elements of such strategy are indicated below: **[to be elaborated; please comment]**

(a) Designate the responsible agency;

(b) Focus on the identification of various inefficiencies such as unused data sources, duplication of work, communication barriers etc. and on the formulation and timing of actions to remove them;

(c) Adopt an integrated approach;

(d) […]

5.24.   *Coordinate positions of various agencies on the periodic revisions of the relevant regulatory provisions.* As periodic revisions of the regulatory provisions may affect not only the volume and structure of international trade flows, but also the availability and quality of information relevant to trade statistics, the agencies involved in the preparation of such regulations and in the compilation of trade statistics should strive to agree on a common position with respect to such revisions. This confirms the importance of a close cooperation between the agencies responsible for trade policy and trade statistics in order to consider timely regulatory changes that impact the international merchandise trade. Such cooperation will contribute to both a better quality trade statistics and to a better understanding of the evolution of country's trade.

5.25.   *Reach an agreement on a periodic review the rules on customs recordings to better reflect the needs of trade statistics.* Within the national legal framework of foreign trade, the arrangements should allow for amending rules on customs recordings in order to maximize their usefulness for trade statistics. For example, the breakdown of the classification items (beyond the six digits of HS) as well as changes and updates in the HS classification should be subject for

regular revision and analysis within the institutional arrangements. This timely follow up will support the production of reliable time series and provide information for a robust metadata.

5.26.   *Develop and implement a programme of using appropriate non-customs sources of data.* In a number of countries merchandise trade statistics is based exclusively on customs records. While is acknowledged that customs records, where available, are the main source of data, they usually are not sufficient to ensure the full coverage of external trade. Therefore, any significant improvement of trade statistics cannot be achieved without the use of non-customs data sources. The responsible agency should develop an action plan which would ensure that such data sources are identified and the necessary agreements are reached with other governmental bodies to allow the use of their administrative data and/or that additional data are collected via national survey programme.

5.27.   *Adopt an integrated approach and ensure proper cooperation with compilers of business statistics and statistics on international trade in services.* Compilation and dissemination of merchandise trade statistics should be seen as an integral part of national statistics programme. While ultimately the responsibility for the implementation of an integrated approach is with the mangers of the national statistical system it is a good practice that compilers of international merchandise trade statistics take initiative to propose how a closer integration can be achieved from the IMTS perspective.

5.28.   Close cooperation with compilers of other statistics can both improve merchandise trade statistics as well as be beneficial to other statistical domains. For example, in view of the limited resources and to ensure that work is not duplicated it is a good practice not to initiate any additional surveys of traders without proper consultations with the compilers of country enterprise statistics. In most cases such surveys can be amended to incorporate trade statistics requirements. On the other hand, compilers of merchandise trade statistics can assist colleagues who are responsible for statistics on international trade in services by passing to them any available information on cost of goods transportation and insurance. Obviously, the necessary working arrangements have to be worked out and systematically implemented.

5.29.   *Modernize the IT infrastructure and reach the necessary agreements to improve inter-agency data exchange.* The arrangements between participating agencies must ensure the permanent access to the relevant primary data and to facilitate consultation and revisions made during statistical production process. It is a good practice that the responsible agency would, inter alia,(a) take into account the systems of communication available at the source agencies, in particular work closely with the customs administrations to incorporate online edits and verifications into the automated data collection system(s); (b) maximize the use of modern information technology for the exchange of information (e.g., use of virtual private networks (VPN) and / or ftp sites, as well as SDMX), and (c) take care of the data security through appropriate control mechanisms (e.g., defined submitters, reception, connectivity testing, setting dates and times of delivery, verification of data transfer, etc.)

5.30.   *Ensure systematic communication between the staff of the participating agencies on technical matters.* Regardless of the formal framework for collaboration, it is a goodpractice that agencies agree on a regular communication between their staff to address various technical

issues emerging almost on a daily basis such as the verification of the source information, clarification of the metadata, and the possible impact on data compilation of various regulatory changes, among others. This communication does not replace meetings involving all agencies for joint decisions on the work programme which is defined in the context of institutional arrangements.

5.31.   *Organize staff cross training.* For example, the interpretation of customs records by statisticians working for the national statistical office or central bank is facilitated when statisticians have knowledge of the customs operation *in situ*. It is a good practice to arrange for visits of the statisticians to the customs ports in order to better understand and investigate the procedures for different types of customs declarations. It is also important that customs administrations, with the help of statistical offices and central banks, organize training of their staff on the applicable statistical requirements and the importance of customs records for compilation of high quality trade statistics.

5.32.   *Conduct outreach activities to ensure that the compiled data meet user demand and to get user support.* It is a good practice to conduct periodic meetings with various user groups to make them aware of what data are available and how to use such data effectively, as well as to collect information on their needs for planning further improvements in data compilation and dissemination. It is a good practice also to invite to the meetings of the permanent committee, as necessary, other institutions and agencies (public, private and / or academics) with the aim to ensure their potential contribution to the statistical process. For example, there should be meetings with various business associations to explain to them the importance of accurate completion of the relevant customs documents and survey forms. Regular meetings with other government agencies, which are important users of the trade statistics, as well as with the compilers of national accounts and balance of payments statistics are equally important as this will help to achieve a better overall quality of national statistics.

F. Institutional arrangements and data quality

5.33.   The effectiveness of institutional arrangements is ultimately judged by the increased quality of the disseminated trade statistics. Properly functioning institutional arrangements can significantly contribute to the enhancement of data quality.

5.34.   As described in Chapter IX of IMTS 2010 the dimensions of data quality include prerequisites of quality, relevance, credibility, accuracy, timeliness, methodological soundness, coherence and accessibility. The quality improvement is a complex and time consuming task. No single agency can develop and implement an effective data quality assurance programme alone. Therefore, appropriate institutional arrangements are an absolute must for a success and should clearly spell out the roles of each agency in such a programme.

5.35.   **[Box on experience in the division of labor on trade data quality assurance -we need volunteers to help to create this box].**

Annex 5.1:   Country experiences in institutional arrangements

1. Experience of the USA

A5.1.   [to be updated]. The arrangements in effect between data collection agencies in the United States may be noted as an example of inter-agency cooperation. The Customs Service collects paper or electronic records for both imports and exports, and forwards the records to the Census Bureau for processing. Currently 99% of import data collection is automated (Automated Broker Interface, or automated Foreign Trade Zone reports), with the remaining 1% coming from paper forms (including import entry summary forms, warehouse dispatch forms and foreign trade zone documents). Roughly 24% of export data come from paper Shipper's Export Declarations, 36% are from Canadian import data, and 40% are submitted electronically (Automated Export System). In all, 3 - 4 million data entries a month are processed. Paper data are batched and sent to Indiana for entry and initial checking.

A5.2.   Processed data are transmitted electronically to the Census Bureau in Suitland, Maryland. A monthly production schedule determines close-out dates (clerical dates and release dates; import and export processing "cuts" (runs) and receipt of files; exchange of data between the US and Canada; exchange of data between Census and the Bureau of Economic Analysis for joint press release; transmission and processing of data files on vessel movement; and processing of import and export shipping data files). Export data are also taken from the Department of Defence (Military Assistance Program Grant-Aid shipments) and the National Energy Board (electricity and natural gas).

2. Experience of Mexico.**[as provided by Mexico]**

A5.3.   Since more than 20 years the Mexican Working Group on Foreign Trade Statistics which is integrated by the General Customs Administration, Bank of Mexico, Ministry of Economy and the National Institute of Statistics and Geography (INEGI) is responsible to define criteria for the production and release of International Merchandise Trade Statistics of Mexico. At the beginning these institutions based their work principally on official letters and some meetings and due the changes in the Statistical Law nowadays the institutional arrangements are supported by the Specialized Technical Committee on Foreign Trade Statistics. In fact the activities of the starting Working Group are part now of the Committee and the roles of the institutions are as follows:

(a) INEGI is in charge of the Group´s coordination and dissemination of official data ensuring the implementation of international recommendations

(b) Bank of Mexico makes the statistical treatment to custom records according to agreed criteria

(c) General Customs Administration provides the administrative records and its characteristics

(d) Ministry of Economy provides information about the foreign trade rules and the catalog for imports and exports.

A5.4.   The Committee establishes a Work Program for three years and approximately once per quarterly holds a meeting. Likewise the Committee agrees an agenda for attention of the Work Program and follow up of its activities. The Program is focused to the improvement of the procedures for the production of results and the analysis of the user needs (for instance balance of payments and national accounts statisticians). Beyond the physical meetings the Committee has communication through teleconferences to address some specific issues related to the daily process for the production of statistical results such as analysis of the source information and clarification on the provided data.

A5.5.   The main issues covered in the Work Program are the periodic revision of customs records to make a proper interpretation of the declarations according to international recommendations, the content of metadata in order to explain clearly the characteristics of the records and how they are processed to produce the statistics on international merchandise trade. On the other hand the Committee agrees on periods for dissemination of preliminary and revised figures according to the current release policies.

A5.6.   The success of the Committee is based in the participation of knowledgeable representatives on behalf their institutions. In all cases the participants are in charge of technical positions and not in 'high level' positions, however each one receives the support of the respective institution for reaching agreements. Finally the main challenge of the Committee is giving a quick response for the production of statistic results taking into account the custom simplification. The agreement for the creation of the Specialized Technical Committee on Foreign Trade Statistics of Mexico and the rules for the operation of this kind of Committees are available at www.inegi.org.mx

3.   Experience of Brazil [as provided by Brazil]

A5.7.   The big advantage of the foreign trade statistics passes through the cooperation between the various agencies that operate in foreign trade. Brazil's experience in this area was only possible with this prior understanding, where some basic assumptions have to be maintained to facilitate cooperation. The main one is that each organ maintains its activities independently, thereby ensuring the sovereignty of each one of them and maintaining their information. Specifically, Brazil has developed a unique system for registration of exports and imports, called SISCOMEX - Integrated Foreign Trade System, fully computerized, covering the entire country, which records 100% of foreign trade transactions, involving all actors in foreign trade including governing and consenting agencies.

A5.8.   Governing agencies (responsible for definitions) are- Brazilian Customs (Ministry of Finance, Federal Revenue Secretary), responsible for the tributary and tax police; Central Bank of Brazil, responsible for contracting exchange; Foreign Trade Secretariat, responsible for the commercial operations of export and import (standard rules, trade remedies, trade promotion and statistics).

A5.9.   Consenting agencies - bodies involved (30 at all) that operate in foreign trade, responsible for inspections / special permits, such as certification of origin, phytosanitary issues, controlled

products, military products, etc.. Ministry of Agriculture, Ministry of Health, environmental control agencies (IBAMA), quality control agency (INMETRO), Ministry of Defence and Ministry of Justice, are the main consenting bodies.

A5.10. This understanding was conducted in 1991 by the Presidency of the Federative Republic of Brazil, determining the technical and political understanding among the agencies, by law approved in Congress. From this determination, it was created a decision-making structure formed by a Managers Committee (composed of Ministers of the three areas above), a Technical Committee formed by technicians with extensive knowledge of foreign trade activities, and a set of sub-committees made up of experts of each area and each body responsible for standards rules, for foreign trade statistics, for training to all users (companies and individuals) and for the infrastructure, each one with clearly defined functions.

A5.11. Decisions were taken from each subcommittee and when there was not understanding, the matter went to the Technical Committee for decision. If necessary, up to the managers Committee (Ministers) for final decision and acceptance of all. All three governing bodies have full access to the system within their area of activity, without approval of the other. All access and permissions have been previously negotiated within the Technical Subcommittee and the Technical Committee. Simple questions such as responsibility for the administration of tables of code/names, the implementation of criticals [?] in the system and feeding system (including parameters for debugging preventive, for example), were also previously defined for each body. All this understanding led the existence of a single data source, a single flow of information, prior validation of all the variables (the codes are not typed, are chosen), interconnection with other existing databases (national register of companies with foreign trade data), the implementation of the recommendations of IMTS (framing operation in the export and import tax regime), etc..

4. Experience of the Philippines [to be elaborated]

A5.12. The Philippines has an inter-agency committee on Trade in Goods with members from the following key agencies of the government: National Statistical Coordination Board(NSCB), National Economic and Development Authority (NEDA), NSO, Bangko Sentralng Pilipinas (BSP), Department of Trade and Industry (DTI) and BOC. A Technical Working Group and Task Force were also created under IAC for review and study of FTS data.

5. The experience of China

[it would be very good to have a summary on practices of Chinese Customs here]

Compilers Manual 2010

Part II   Data compilation

Chapter 6   Statistical territory and organization of data collection

Annotated outline

Scope. This chapter deals with the key concept for determining the type of trade system applied - the statistical territory of a county. Countries should develop a description of their statistical territory suitable for use by compilers of the detailed trade data, and should make that description available to their trading partners and to international organizations. Differences between economic and geographical areas will be discussed. The relationship between the statistical territory and customs procedures (and their role in determining the statistical territory) will be covered as well. Good country practices are described which include, inter alia, a clear statement on whether or not the following territorial elements exist, and on whether or not they are included in the statistical territory: (a) Industrial free zones; (b) Commercial free zones; (c) Premises for customs warehousing; (d) Premises for inward processing; (e) Territorial waters; (f) Continental shelf; (g) Offshore and outer space installations; (h) Territorial enclaves of the compiling country in other countries; and (i) Territorial enclaves of other countries in the compiling country (exclaves). The organization of data collection and the application of the trade system are discussed in detail and examples/ good practices are provided.

Structure. The chapter might consist of the following sections:
(i)   General description of statistical territory;
(ii)   Elements of statistical territory;
(iii)   Organization of the data collection in respect to the different territorial elements;
(iv)   Application of the trade system:
        a. General trade system;
        b. Special trade system;
        c. Moving to the general trade system;
(v)   Examples of good country practices.

Chapter 6 Statistical territory and organization of data collection

A. Statistical territory

6.1.   *Definition*. IMTS 2010, para. 2.1 defines the statistical territory of a country as the territory with respect to which trade data are being compiled noting that the definition of the statistical territory adopted by any given country may or may not coincide with its economic territory depending on the availability of data sources and other considerations. IMTS 2010 recommends that countries provide a detailed description of their statistical territory and make that description publicly available as a part of their metadata to ensure an unambiguous identification of the flows of goods recorded in their trade statistics.

6.2.   *Elements and parts of the statistical territory*. It a good practice to define the statistical territory by listing various elements and territorial parts of its economic territory which belong to it. IMTS 2010, para. 2.3 recommends that the descriptions of these territorial elements, when applicable, are based on the definitions of the customs terms as contained in the annexes to the Revised Kyoto Convention (RKC). It is also a good practice to use the definitions provided in other relevant international conventions such as the United Nations Convention on the Law of the Sea. In countries where data collection is based on customs recording the main element of the statistical territory is usually the free circulation area. In addition, IMTS 2010 recommends that countries make clear whether or not the following territorial elements exist in the country, and whether or not they are included in its statistical territory: islands, territorial waters; continental shelf; offshore and outer space installations and apparatus; commercial and industrial free zones; customs warehouses; premises for inward processing; territorial enclaves and exclaves.

B. Description of the elements of statistical territory

6.3.   *Free circulation area*. The concept of free circulation area is used by the Revised Kyoto Convention in the context of the definition of "clearance for home use", which is defined as "the Customs procedure which provides that imported goods enter into free circulation in the Customs territory upon the payment of any import duties and taxes chargeable and the accomplishment of all the necessary Customs formalities". Goods in free circulation may be disposed of without Customs restriction.

6.4.   *Islands*. Islands are generally defined as any piece of sub-continental land that is surrounded by water. Very small islands such as emergent land features on atolls can be called islets, cays or keys. A grouping of geographically or geologically related islands is called an archipelago. Continental islands are bodies of land that lie on the continental shelf of a continent. Oceanic islands are islands that do not sit on continental shelves. An island can be also a land surrounded by water in a river or lake.

6.5.   *Territorial waters.* Territorial waters, or a territorial sea, as defined by the 1982 United Nations Convention on the Law of the Sea[26] is a belt of coastal waters extending at most 12 nautical miles (22 km; 14 mi) from the baseline (usually the mean low-water mark) of a coastal state. The territorial sea is regarded as the sovereign territory of the state, although foreign ships

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[26] The convention is available at http://www.un.org/Depts/los/convention_agreements/texts/unclos/part2.htm

(both military and civilian) are allowed innocent passage through it; this sovereignty also extends to the airspace over and seabed below. The term "territorial waters" is also sometimes used informally to describe any area of water over which a state has jurisdiction, including internal waters, the contiguous zone, the exclusive economic zone and potentially the continental shelf.

6.6.   *Continental shelf.* Article 76 of the Convention gives the legal definition of continental shelf of coastal countries. In summary, the continental shelf of a coastal nation extends out to the outer edge of the continental margin but at least 200 nautical miles (370 km; 230 mi) from the baselines of the territorial sea if the continental margin does not stretch that far. The outer limit of a country's continental shelf shall not stretch beyond 350 nautical miles (650 km; 400 mi) of the baseline, or beyond 100 nautical miles (190 km; 120 mi) from the 2,500 metres (8,200 ft) isobath, which is a line connecting the depths of the seabed at 2,500 meters.

6.7.   *Offshore and outer space installations and apparatus.* Offshore installations in the IMTS 2010 context refer to any installation or apparatus, mobile or not, located outside the geographical territory of a country, owned by the country's resident(s) and remaining under the country's jurisdiction. Examples are drilling rigs on the continental shelf (in international waters) for the purposes of oil and gas production. However, if the offshore installation is located in the economic territory of another country, then that installation belongs to the statistical territory of that other country.[27]

6.8.   Outer space installations and apparatus are objects launched into outer space by countries and are subject to international law. The outer space is conventionally defined as space located at an altitude of 100 kilometers above sea level. The framework for international space law was established by the Outer Space Treaty, which was passed by the United Nations and entered in force in 1967[28]. The Outer Space Treaty states the State that launches a space object retains jurisdiction and control over that object. However, "outer space, including the Moon and other celestial bodies, is not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means".

6.9.   *Commercial free zones.* The term 'free zone' (or 'customs free zone') means a part of the territory of a state where any goods introduced are generally regarded, insofar as import duties and taxes are concerned, as being outside the customs territory. Referring to two kinds of authorized operations specified in the Revised Kyoto Convention a distinction may be made between commercial and industrial free zones. For the IMTS purposes a commercial free zone is a zone where goods if admitted "shall be allowed to undergo operations necessary for their preservation and usual forms of handling to improve their packaging or marketable quality or to prepare them for shipment, such as breaking bulk, grouping of packages, sorting and grading, and repacking."

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[27] Offshoring understood as the movement of a business process to another country has per se no relationship with Offshore and outer space installations and apparatus.

[28]The Outer Space Treaty, formally the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, is a treaty that forms the basis of international space law. The treaty entered into force on October 10, 1967.

6.10.   *Industrial free zones.* If the competent authorities allow processing or manufacturing operations in a free zone and specify the processing or manufacturing operations to which goods may be subjected in general terms and/or in detail in a regulation applicable throughout the free zone or in the authority granted to the enterprise carrying out these operations such zone is referred to as industrial free zone.

6.11.   It should be noted that customs free zones exist, inter alia, in such forms as investment promotion zones, export processing zones, foreign trade zones, commercial free zones or industrial free zones. In some cases, these zones are not delineated geographically but may involve only different tax, subsidy or customs treatment. A large and growing number of customs free zones are onshore manufacturing enclaves which have been created to attract foreign direct investment, stimulate local industry and provide employment to the local labor force. The legal status of these zones ranges from extra-territorial, whereby they are exempt from all customs laws, to varying degrees of customs control.

6.12.   *Customs warehouses.* A customs warehouse is a designated place where goods can be stored under "customs warehousing procedure". Usually these are the imported goods which are brought into the country under that procedure and are stored under customs control without payment of import duties and taxes. However, in some cases domestic goods intended for exports can be stored in such warehouses as well. **[… example?].** Warehoused goods can undergo usual forms of handling to improve their packaging or marketable quality or to prepare them for shipment, such as breaking bulk, grouping of packages, sorting and grading and repacking. They can provide specialized storage services such as deep freeze or bulk liquid storage. However, operations that may change the essential character of the goods are not normally allowed. After allowed operations have been performed, and within the warehousing period, the goods may be exported without the payment of duty, or they may be withdrawn for consumption upon payment of duty at the rate applicable to the goods in their manipulated condition at the time of withdrawal.

6.13.   *Premises for inward processing.* Inward processing defined by RKC as "the Customs procedure under which certain goods can be brought into a Customs territory conditionally relieved from payment of import duties and taxes, on the basis that such goods are intended for manufacturing, processing or repair and subsequent exportation." It should be noted that inward processing shall not be limited to goods imported directly from abroad, but shall also be granted for goods already placed under another Customs procedure. The convention does not require that inward processing is carried out in specially approved by customs premises or areas. Such processing can occur in any suitable premises provided that other conditions for inward processing are complied with. However, country customs practices may differ and certain inward processing might be limited to specific locations.**[example?]**

6.14.   *Territorial enclaves and exclaves.* For IMTS 2010 purposes enclaves are defined as clearly demarcated land areas (such as embassies, consulates, military bases, scientific stations, information or immigration offices, aid agencies, central bank representative offices with diplomatic immunity, etc.) physically located in other territories and used by governments that own or rent them for diplomatic, military, scientific, or other purposes with the formal agreement of governments of the territories where the land areas are physically located. An enclave of a

given country is an exclave from the perspective of the country where that enclave is located. In certain cases the goods movements between the host country and enclaves of other countries located on its territory might be significant. All such movements are out of scope of IMTS.

C. Organization of the data collection in respect to different territorial elements

6.15.   The organization of data collection in respect of different territorial elements requires a careful selection of the most appropriate data sources, which depend on the national customs and statistical legislation, and effective institutional arrangements.

6.16.   […]

D. Application of the trade system:

1.   General trade system;

6.17.   […]

2.   Special trade system;

6.18.   […]

3.   Moving to the general trade system;

6.19.   […]

E. Examples of good country practices.

[The scope of this section should be reviewed in conjunction with the scope of chapters 2, 3 and 4. Comments of the EG members are invited]

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Part II   Data compilation

Chapter 7 Integration of data from different sources

Annotated outline

Scope. The chapter is intended to describe challenges and good practices in merging customs and non-customs data (e.g. in adding non-customs to the customs data and substituting non-customs for the customs data), including merging of different information from the same source. To merge and cross-check data collected from customs and non-customs sources is quite a complex and time-consuming activity. The chapter highlights a number of issues that need to be addressed, such as (a) different data elements available from different sources; (b) conceptual differences between sources; (c) provision of different levels of detail; (d) delays in data forwarding, and the unsynchronized provision of data; (e) overlaps in the information provided (e.g., data on goodson consignment supplied by customs, and data on sales of the same reported by the controlling governmental agency) and (f) the overall efficient use of all data sources. Possible solutions are to run training programmes for staff and conduct regular meetings between staff of compiling and source agencies/ entities (including staff of large importing and exporting enterprises) to establish stable and efficient working arrangements; and to develop estimation and imputation procedures to deal with the issue of missing data fields.

Structure. The chapter might consist of the following sections:
(i)   Advantages and limitations of customs and non-customs data sources;
(ii)   General description of integration of data from different sources;
(iii)   Issues encountered when merging data;
(iv)   Possible approaches and solutions;
(v)   Examples of good country practices;
(vi)   Linking customs records and the national trade and business register;
(vii)   Integrated approach to economic statistics.

A. Advantages and limitations of customs and non-customs data sources

7.1.   Both customs and non-customs sources have their specific merits and shortcomings. Compilers should be aware of them when deciding what data sources are the most appropriate to use. Customs records, for example, may not provide full coverage of all transactions, may not be subject to adequate statistical quality control at customs, or may not be made available to statistics compilers in a comprehensive and unrestricted manner. The use of non-customs data sources may increase the burden on data providers and compilers. Also, these sources may suffer from a lack of a consistent classification (e.g., of goods, countries), undercoverage (e.g., non-responses in surveys) and may not follow standards recommended for valuation, time of recording and partner country attribution. Trade statistics compilers should pay special attention to these issues in order to obtain information from customs and non-customs sources that fulfils the requirements of trade statistics (IMTS2010, para. 8.12).

7.2.   *Use of additional data sources.* As reported in Chapter 3, use of non-customs sources is due to the fact that certain kinds of transactions do not pass through customs and need therefore be obtained from other data sources, often maintained by other agencies. Table 3.1 showed that besides customs declarations countries also use to a varying degree postal records, tax records, currency exchange records, enterprise surveys, aircraft and ship registers, foreign shipping manifests and reports of commodity boards. All those additional data sources can be necessary or useful to complete or verify the trade statistics.

7.3.   *Data sources for special categories of goods*. Transactions of the following categories of goods indicated below generally may not appear in customs records (see para. 3.2). For these items the compiling agency will have to use additional data sources to complete the country's merchandise trade statistics. Those data sources are given in Chapter 3:
- Goods delivered through postal or courier services
- Electricity
- Petroleum, gas and water through pipelines
- Border trade (i.e. informal sector trade between residents of adjacent areas of bordering countries)
- Sales and purchases made by aircraft and ships in foreign ports
- Sales and purchases of aircraft, ships and other mobile equipment
- Transactions on high sea

B. Issues encountered when merging data sources

7.4.   *Integration of different data sources.* To complete the coverage of IMTS, data compilers will have to merge and cross-check data collected from customs and non-customs sources, which is quite a complex and time-consuming activity. As already indicated in paragraphs 3.26 and 3.27 compilers should be aware of a number of issues that need to be addressed, such as different data elements available from different sources, conceptual differences between sources, different levels of detail, unsynchronized provision of data, or overlaps in the information provided.

7.5.   *Data editing, linkage and integration*. The aspect of data editing is an integral part of the statistical production process and needs to be addressed already at the collection phase.

Methodological, organisational and legal issues related to data editing, linkage and integration have to be resolved. Documentation of the editing process and transparency are indispensable to ensure that the resulting data will be widely accepted and understood by users inside and outside the agency. Data editing is a resource intensive process but it has a far-reaching impact on data quality as it affects data accuracy, interpretability, relevance and coherence. The statistical service can learn in the editing process about the data, that the survey processes can be improved in a systematic way.

7.6.   *Common concepts, definitions and classifications*. It is crucial for integration of different data sources to apply uniform terminology and definitions across the national statistical system so that the various data collections are comparable and can be related to each other. To ensure the use of consistent terminology and definitions, statistical agencies could establish a terminology management strategy to reduce in the different areas in the organisation the use of inconsistent terminology applied in questionnaires. As much as possible the same classifications for commodities, partner countries, quantity units and modes of transport should be used as well.

C. Examples of merging data from other administrative sources with customs data

7.7.   *Sales of ships*. Statistics Norway receives regularly information about new registrations, cancelations and other changes in the registers from the Norwegian shipping registers (NIS and NOR). Based on this information Statistics Norway send a letter/form to whom the registers have registered as the owner, asking for additional information like date of change of ownership, the actual price, or identification of former owner.

[more information from Statistics Norway to complete the example about the actual data items in the sales information, and its integration into the customs data - time of recording, commodity classification, trade flow, partner country, valuation, unit of quantity and quantity figure, mode of transport]

D. Examples of merging data from enterprise surveys with customs data

7.8.   *Informal Cross Border Survey*. The Uganda Bureau of Statistics conducts an informal cross border survey on a quarterly basis as explained in paragraph 4.15. The data are collected by trained survey takers at various border crossings around the country. The following data elements are captured: [input from UBOS]

7.9.   *Survey for shuttle trade.* As explained in paragraph 4.16, the Turkish Statistics Institute conducts quarterly a 'Survey for Shuttle Trade' (see box below) at specific border crossings. As shown in Figure 1, the following data elements were captured: Country of residency, Country of citizenship, Nights of stay in Turkey, Type of goods and Value of those goods, Type of Payment, Cost of packaging, loading and shipping, Countries of exports, and Cost of private spending in Turkey. These data items are combined with the customs records, as follows: **[input from Statistics Turkey]**.

7.10.   *Intrastat survey data*. As explained in paragraph 4.17, the Federal Statistical office of Germany (DESTATIS) captures the following data elements from its surveys **[input from DESTATIS].**

E. General conclusions on merging different data sources

7.11.   *Problems on data items*. The examples above show the problems encountered in the merging of data, namely:

(a) Reference period - In the example of the cross-border surveys in Uganda data are collected over a longer period of time. Due to this collection method, the survey results cannot be easily added to the customs data, where data are recorded on a daily basis.**[input from Uganda needed]**

(b) Commodity classification - In the example of the Shuttle trade survey in Turkey, commodities were broadly allocated to just a few categories. This makes it very difficult to add these data to the detailed commodity classification used for the customs data. **[input from Turkey needed]**

(c) Partner country - Below threshold trade for Intrastat is estimated by HS section and main partner countries. It is not always possible to identify partner countries in detail and some rest categories will need to be used at times.**[input from Germany needed]**

(d) Mode of Transport - For the Intrastat estimation it will not be possible to determine the mode of transport, since the estimates necessarily merge the modes of transport at the level of HS section by partner. An overall estimate could be made, if such information was requested.

(e) Valuation - The statistical value is made up of several components, which may not be available in some cases. For instance, **[text needed]**

(f) Quantity measurement - In all three examples of enterprise surveys, quantity information was not collected, or could not be kept at sufficient detail to be able to merge them with the customs data.

F. Integrated approach to economic statistics

7.12.   In designing integrated data collections, it has become an important objective to achieve consistency with statistics of the different industries and sectors. Standardisation of surveys and questions across the questionnaires of different industries contributes to consistency and facilitates the integrated statistical production process. Integration should be comprehensive and encompass survey design, sample frame, and questionnaire design. Survey design may need to compensate for a lack of willingness among data providers of business statistics programmes. Respondents are increasingly reluctant to complete the many separate survey requests sent to them each year through traditional survey questionnaires. A coordination modular approach through annual continuous data collection instruments with infra-annual collection rounds instead of separate specific purpose surveys has proven to reduce response burden and cost, in terms of human and financial resources. Consultation with business respondents before survey

and questionnaire design and updates is an essential requirement. The choice of the survey data collection method (mail, telephone, electronic, interview, etc.) would depend on the country's resources, preferences and characteristics. The use of a modular approach with an annual continuous survey instrument may be preferable to facilitate flexibility for updates and harmonization.

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Part II   Data compilation

Chapter 8 Data processing and database management

Scope. This chapter will describe data processing and data base management at customs and at the statistical agency responsible for the overall compilation of IMTS (the responsible agency). It will describe the characteristics, functions and differences of these systems, giving Asycuda and Eurotrace and/ or national systems as examples. Further, it will describe the data fields necessary for statistical purposes and how to obtain these data from the customs records.

Structure. The chapter might consist of the following sections:
(i)   Data processing and database management at Customs:
      a. Requirements for automation at customs;
      b. Characteristics of data processing at customs and its interface with ~~to~~ statistical data;
      c. Examples of automated systems at customs;
(ii)   Data processing and database management at the responsible agency:
      a. Characteristics of data processing, data flow and data transformations;
      b. Examples of data processing systems;
(iii) Data fields required for statistical purposes.

Chapter 8 Data processing and database management

8.1.   *Introduction.* This chapter will describe data processing and data base management at customs and at the statistical agency responsible for the overall compilation of IMTS (the responsible agency). It will describe the characteristics, functions and differences of these systems, giving ASYCUDA and Eurotrace and/ or national systems as examples. Further, it will describe the data fields necessary for statistical purposes and how to obtain these data from the customs records.

A. Data processing and database management at Customs

1. Requirements for automation at customs

8.2.   *Need for automation at customs.* Customs administrations around the world are facing the challenging tasks of simultaneously providing protection of society and fighting trans-national organized crime (enforcement), the facilitation of trade, the generation of revenue as well as providing trade statistics.[29] To support national customs administrations in increase their efficiency and effectiveness the World Customs Organization develops and provides standards and guidelines (instruments) for the customs operations, many of which call for and deal with the automation of procedures and processes. Customs administrations that are contracting parties to such instruments enter into an obligation to comply with those standards.

8.3.   *Revised Kyoto Convention.* The WCO Council adopted the revised Kyoto Convention in June 1999 as the blueprint for modern and efficient Customs procedures in the 21st century. The General Annex to the revised Convention recommends the following principles that a modern Customs Administration should implement: Standard, simplified procedures, Continuous development and improvement of Customs control techniques, Maximum use of information technology and Partnership approach between Customs and Trade. Among the key elements within the revised Kyoto Convention to be applied by modern Customs administrations is the maximum use of automated systems. The revised Kyoto Convention entered into force on February 3, 2006.[30]

8.4.   *Single window environment.* The establishment of the Single Window Environment for border control procedures as recommended by United Nations Centre for Trade Facilitation and Electronic Business (UN/CEFACT) is considered by Customs Administrations as the solution

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29 The WCO's main instrument to facilitate the collection, comparison and analysis of statistics is the International Convention on the Harmonized Commodity Description and Coding System, popularly known as the Harmonized System or the "HS", which provides for the systematic and uniform classification of goods. With 138 Contracting Parties to date, the HS Convention is one of the most successful instruments developed by the WCO with its international goods nomenclature now being used by more than 200 countries, territories, and Customs or Economic Unions as a basis for the collection of trade statistics. Under the Convention, Contracting Parties are obliged to make their import and export trade statistics publicly available in conformity with the six-digit Harmonized System codes or beyond that level if they wish, thereby promoting a predictable global trading system. The WCO also recommends that its Member Customs administrations as well as Contracting Parties to the HS Convention report their import and export trade statistics to the UNSD as the world's premier depositary for global statistics (see ..).
30 See KYOTO 2000, The International Convention on the Simplification and Harmonization of Customs procedures (Revised) - Pathway to Efficiency and Effectiveness in the Customs Environment.

for the complex problems of border automation and information management involving multiple Cross Border Regulatory Agencies. Single Window means that trade related information and/or documents need only be submitted once at a single entry point and that this information is shared across governmental systems. An important element in the establishment of a single window is the harmonization of data requirements and formats.

8.5. *WCO Data Model*. There is a realization from Governments and Customs administrations that the increasing demand for free and secure trade in particular in an e-commerce environment require data standardization in order for governments to accomplish their missions. The WCO Customs Data Model provides a maximum framework of standard and harmonized sets of data and standard electronic messages to be submitted by trade for Customs and other regulatory purposes to accomplish formalities for the arrival, departure, transit and clearance of goods in international cross-border trade. Standardized data sets and electronic messages using international code standards are key for effective and efficient exchange and sharing of information between businesses and government. The Customs Data Model has aligned export and import data requirements and created a single electronic structure. This enables a more effective exchange of information between export and import and allows export information to being reused at import. The WCO Customs Data Model also includes data requirements of other governmental regulatory authorities enabling a single window environment allowing the traders to submit information only once to a single official body, preferably Customs, to fulfil all regulatory requirements related to an import or and export. (http://www.mincomes.it/semproitalia/tavolo_strategico/8_documenti/WCO/Documenti/WCO_F actSheet_CustomDataModel.pdf)

8.6. *Seamless integrated data pipeline*. The above initiatives for the automation at customs are addressed to countries. However, the information sharing and the information requirements need to viewed and analyzed not only from national but also from international perspective as, by definition, trade transactions extend over multiple countries. The agent or trader completing the customs declaration might have only partial information about the underlying transaction, the logistics and earlier or subsequent transactions. This situation has a negative impact on the quality of information provided by trade statistics as, for example, users would prefer to obtain partner information for exports in terms of final and not only in terms of the last known destination that is frequently provided. Experts call for the construction and establishment of a web-based, seamless, electronic data pipeline linking the seller/ consignor and the buyer/consignee and the interested economic operators in-between which is the goal of the European Community funded Cassandra pilot project.[31] Besides the technical solution also an adequate international legal framework has to be established to ensure the accuracy of the data. It is expected that statistics would gain in terms of quality, timeliness and availability of data. However, it is pointed out that, it would require trade statisticians to identify the real data requirements, get involved in customs developments and pursue a combined data legislative framework for customs and statistics.[32]

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[31]David Hesketh and Sandra Tudor, Trade Statistics Data Gathering – A Concept for the Future, paper provided to the Global Forum on Trade Statistics, 2-4 February 2011, Geneva, Switzerland.
[32]David Hesketh and Sandra Tudor, Trade Statistics Data Gathering – A Concept for the Future, paper provided to the Global Forum on Trade Statistics, 2-4 February 2011, Geneva, Switzerland, pp. 9-10.

2. Characteristics of data processing at customs

8.7.   *Technical characteristics of data processing at customs.* The characteristics of data processing at customs are electronic submission of customs declarations (and/ or provision of paper declarations) plus the provision of additional documentation at geographically disperse locations, the application of uniform but complex processing procedures leading to the clearance of the goods and the sharing of information with the parties involved. These tasks are greatly facilitated by the establishment of a single window environment which provides the benchmark for modern data management at customs. The implementation of a Single Window generally entails the harmonization and alignment of the relevant trade documents and data sets.

8.8.   *Models of Single Window.*[33]There are three basic models for the Single Window:

(a) A Single Authority that receives information, either on paper or electronically, disseminates this information to all relevant governmental authorities, and co-ordinates controls to prevent undue hindrance in the logistical chain. For example, in the Swedish Single Window, Customs performs selected tasks on behalf of some authorities (primarily for the National Tax Administration (import VAT), Statistics Sweden (trade statistics), the Swedish Board of Agriculture and the national Board of Trade (import licensing)).

(b) A Single Automated System for the collection and dissemination of information (either public or private) that integrates the electronic collection, use, and dissemination (and storage) of data related to trade that crosses the border. For example, the United States has established a program that allows traders to submit standard data only once and the system processes and distributes the data to the agencies that have an interest in the transaction. There are various possibilities:

   i.   Integrated System: Data is processed through the system;

   ii.   Interfaced System (decentralized): Data is sent to the agency for processing;

   iii.   A combination of i and ii.

(c) An automated Information Transaction System through which a trader can submit electronic trade declarations to the various authorities for processing and approval in a single application. In this approach, approvals are transmitted electronically from governmental authorities to the trader's computer. Such a system is in use in Singapore and Mauritius. Moreover, in the Singaporean system, fees, taxes and duties are computed automatically and deducted from the traders' bank accounts. When establishing such a system, consideration could be given to the use of a master dataset, which consists of specific identities, which are pre-identified and pre-validated in advance for all relevant transactions.

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[33] Economic Commission for Europe, United Nations Centre for Trade Facilitation and Electronic Business (UN/CEFACT), Recommendation and Guidelines on establishing a Single Window to enhance the efficient exchange of information between trade and government, Recommendation No. 33, pp. 6-8.

8.9.   *Technical infrastructure*. The electronic submission of customs declarations and the automation at customs requires the establishment of an adequate technical infrastructure for data transmission, data storage, data processing etc. Costs for hardware and software have declined significantly and also telecommunication technology has advanced in recent years. Nevertheless, the investment and human resources required to establish an adequate technical infrastructure for customs automation and the implementation of a single window environment are high and likely an obstacle for further automation in many countries.

3.   Examples of automated systems at customs and its interface with statistical data

8.10.   *Existing single widow in Sweden*. The present Swedish Single Window system, known as "The Virtual Customs Office" (VCO), allows the submission, by electronic means, of customs declarations and of applications for import and export licenses, for licenses for strategic products and for both the import and export licences. It can further be integrated into the business system of traders and can then automatically update changes in exchange rates, tariff codes and duty rates. Import and export declarations can be processed both via Internet and EDIFACT. The system currently involves the Swedish Customs (lead agency), the Swedish Board of Agriculture, the National Board of Trade, the National Inspectorate of Strategic Products, the Police, the National Tax Administration and Statistics Sweden.[34]

8.11.   *Customs modernization in the USA*. The International Trade Data System (ITDS) is a project to build an electronic "single-window" for reporting imports and exports to the government. Currently, traders must make redundant reports to multiple agencies (often on paper). ITDS will allow traders to make a single electronic report and the relevant data will be distributed to the appropriate agencies. Costs will be reduced for business and government. Agencies will obtain data more quickly, be able to process cargo more expeditiously, and be better able to identify unsafe, dangerous, or prohibited shipments. ITDS is not a separate computer system. ITDS functions are being built into the trade processing systems of U.S. Customs and Border Protection (CBP), as part of the ACE (Automated Commercial Environment) project.[35]

8.12.   *Philippines - electronic-to-mobile (e2m) Customs Project*. The e2m Customs Project is one of the mission-critical and high impact ICT projects of the national government. It seeks to streamline the Bureau of Customs (BOC)'s core processes (imports and exports) and improve trade facilitation between BOC and its stakeholders, including other government agencies through the development and integration of various systems allowing internet-enabled and later SMS-enabled, thus less face-to-face transactions, towards the realization of the National and ASEAN Single Window. Launched in January 2005, this project was financed through a multi-million grant from President Gloria Macapagal Arroyo's e – government fund, which was specifically created to finance strategic ICT projects of government agencies. This e-customs

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34Economic Commission for Europe, United Nations Centre for Trade Facilitation and Electronic Business (UN/CEFACT), Recommendation and Guidelines on establishing a Single Window to enhance the efficient exchange of information between trade and government, Recommendation No. 33, p. 19. Additional examples are provided on Mauritius, Netherlands and the USA.

35 Report to Congress on the International Trade Data System (ITDS), December 2010 (available at http://www.itds.gov).

system allows Customs officers and traders to handle most of their transactions from Customs declarations to cargo manifest and transit documents via the internet. It makes use of advanced technology including electronic signatures to provide government officials, specifically Customs administrators with new tools that will enable them to make dramatic improvements in security, trade efficiency and fight against corruption. E2m - Customs offers the following enhancements to the current system:

- Online submission of declarations;
- Automatic advice on declaration status;
- Engagement of Value Added Service Providers (VASPs);
- Online submission of manifests by airlines and shipping lines, including de/consolidators;
- Automated process for other types of import transactions such as informal (including passenger baggage system), warehousing and transshipment entries;
- Automated process of liquidation of raw materials;
- Centralized management of bonds transactions;
- Links with relevant government agencies;
- Online resource access through BOC website on issuances, processes, policies, guidelines and other related information.

8.13.   *Experience of Brazil* - SISCOMEX. Brazil process its foreign trade data through a computerized system (SISCOMEX) that collects and records in a single flow, information and procedures concerning foreign trade operations in Brazil. The collected data is reported by various governmental and private agents and standardized, creating a single document at the end of the process. All recorded information is stored in the system for retrieval by users at any time. The philosophy of SISCOMEX is based on:

- Harmonization of concepts, standardization of codes and nomenclatures;
- Elimination of controls and parallel systems of data collection;
- Simplification (and avoiding bureaucracy) of foreign trade operations;
- Generation of a single document at the end of the process;
- Preservation of the basic functions of managers and consenting;
- Reduced administrative costs for all involved in the system;
- Critical parameter data;
- Preparation of timely trade statistics.

The advantages of SISCOMEX are:

- Systematic on-line;
- Simplification and speeding-up the process;
- Information provided only once;
- Granting permits automatic;
- Ease of access / free from use of intermediaries;
- Reduce costs with dispatch and storage of documents;
- Available 24 hours a day, 7 days a week;
- Transparency of administrative controls;
- News SISCOMEX - timely information about changes in the administrative processing of Brazilian foreign trade;
- Enabling legal representatives made by the company itself, directly into the system;
- Security and integrity in processing operations.

8.14.   *Automated System for Customs Data (ASYCUDA).*ASYCUDA is a computerized customs management system that covers most foreign trade procedures. The system handles manifests and customs declarations, accounting procedures, and transit and suspense procedures. It generates trade data that can be used for statistical economic analysis. The ASYCUDA software is developed by UNCTAD in Geneva and operates on microcomputers in a client server environment. ASYCUDA is fully compliant with international codes and standards developed by ISO (International Organization for Standardization), WCO (World Customs Organization) and the United Nations. ASYCUDA can be configured to suit the national characteristics of individual Customs regimes, national tariffs and legislation. The system also provides for electronic data interchange (EDI) between traders and Customs using EDIFACT (Electronic Data Interchange for Administration, Commerce and Transport) rules. The most recent Web-based version of ASYCUDA will allow Customs administrators and traders to handle most of their transactions via the Internet. [36]

8.15.   *Interface to statistical data – example ASYCUDA.* Most statistics from ASYCUDA++ will be obtained through SQL, however a group of predefined statistical reports can be obtained which are produced on the server as either a server printout or file. 'SQL' or 'Structured Query Language' is used to create reports, or database extractions not covered by the standard reporting formats. The writing of SQL queries is a task that requires specialist technical skills. Additionally, access to the database to run SQL queries is normally restricted, for both security and performance reasons. ASYCUDA++ has a data extraction interface for EUROTRACE[37], which allows for the extraction of declaration and reference data from the ASYCUDA database into a format compatible with EUROTRACE.[38]Work is currently (as of July 2011) underway to add in ASYCUDA a statistics data extraction module that complies, to the extent possible, with the requirements of IMTS 2010 (see table 8.1), specifically for international reporting in detailed trade statistics. A pre-defined data extraction module will facilitate the trade data flow from Customs to compilers.

B. Data processing and database management at the responsible agency

1.   Characteristics of data processing, data flow and data transformations

8.16.   *Characteristics of data processing at the responsible agency*: The statistical processing of merchandise trade data involves, compared with other statistical areas relative large amounts of relatively simple structured data (datasets). These data are in general obtained from customs

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[36]ECONOMIC COMMISSION FOR EUROPE, United Nations Centre for Trade Facilitation and Electronic Business (UN/CEFACT), Recommendation and Guidelines on establishing a Single Window to enhance the efficient exchange of information between trade and government, Recommendation No. 33, pp. 31-32.
[37]EUROTRACE is a computer system that manages external trade statistics, allowing input of declaration and reference data into a number of different "statistical databanks". These data banks are used to pull together figures to provide statistics on foreign trade, transport, financial details and taxes.
[38]For user and technical details please refer to the documents - ASYCUDA++ EUROTRACE data extraction interface, User manual v1.0 and ASYCUDA++ EUROTRACE data extraction interface, Technical manual v1.0. The Central Statistical Office, Ministry of Planning, Economic and Social Restructuring and Gender Affairs, Trinidad and Tobago provides an example of data extraction from ASYCUDA to Eurotrace (see http://www.cso.gov.tt/news/Pages/EUROTRACETradeStatistics.aspx).

declaration and received from customs. Further characteristics are the use of extensive and usually automated quality checking procedures, the need to provide data in a timely manner and in various forms and the intensive use of information technology which frequently requires IT resources specifically dedicated to trade statistics. Particular challenges for the statistical data processing can arise when revisions or corrections need to be coordinated and agreed between customs and the responsible agency. A further potential difficulty is the incorporation of data from other sources as those data for example, might not follow the required standard format.

8.17. *Data transformations*. The following data transformations are often executed at the responsible agency: suppression or removal of certain information (due to confidentiality or quality), correction of existing data and supplementation of existing data via estimation or other means (i.e. if certain characteristics are not provided).

8.18. *The role of customs.* Custom declarations are the main and usually preferred data source for merchandise trade statistics. Customs authorities are not only providing this information to the responsible agency but have a very strong influence on the quality of the information provided (see chapter 9 for details, in particular para. 9.5 on data processing and validation). In this context, it is critical that Customs is working with the traders or brokers that enter the information to ensure that the data required for statistical purposes is adequately captured in the customs declarations. At the same time the responsible agency needs to make customs aware of these requirements (see chapter 5 for details).

2. Examples of data processing systems at the responsible agency

8.19. *Eurotrace software – data processing software for external trade statistics*. The Eurotrace software, distributed free of charge by Eurostat and implemented in many developing countries[39], allows to import and manage the data necessary to the development of the external trade statistics (in particular the customs data), to treat these data, in particular by carrying out quality controls and the application of standards and to work out and calculate a certain number of aggregates, in particular indices of the Foreign Trade and to export them for dissemination and publication. Eurotrace consists of the following separate applications that work together, the Eurotrace DBMS, the Eurotrace Data Editor and the Comext Standalone Data Browser.

8.20. *Eurotrace applied inTrinidad and Tobago*.[40]The Central Statistical Office (CSO) of the Republic of Trinidad and Tobago has developed a EUROTRACE application that has transformed its trade statistics data dissemination. As a result of the implementation of the EUROTRACE Trade Statistics application the time taken to respond to a wide array of ad hoc data requests from international, regional and local data users has been significantly

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[39]Eurotrace is implemented by many African countries but it is also is some member countries of Asia and the Caribbean, supported by Eurostat as part of the European Community's development cooperation in Africa, the Caribbean and Pacific (ACP) (see http://circa.europa.eu/irc/dsis/eurotracegroup/info/data/en/users.html).

[40] The subsequent information is directly taken and derived from the following document: EUROTRACE Applied to Trinidad and Tobago Trade Statistics - OVERVIEW DOCUMENT, Central Statistical Office, Ministry of Planning, Economic and Social Restructuring and Gender Affairs, Trinidad and Tobago, October 12, 2010.

reduced.[41]Further improvements depend largely on the implementation of ASYCUDA at customs which would replace the current system of manual data capture based on copies of declaration forms. The proposed future data flow will be greatly simplified and will consist of data reception from ASYCUDA, importation to Eurotrace, validation in Eurotrace, upload of validated data and data extraction/direct data download via the Comext Browser.

C. Data fields required for statistical purposes

8.21. *Minimum requirements.* The statistical information needs require the provision of the data fields shown in table 8.1

Table 8.1Required data fields

Field Name	Recommended Field Content
Reference Year	Gregorian calendar January to December
Period	Annual, month or quarter
Trade Flow	Imports, re-imports, exports and re-exports
Commodity Code	According to the Harmonized System (HS) at the most detailed commodity level available (6-digit HS)
Partner country or area	In national nomenclature; country of origin for imports and country of last known destination for exports
Value	In national currency or US dollars; CIF for imports and FOB for exports
Net weight	In kilograms
Supplementary Quantity	In the WCO recommended standard units of quantity
Supplementary Quantity Unit	WCO recommended units for HS headings
New data fields following the adoption of IMTS 2010 (include if already available)[a]	
Second partner country or area	In national nomenclature; country of consignment for imports and country of consignment (destination) for exports
Second value for imports**	In national currency or US dollars; FOB for imports
Mode of transport	The means of transport used when goods enter or leave the economic territory in the encouraged nomenclature provided in IMTS 2010, para. 7.2 or national nomenclature
Custom procedure code (or applicable transaction code)*	Code of the customs procedure applied to individual transactions by customs; any applied procedure or transaction code if customs procedure codes are not available or if additional codes are used

* This information is requested to obtain additional information about trade transactions for statistical purposes such as re-exports , reimports, goods for processing and intra-firm trade. However, national practices in the use of customs procedures vary considerable and in might not always possible to derive the desired information.
** According to IMTS 2010, para 4.9 countries that compile only CIF-type value for imported goods are encouraged to compile separate data for freight and insurance, at the most detailed commodity and partner level possible. This would apply respectively to countries that compile only FOB-type values.

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[41]Further information on the management, technical requirements, lessons learned during implementation and possible future improvements is provided in the above cited document as well as in a following document: Technical Brief, 2nd Regional Award for Innovation in Statistics, EUROTRACE Applied to Trinidad and Tobago Trade Statistics, Central Statistical Office, Ministry of Planning, Economic and Social Restructuring and Gender Affairs, Trinidad and Tobago, August 20, 2010.
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8.22.   *Experience of the Philippines*. The Bureau of Customs provides the national statistical office with an electronic copy of the data obtained from customs documents and generated using the electronic system which is in use since 1996. The information items contained in the extracted data files shall contain the following variables:

- For export, this will include Customs control number, Country of origin, Commodity description, Gross weight (in kilogram), Quantity, Preferential treatment, FOB value, Insurance cost, freight cost, Local port of unloading, Local port of destination, Importer's TIN, Feeder/Direct carrier's name, Type of handling/packing, and Registry number.
- For Import, this will include Customs control number, Country of destination, Commodity description, Gross weight (in kilogram), Quantity, Preferential treatment, Value of imported raw materials, FOB value, Insurance cost, Freight cost, Local port of loading, Local port of origin, Exporter's TIN, Feeder/Direct carrier's name, Type of handling/packing, and Registry number.

8.23.   *Information required to complete a goods declaration*.The information normally required in declaration forms and relevant for compilation of trade statistics (either for inclusion into statistics or for verification purposes) includes the ones shown in table 8.2.

Table 8.2
Information required to complete a goods declaration*

- *Port of import/export*: the port at which the goods actually enter or leave the customs territory of a country;
- *Date of importation/exportation*: for imports, the date on which the carrier transporting the goods arrives at the customs territory; for exports, the date of departure or date of clearance;
- *Date of lodgement*: the date on which the customs accepts the declarations submitted by importers, exporters or their agent;
- *Importer/exporter*: in general, refers to the party in the customs territory who signed the contract of purchase/sale and/or who is responsible for executing the contract (i.e., the agent responsible for effecting import into or export from a country). Each importer or exporter is usually assigned a unique identification number;53
- *Nature of transaction* (e.g., purchase/sale, processing, barter, lease, gift);
- *Mode of transportation*: the type of carrier which transports the goods into or out of the customs territory (e.g., sea and water, rail, road (truck), air, postal, other);54
- *Carrier identification*: the name and the voyage/flight/wagon/vehicle number of the carrier actually transporting the goods into or out of the customs territory;
- *Bill of lading/airway bill*: the importing or exporting carrier's bill of lading, airway bill number, rail receipt number, post office number;
- *Consignee/consignor*: the party to whom goods are consigned/the party who consigns the goods;
- *Country of consignment*: the country from which goods were dispatched to the importing country (to which goods were dispatched from the exporting country), without any commercial transactions or other operations which change the legal status of the goods taking place in any intermediate country;
- *Customs procedure (regime)*: the type of customs procedure under which imported or exported goods are cleared from customs;
- *License number*: validated import or export license number, for goods subject to import or export license;
- *Related party transaction* (i.e., one between parent company or sister company);55
- *Location of domestic consumer/producer*: Location of domestic consumer refers to the location in the customs territory for which imported goods are destined or where they will be ultimately consumed or utilized. Location of domestic producer refers to the location in the customs territory where the exported

goods are produced, manufactured or from which the goods actually start their journey to the port of export, if the origin of production is unknown;

- *Port of loading/destination*: "port of loading" means the last foreign port where the imported goods were loaded on the carrier that brought them to the compiling country; "port of destination" means the ultimate foreign port to which the exported goods will be designated;
- *Terms of delivery*: the transaction terms of delivery is required to be reported, usually INCOTERMS 2000;
- *Freight*: the freight charges;
- *Insurance*: the insurance charges;
- *Unit value*: the price actually paid for one unit (by quantity unit) of the given commodity when sold for exportation to the compiling country or purchased for importation from it, or the cost of one unit of the commodity if not sold or purchased;
- *Total value*: the price actually paid for all units (by quantity unit) of the given commodity (multiply unit price by quantity), or the cost of the commodity if not sold or purchased;
- *Customs value*: the value of goods established in accordance with the customs law of a country;
- *Type of financial transaction*: an indication of payment method;
- *Unit of account*: the currency in which the transaction occurs is required to be reported;
- *Statistical value*: the value assigned to goods by a compiler of trade statistics, according to the rules adopted by the compiling country;
- *Number and kind of packages*: the number and kinds of packages (bulk, boxes, barrels, baskets etc.);
- *Marks*: marks or other identification shown on the packages and the numbers and kinds of packages (boxes, barrels, baskets etc.);
- *Commodity code*: usually the HS-based code, where the first six digits are the HS codes and the others are national extensions;
- *Commodity description and specification*: a sufficient description of the commodity to permit verification of the classification code or the description and specification as shown on the validated import or export license;
- *Gross weight* (kg): the gross weight of shipments in kilograms, including the weight of moisture content, packings and containers (other than containers, such as cargo vans and similar substantial outer containers used for containerized cargo);
- *Net weight* (kg): the net shipping weight in kilograms, excluding the weight of packages or containers;
- *Domestic or foreign goods*: specification of whether the good is of domestic or foreign origin;
- *Quantity and quantity unit*: report the amount in terms of the unit(s) adopted by national legislation; in many cases, they are based on the standard units of quantity recommended by WCO. The unit of quantity specified in the transaction is also required to be reported if it is other than the customs standard units;
- *Country of origin*: as established in accordance with the country's rules of origin;
- *Country of destination (also called country of final or ultimate destination)*: the country in which the merchandise is to be consumed, further processed or manufactured; the final country of destination as known to the exporter at the time of shipment; or the country of ultimate destination as shown on the validated export license. Two- or three-digit (alpha character) International Organization for Standardization (ISO) codes or other codes may also be used.
- tariff preference, if any;
- state producer / importer;
- form of payment;
- the agent's commission;
- date of shipment or discharge.

* However, not all types of information are mandatory for many customs procedures.

Compilers Manual 2010

Part II   Data compilation

Chapter 9 Data quality: assurance, measurement and reporting

Scope. This chapter will provide an overview of quality assurance at customs and the responsible agency. Major quality issues will be identified and discussed, including issues related to the editing of data, the responsibilities of each agency and minimum requirements for data quality. Further it will describe the measurement of quality and the process of producing quality reports and provide examples and best practices.

Structure. The chapter might consist of the following sections:
(i)   Quality assurance:
       a.   An overview of the main elements of national quality assurance frameworks;
       b.   Quality assurance at customs;
       c.   Quality assurance at the responsible agency;
       d.   Major quality issues and how to approach them;
       e.   Country examples and best practices;
(ii)   Quality measurement and reporting:
       a.   Steps for producing data quality reports;
       b.   User-oriented quality reports – contents and examples;
       c.   Producer-oriented quality reports – contents and examples;
       d.   Measuring data quality;
(iii)   Inter-agency collaboration on data quality;
(iv)   Reconciliation studies, cross-country comparability and bilateral data exchanges.

Chapter 9 Data quality: assurance, measurement and reporting

9.1.   *Introduction.* This chapter will provide an overview of quality assurance at customs and the responsible agency. Major quality issues will be identified and discussed, including issues related to the editing of data, the responsibilities of each agency and minimum requirements for data quality. Further it will describe the measurement of quality and the process of producing quality reports and provide examples and best practices. Aspects of data quality are also discussed in chapter 5 Institutional arrangements (part G Institutional arrangements) and data quality and chapter 25 Metadata.

9.2.   *Quality management system.* Data quality assurance, measurement and reporting must be viewed as parts of a quality management system, often also called quality management framework (QMF). QMF often contain the following elements: (i) a quality policy which would indicate the commitment to quality management, (ii) a quality model which provides a definition of quality, often formulated in terms of its components, (iii) quality objectives, standards and guidelines, (iv) quality assurance procedures which are often part of the production process, (v) quality assessment procedures, (vi) quality measurement procedures and (vii) quality improvement procedures.[42]

A. Quality assurance

1. An overview of the main elements of national quality assurance frameworks

9.3.   *Systematic approach to quality assurance.* IMTS 2010 calls for a systematic approach to data quality. This means "[…] that all aspects of the entire trade statistics program be examined and evaluated against certain principles and standards in order to more effectively identify and implement appropriate action to further improve data quality."[43] Quality assurance as treated in part (i) of this chapter has a more narrow focus on data quality as it only takes a view on some specific considerations and actions commonly taken by customs and the compiling agency to assure the accuracy of the statistical information within the existing setting of data compilation.

9.4.   *Methodological soundness.* Quality assurance requires the adoption, awareness and enforcement of a conceptual framework for foreign trade statistics, preferable in line with the international recommendations. Considerations in respect to treatment of transactions in specific categories of goods (scope of trade statistics), of transactions destined or originating in certain territorial elements, their classification and valuation, quantity measurement and attribution of partner country are part of the daily work of customs officers and trade statistician and require the existence of a clear methodological framework. Any automated quality assurance and data validation is based on and derived from the conceptual framework adopted by a country.

9.5.   *Data processing and validation – types of checks and tools.* Statistical data processing requires the capture of individual trade transactions and creating of trade records, their validation and their integration into datasets encompassing all records of a specific period. The following validation checks are commonly used: completeness, validity of codes, range check of values,

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42 See Eurostat, ESS Handbook for Quality Reports, 2009 Edition, p. 15.
43 IMTS2010, para. 9.4.

internal consistency and aggregate consistency. Often, the estimation and insertion of missing values and codes is integrated into the completeness check. Tools for the validation include validation at data entry (in dialog), batch validation/ creation of error lists, generation of error statistics, flagging of significant transactions, classification of errors into must vs. possible errors and automated vs. manual error correction. The inclusion of information of additional sources of information would usually require manual corrections as this information is external to the system. In some offices manual corrections would always require that additional and/ or external sources are used (such as contacting the declarant). However in might not always be possible to obtain the additional information in the available time and manual corrections might be made with or without the use of such additional sources .

9.6.   *The information problem at data entry*. The starting point of statistical quality assurance is when the information is provided. This is usually when the customs declaration is completed as customs records are the main and normally preferred data source for merchandise trade statistics. Customs declarations itself are administrative records containing selected information about commercial (or non-commercial) transactions and the logistics of providing the goods from the seller to the buyer (or from the sender to the receiver). Usually, the information on the customs declaration is entered separately and not, for example, derived electronically from existing information and the ones completing the customs declarations (commonly the shipping agent or trader) might not have complete information about the transaction, the logistics and subsequent further transactions.

9.7.   *Data entry*. The most important stage for quality assurance for trade statistics is when the required information is entered into the customs declaration, as the agent or trade completing should have available all information to the best possible extend. Electronic data entry systems allow implementing comprehensive validation rules that can prevent certain types of typing errors, entry of invalid or implausible codes, entry of values outside a certain range, invalid or implausible combination of entries. The establishment and implementation of such rules requires significant knowledge and investment into the IT system. Also, the validation systems need to be carefully designed not to obstruct the entry of accurate information or to invite the 'gaming' and circumvention of the validation system, hereby leading to a deterioration of the data quality.

2.   Quality assurance at customs

9.8.   *Priorities*. Security and safety and the generation of revenue are the core functions of customs and must be seen as the prime objectives of data quality assurance at customs. Therefore, the customs information on imports is in many countries considered as being of higher quality than the data for exports. However, this traditional view is not an adequate description of the situation in many countries. Many customs offices have statistical units which are focusing on the quality of statistical information in a comprehensive way. Further, quality assurance, seen as a comprehensive concept and supported by the automation at customs is bound to improve quality for all parts of the data. The calls for an integrated data pipeline from the buyer to the seller (see para. above) shows that the singular emphasis on import information is misplaced, as in a possible future global customs system the information for export and imports are integrated and treated as the two sides of one transaction.

3. Quality assurance at the responsible agency

9.9.   *Characteristics*. The responsible agencies are expected to conduct a systematic quality assurance program covering all elements of the statistical information, using the full range of validation checks and tools as specified above and ensuring the timeliness of the information provided to users. A special focus is often given to the aggregated data and the final results that are compared with the ones from previous periods. However, often, special attention is also given to certain transaction that might be of particular importance or value, or might potentially outside of the scope of IMTS (i.e. repairs, ships and aircraft). Often, the responsible agency has or can gain access to the original record and its accompanying information at customs. In many ways the quality assurance depends on the data provision by customs, unless, of course, customs itself is the responsible agency.

4. Major quality issues and how to approach them

9.10.   *The major quality issues from user perspective:* Lack of coverage, asymmetries in partner information, the quality of quantity information and timeliness are often perceived as the major quality issues of merchandise trade data. The issues are raised but only briefly discussed as some country practices cited later on address some of these issues in more detail.

9.11.   *Coverage*. Some major coverage issues such as application of the special trade system or need for confidentiality of certain transactions are beyond the scope of the regular quality assurance at responsible agency. However, in many countries transaction in certain commodities such as oil, gas, electricity or raw materials, ships and aircraft are not or not adequately captured by customs or the responsible agency. In other countries border or shuttle trade are important but not fully recorded by the responsible agency. Possible approaches to these issues of coverage are to use additional data sources and if necessary and appropriate to address them with the relevant governmental authorities which for example can mandate that information is made available to statistical authorities.

9.12.   *Asymmetries in partner information*. Asymmetries in partner information can have several reasons (timeliness, classification, partner country attribution etc.) and many bilateral studies have been conducted to improve the data quality. However, an important factor in these asymmetries is the trading partner information which can be difficult to determine due to conceptual but also practical reasons,[44] in particular in the case of global value and supply chains. In order to improve the situation IMTS 2010 strengthened the recommendation to provide the country of consignment as second partner information not only for imports but also for exports. One way to examine and address these asymmetries is to conduct reconciliation studies (see part C)

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44 For imports it is recommended to record the country of origin. However, there is no uniform definition of country of origin. Further, it might become more difficult to determine the country of origin if a country belongs to a customs union, as more and more countries do. For exports it is recommended to record the county of last known destination, although the objective is to obtain the country of last or final destination. As indicated in para. XX above, the ones completing the customs declaration might not have full information about the previous or future transactions the goods have been and will be subjected to.

9.13.   *Quality of quantity information*. Users and producers of trade statistics agree in general that the quantity information (quantity and net weight if quantity in not net weight) is the weakest data element in the core dataset for trade statistics. In some countries the provision of quantity or net weight is not mandatory45 or often the information is not complete for other reasons. Information on the supplementary quantity is only international comparable when report by countries in a uniform way. However, often quantities are reported in units different than the one recommended by the WCO for that specific commodity. An important quality problem is further that the quantity or net weight might not be reported correctly, which might be difficult or impossible to detect. There are several possibilities of improving the quantity information. For example, as part of a standardized quality assurance procedure suspicious high quantity values can be identified and the data provider can be contacted to verify them and suspicious or missing quantities can be replaced with estimates based on the data provided by the same firm or other reporters. A further option is to use additional data sources such as shipping documents to verify the quantity information. Another possibility is to allow data providers to estimate missing information using empirical values or to allow the provision of supplementary quantities from which net weight can be derived using appropriate conversion factors. Whatever the method used it should be documented in the metadata made available to users.

9.14.   *Timeliness*. The relevance of trade statistics is greatly increased if the data is provided in a timely manner. However, in many countries the information is provided much later than suggested (see IMTS, para 10.3) requiring data users to make their own estimates. One way to improve the timeliness of information is to review the data production process in light of existing best practices and to publish preliminary data (see IMTS 2010, para. 10.8).

5.   Country examples and best practices

9.15.   *Effect of Mandatory Electronic Filing on Export Data – U.S.A. experience*.[46] Effective July 2, 2008, the U.S. Census Bureau (Census Bureau) began requiring mandatory filing of export information through the Automated Export System (AES) for all shipments where a Shipper's Export Declaration (SED) was required. The implementation of the regulations and subsequent move to an all automated data collection process had an overall positive impact on the quality, coverage, and timeliness of export data. These improvements have been achieved through more complete and timely data collection via the AES system, upfront validation checks of data, and reduced reporting and keying errors. Most errors involve missing or invalid commodity classification codes and missing or incorrect quantities or shipping weights. The AES contains on-line validation checks that immediately detect reporting errors and refer these errors back to the filer for correction before the data can be submitted which resulted in a significant decrease in reporting error rates on export transactions. The timeliness of the data eliminated also the need for estimation of data that was received too late. Risks associated with electronic filing include unresolved edit failures that could result in under coverageand estimations by filers. The AES Report Card provides a tool of monitoring of filers and hereby to identify further actions to improve the quality.

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45 In the European Union's Intra- and Extrastat system it is not mandatory to provide net weight if the supplementary quantity is different from net weight.

46 The information presented is taken and derived from the following note "Effect of Mandatory Electronic Filing on Export Data",to aavailable at: http://www.census.gov/foreign-trade/aip/mandatoryelectronicfiling.html

9.16.   *Statistical quality assurance in the case of Brazil.* Brazil publishes its international merchandise trade statistics one day after the end of the reference period (monthly and weekly) and the principal cause of this is the Preventive Depuration Methodology used in the Computerized System named SISCOMEX used in Brazil. SISCOMEX is more than a custom system; it is an integrated computerized system which involves custom, commercial and foreign exchange information.[47]Annex 9.1 explains its mains functions.

9.17.   *ASYCUDA Data quality assurance, measurement and reporting.* In any computer system the quality of the data entered for processing or storage is of paramount importance as wrong data can jeopardize the whole data processing and can provide incorrect results. In this regard, ASYCUDA insures the highest quality of the keyed in or imported data by performing several types of data validation and control. Some of them are set to be mandatory and others are configurable (to be mandatory or stay optional) depending on specific needs and national circumstances. The following types of data validation and control are integrated into ASYCUDA: 1. Existence controls, 2. Data format controls, 3. Referential and validity controls and 4. Consistency controls; in addition, ASYCUDA provides a statistical reporting module that can also be used for validation purposes (see Annex 9.2 for details).

9.18.   *Harmonized framework for data validation – Eurostat.*[48]Eurostat proposed for its member states a harmonized framework for data validation in external trade statistics that covers the trade in goods between countries of the European Union (Intrastat) but also the trade of members countries with countries outside of the European Union (Extrastat). Regarding Extrastat the following is covered: Validation of the input data by the customs offices, validation of the input data by the competent national authorities (responsible statistical authority), validation of the output data by the competent national authorities and validation of the output data by Eurostat. The validation rules specify acceptable values for the different variables, the appropriate controls and checking rules, metadata, possible errors and actions in case of errors. The fields (or variables) of a record (single administrative document (SAD)) are checked whether the values (codes) comply with the permitted entries (i.e. 1: Imports and 2: Exports), whether the combination of values (codes) of two or more fields are permitted (i.e. commodity code against mode of transport), whether numerical values or combinations of numerical values

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47The government control of the Brazilian foreign trade is decentralized, consisting of three elements: commercial, customs and foreign exchange. The administrative (commercial) control consist in what can and what can not enter or leave the country and is the responsibility of the Secretariat of Foreign Trade (SECEX) of the Ministry of Development, Industry and Foreign Trade (MDIC) and other consenting agencies. The customs control covers the documents verification and examination of goods under the regular tax by the Brazilian customs (Ministry of Finance). The exchange control is performed by the Central Bank of Brazil on the delivery or receipt of foreign exchange related to goods imported and exported.
The control of Brazil's foreign trade executed by the managing and consenting agencies is accomplished through SISCOMEX, which is the administrative tool that integrates the activities of registration, monitoring and controlling foreign trade operations by a computerized single flow of information.
Exports are controlled by two registers in SISCOMEX: Export Registration (RE) and Credit Registration (RC). The RE is the "authorization to export" and must be requested before the goods are shipped abroad. The export processing begins with the RE and the provision of commercial, financial, fiscal and exchange rate information.
Currently, the Brazilian agency responsible for producing statistical foreign trade (SECEX/DEPLA) becomes a consenting department responsible for the validation of specific fields of the Export Registration.
48 Eurostat, Proposal for a harmonized framework for data validation in external trade statistics, 2010 version.

(i.e. statistical value against quantity expressed in net mass) are within a certain range and whether aggregated numerical values (i.e. aggregated statistical value by flow and commodity code) are within a certain range. These validations referring to individual SADs are expected to be performed via automated systems at customs while the responsible agency would perform at the input data stage only a few additional checks on the aggregated data. However, on the output data the responsible agency would perform similar validation checks of all output fields (sections) to ensure correct values. The output data validation at Eurostat would not repeat the previous checks but would mainly check for outliers, in particular as Eurostat would strive to harmonize settings (calibration) of validation limits and thresholds for automatic correction in the validation rules for numerical fields (variables). The harmonized framework contains an Annex which presents in summary the statistical methods proposed for the validation and correction of numerical variables, as well as the methodological procedure to be followed for the editing of combinations of categorical variables.

9.19. *Validation rules of the Eurotrace DBMS*.[49] The Eurotrace DBMS allows the definition of validation rules to control and maintain the quality of data within a dataset. The rules are established as so called 'tests' and usually take the form of combinations of logical or numerical queries ranging from simple to complex. The test language that is supported by Eurotrace is Microsoft Access Jet engine format SQL. The validation rules are based on the concept that a record is made up of codes and values. The codes can be checked against 'dictionary' lists of valid codes while values can be validated against ranges of acceptable values. A very simple check would consist of verifying if a record has important values missing. However, much more complex tests can be defined and various tools for doing so are provided. A set of tests (called algorithm) can be applied when importing data into a dataset from a file, when exporting data out to the Eurotrace editor and when importing data back into a dataset from the Eurotrace editor after an editing session. Errors are best corrected by using the Eurotrace Editor program which has been designed to edit Eurotrace data easily.[50]

B. Quality measurement and reporting

1. Steps and guidelines for producing data quality reports

9.20. *Steps to be considered*. Some information about data quality is available in all offices and its compilation often provides the starting for a quality report or is already considered to be a quality report. However, the following considerations (or steps) that are suggested for the production of a data quality report for merchandise trade statistics appear also relevant when a quality report already exists but is reviewed:

(a) Collection and review of existing standards, guidelines, requirements, practices and examples within the same office (for past quality reports or quality reports of other units) or other offices within the same country or in other countries, including regional and international organizations, as appropriate, in order to ensure that standards and best practices are followed;

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49 See European Commission, Eurotrace DBMS, Version 2.2., User Guide, 2003, p. 220-275.
50 See European Commission, Eurotrace Editor, User Guide, 2003.

(b) Discussion and decision on the scope, type and frequency of the quality report under consideration of the purpose and available resources;

(c) Assembly of team and allocation of resources;

(d) Elaboration and discussion of the detailed structure of the quality report;

(e) Compilation of the required information: quality assessment and measurement;

(f) Drafting of report;

(g) Review of report;

(h) Dissemination and communication.

9.21. *Guidelines for the production of quality reports in the ESS*. Within the European Statistical System very strong efforts have been undertaken to develop a concept of quality and to implement it in a comprehensive way. A central achievement was the adoption of the European Statistics Code of Practice which provides a broad conceptual framework for viewing quality and sets standards for the institutional environment, statistical processes and statistical outputs. The ***ESS Standard for Quality Reports*** issued by the Statistical Office of the European Communities (Eurostat) provides recommendations for preparing comprehensive quality reports for the full range of statistical processes and their outputs. The ***ESS Handbook for Quality Reports*** provides much more detailed guidelines and examples of quality reporting practices.

9.22. The specific objectives of the ESS guidelines are (i) to promote harmonised quality reporting across statistical processes and their outputs within acountry and hence to facilitate comparisons across processes and outputs, (ii) to promote harmonised quality reporting for similar statistical processes and outputs across countries and hence to facilitate comparisons across countries; and (iii) to ensure that reports include all the information required to facilitate identification of statistical process and output quality problems and potential improvements.

9.23. The guidelines are organised by statistical output and process quality components, with the primary section headings being:
1. Introduction to the statistical process and its outputs – an overview to provide context;
2. Relevance – an output quality component;
3. Accuracy – an output quality component;
4. Timeliness and punctuality – output quality components;
5. Accessibility and clarity – output quality components;
6. Coherence and comparability – output quality components;
7. Trade-offs between output quality components;
8. Assessment of user needs and perceptions – covering all aspects of output quality;
9. Performance, cost and respondent burden – process quality components;
10. Confidentiality, transparency and security – process quality components;
11. Conclusions – summary of principal quality problems and proposed improvements.

9.24.   The ESS standard quality reports are producer-oriented as they have been primarily designed to assist EU Member States in internal self-assessment and reporting to Eurostat. Nevertheless, as considerable emphasis is put on output quality, they include as well all the information necessary for user-oriented quality reporting.

2.   User-oriented quality reports – contents and examples

9.25.   *Characteristics*. User oriented quality reports are keeping users informed about the methodology of the statistical process and the quality of statistical output. Many statistical agencies have adopted principles and standards for data quality and a data quality assessment framework that outlines the different dimensions of quality and their measurement. The quality assessment framework provides a general layout for the quality report; however, not all dimensions are equally relevant for users. User oriented quality reports are often provided on an ongoing basis as part of the metadata provided to users and are updated regularly.

9.26.   *Quality report Germany*.[51] The quality report for the foreign trade statistics of Germany consists of the following parts: 1. General information about the statistics such as name of statistics, reporting period, subject, respondents, legal framework and confidentiality; 2. Purpose as defined by data variables, justification and users; 3. Compilation methods, describing how the data is obtained and burden on respondents; 4. Accuracy describing coverage, customs and statistical threshold and estimations and revisions; 5 Timeliness; 6. Comparability with data of others and over time; 7. Coherency, describing the relationship to related statistics and 8. References to additional information.

9.27.   *A Quality Profile – U.S. Merchandise Trade Statistics*.[52]This report provides information on the quality of the statistical program, and is intended to aid data users in their understanding and appropriate use of the data. It addresses issues affecting the quality of statistics, and some known limitations. For example, undocumented export shipments were identified through comparisons with trade data of major trading partners, audits of trade documentation, and other measures. Implementing the data exchange with Canada and mandatory electronic filing has reduced these errors and improved data coverage.

9.28.   *Eurostat - Quality Report on International Trade Statistics*: This report provides the users with quality indicators and information regarding the EU Member States' practices. It summarizes the main outcomes of the national quality reports the Member States have to supply to Eurostat each year within a fixed deadline. Its structure and contents follow the ESS guidelines for quality reports.

9.29.   *European Statistical System - Euro SDMX Metadata Structure*. Applicable within the European Statistical System, the Euro SDMX Metadata Structure (ESMS) contains the description of statistical metadata concepts for documenting statistical data and for assessing data quality and the production process in general. With regard to its data quality components, the

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51 The information is derived from the following publication: Qualitaetsberich Aussenhandel, January 2011, Statistisches Bundesamt, Wiesbaden 2011.
52 The information is derived from the following publication: U.S. Merchandise Trade Statistics - A Quality Profile, U.S. Census Bureau, Washington 2002.

ESMS follow the quality criteria in line with the European Statistical Law: Relevance, Accuracy, Timeliness, Punctuality, Comparability, Coherence, Accessibility and Clarity. Special attention is given to a set of Quality and Performance Indicators aiming at quantifying the various quality criteria and at providing a common standard across the ESS. The ESMS documentation should accompany Eurostat's and the EU Member States' data dissemination.

9.30.   *IMF's SDDS on merchandise trade*.[53]Countries that subscribe to the IMF's Special Data Dissemination Standard (SDDS) make a commitment to observe the standard and to provide information about their data and data dissemination practices - metadata - to be provided on the IMF's Dissemination Standards Bulletin Board (DSBB). One of the areas covered is merchandise trade statistics. The SDDS metadata are available in two presentations, the current SDDS format and the Data Quality Assessment Framework (DQAF) format which covers six dimensions: 0. Prerequisites of Quality; 1. Assurances of integrity; 2. Methodological soundness; 3. Accuracy and reliability; 4. Serviceability; 5. Accessibility. The International Monetary Fund (IMF/Fund)'s SDDS was established to guide members that have, or that might seek, access to international capital markets in the provision of their economic and financial data to the public. To date, there have been 68 subscriptions to the SDDS.

3.   Producer-oriented quality reports – contents and examples

9.31.   *Characteristics*. Producer oriented quality reports aim at identifying strengths and weaknesses of the statistical process and leading to or containing the definition of quality improvement actions. Producer oriented quality reports can be motivated by internal interest or externally mandated. They can take the form of, for example, internal review, benchmarking (comparison with others) and audits. By their nature, producer oriented quality reports are often produced for particular reasons, such as a specific external requirement or to deal with specific issues or problems.

9.32.   *Individual assessment report of EU member states*.[54]An assessment is prepared annually by Eurostat for all EU member states based on their responses to a quality report. The assessment is structured according to the following quality dimensions: relevance, accuracy, timeliness and punctuality, accessibility and clarity, comparability and coherence, some of which are further subdivided. Under each of these dimensions a set of items is listed with the specification of the requirements. For example, under accuracy – coverage the item 'statistical threshold in value' is listed which should be below or equal to Euro 1,000 in value and 1,000 kg in net mass. If the item is a legal requirement it is evaluated according to a four point rating scheme which ranges from 1: Serious persistent infringement to 4: Compliance. If the item refers to a recommendation the assessment can be A: fully applied, B; partially applied and C: not applied. Some items are not evaluated if they are not or not yet requirements. The overall goal of this assessment is to achieve quality improvements.

9.33.   *Mission reports of international and regional organizations*. International or regional organizations can be requested by countries to conduct an assessment of the statistical programme in a particular area such as merchandise trade. Such requests have often the purpose

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53 See http://dsbb.imf.org/Pages/SDDS/Home.aspx.
54 European Commission – Eurostat, United Kingdom – 2009 Individual assessment report, final version.

to create guidance and impetus to address institutional or general data compilation issues and will focus on these particular areas. In other cases assessments have been conducted as parts of technical assistance activities which aim at the overall application of the international recommendations for merchandise trade statistics and accordingly focused on these aspects. As it concerns the United Nations Statistics Divisions such assessments were always provided on the basis of the concepts and definitions for international merchandise trade statistics. The updated recommendations (IMTS 2010) provide a much better basis for such assessments as, different from the previous recommendations, the entire data compilation process is covered.

4.   Measuring data quality

9.34.   *Use of quality measures and indicators*. The measurement of quality of any statistical data, including international merchandise trade statistics data, is not a simple task. Problems arise from the difficulties involved in quantifying the levels of individual dimensions and in aggregating the levels of all dimensions. Under these circumstances, deriving a single quantitative measure of quality is not possible. In the absence of such a single measure, countries are encouraged to use a system of quality measures and indicators (IMTS 2010, para. 9.13).

9.35.   *Quality measures and indicators.* Quality measures directly reflect a particular aspect of quality. For example, the time lag from the end of the reference period to the release of particular international merchandise trade statistics is a direct quality measure. However, in practice, quality measures can be difficult or costly to calculate. Instead, quality indicators may be used for the quality assessment. Quality indicators provide summarized quantitative or qualitative evidence about the quality of the data. They are generally defined with respect to some reference point and can assist in making different types of comparisons. (IMTS 2010, paras. 9.14-9.15).

9.36.   *Methods and tools for measuring data quality.* Methods for quality measurement are documentation/ reporting, the calculation of indicators, auditing procedures, self-assessment or questioning the users. [To be further elaborated]

9.37.   *Information on quality measurement – United Kingdom*: The following metadata on quality is provided to users of the United Kingdom's trade statistics: 1. Quality Standards against which the quality is measures and 2. Assessment (including self assessment) against some of these quality standards including (a)quantitative assessment against indicators for the six output quality dimensions, (b) qualitative assessment of our methods and adherence to EU legislation and (c) channels for and results of post-publication quality assurance.

C. Reconciliation studies, cross-country comparability and bilateral data exchanges

9.38.   *Goals of reconciliation studies*. Reconciliation studies provide an explanation of the discrepancy between the import and export statistics of trading partners by identifying conceptual reasons for them and explaining differences in data collection and processing. Sometimes it is assumed that exports of country A to country B should be equal to imports of country B from country A; this is theoretically possible only if both countries compile data using a special set of methodological principles and if no mistakes are made in the process. However, these are necessary but not sufficient conditions – there are several reasons why data will not

match (see paragraph below). A short-term aim of reconciliation studies may be limited to the identification of major differences in the statistics of the two countries. However, the reconciliation process may reveal systematic measurement errors and gaps, which should be corrected immediately. On a larger scale, the aim may include assessing the causes of differences and making adjustments to various data components. The longer-term objective can be viewed as the harmonization of the conceptual framework of two sets of statistics, which could lead to the revision of certain procedures and definitions and, in some cases, could suggest the use of alternative data sources, all of which is expected to improve the overall quality of foreign trade data. The results of reconciliation can help each partner to better understand bilateral trade flows. At the policy level, a reconciliation exercise will portray a common perception of the facts and thus might facilitate the development of bilateral economic negotiations and international cooperation.

9.39.   *Limitations of the reconciled data.* The reconciled data do not represent any change to the officially published trade figures of either partner country. Reconciliation adjustments normally include a series of estimates which are not sufficiently precise to permit modifications to officially published data. For example, many countries' import data are valued at CIF prices, that is, including insurance and freight charges, which must be removed during reconciliation since the partner country's exports are usually valued on an FOB basis; however, estimates of insurance and freight charges are usually derived indirectly and do not necessarily reflect their true amount.

9.40.   *Basic procedures.* In general, reconciliation may include the following activities: (*a*) setting the objectives for the project and reaching agreement on basic procedures; (*b*) establishing a common conceptual framework for reconciliation purposes; (*c*) conversion of official published data to the common framework; (*d*) examination of the differences in data; (*e*) making necessary data adjustments to achieve mutually agreed sets of trade figures; and (*f*) formulation of conclusions of the reconciliation study. An individual study could be limited to the activities described in (*a*), (*b*) and (*c*) above. It is advised that a reconciliation study cover trade for a full year, and that a reconciliation table that identifies all additions and subtractions which need to be performed in order for the trade data of one partner to appear the same as the trade reported by the other be prepared as one of the outputs.

9.41.   *Cooperation between trading partners.* The success of reconciliation is dependent on the full cooperation of trading partners from the very beginning and on clear identification of procedures to be followed at all stages of the process, from the initial exchange of the required information to the mutual agreement on the final results. The agencies conducting the reconciliation study should examine not only the various organizational aspects of the proposed study but also its legal implications (for example, in certain cases an exchange of data at the level of transactions may involve an issue of confidentiality). At the beginning of a reconciliation exercise, both parties have to agree on which data should be used as the benchmark for a specific category of goods. (For example, in the past, import data were normally used as a benchmark for the comparison of most commodities since, in general, those data were considered to be of better quality than export data because imports are reported in sufficient detail to allow customs to apply duties, taxes or other regulatory controls. However, for certain commodities and in some countries, export data was viewed to be more accurate for the same reasons.)

9.42.   *A common conceptual framework and conversion of data to that framework*. Establishing the common conceptual framework involves an exchange and comparison of methodologies and compiling practices, and adopting the same definitions and classifications for use in the reconciliation study. Issues to be considered at this stage are: what are the major conceptual differences; whether information is available on country of origin/last known destination or other basis; whether there are significant differences in compilation procedures (such as for the suppression of confidentiality or low-value trade) that will affect bilateral comparability; and whether there are certain transactions (such as processing trade) for which there are streamlined reporting provisions that could affect comparability, among others. The common framework serves as a practical working tool to facilitate comparison of data between the two countries; it does not replace official methodologies of the countries involved. The partners must also decide on such issues as the working currency for the study, and whether currency conversion should be done on a monthly or an annual basis (if exchange rates are fluctuating significantly, annual conversion could create additional discrepancies).

9.43.   *Reasons for differences in data.* Even where both partners comply with United Nations guidelines for trade statistics, there can be differences between partner data. In fact, some of the discrepancies are a direct result of following those guidelines. In order to identify conceptual reasons for discrepancies the following areas should be reviewed: (a) coverage; (b) trade system applied; (c) time of recording; (d) interpretation and application of the commodity classification; (e) valuation; (f) partner country attribution; and (g) other sources of discrepancy. The trading partner attribution is considered in terms of value the most frequent and most important reason for asymmetries, such as in the case of trade between the U.S. and China (see below for details). Other reasons for discrepancies on total trade and detailed trade level relate to the valuation of goods (imports valued CIF and exports FOB; treatment of taxes and duties, markups after export, currency conversion etc.), the timing of recording, coverage (geographic coverage, different treatment of trade in special categories of goods, thresholds, underreporting of transactions above threshold), classification and confidentiality. Some of these reasons are based on conceptual differences, however many are not. For a detailed discussion of these data items please see Annex 9.3.

9.44.   *Methods and approaches for reconciliations studies – reference materials*. The conduct of a bilateral reconciliation study requires an agreement of the two partner countries that usually would specify the responsible or involved national agencies, the purpose, the scope, years covered, the methodology used and any other arrangements that are required for the conduct of the study such as the sharing of data and information. Reconciliation studies are conducted by many countries[55] and below we provide a few examples:[56]
- United States and China – Report on the statistical discrepancy of Merchandise Trade: Both countries established a statistical working group to examine the bilateral merchandise trade due to the unusually large and growing statistical discrepancy in the data officially published by both countries. The years 2000, 2004 and 2006 were

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55 In a questionnaire by UNSD in 2006 almost half of the countries that responded indicated that they had conducted a bilateral or multilateral reconciliation studies with their trading partners or do you plan to conduct such studies in the near future (see http://unstats.un.org/unsd/tradereport/introduction_MM.asp).
56 UNSD will establish a reference website for materials on the topic of reconciliation.

examined. The working group concentrated on analyzing trade moving from China to the United States due to larger discrepancies in this direction. They separated data between trade moving directly from China to the United States and indirectly through intermediary countries, and identified causes that explained the majority of the bilateral statistical discrepancies.[57].

- Sweden and Denmark – asymmetry exchange project: The goal of this project is to reduce the asymmetries in the trade data of both countries. The available documentation provides useful information on how to conduct such project (i.e. a draft agreement between Statistics Sweden and Statistics Denmark) and illustrates the problems that arise from concerns over confidentiality which is itself a major contributor to asymmetries on the disaggregated commodity level. The work on asymmetries at Statistics Sweden entails examination of data at the enterprise level.[58]

- European Union: Eurostat, together with the member states has been and is undertaking major efforts in examining asymmetries in the intra-EU trade flows. Reconciliation exercises are regularly carried out with the aim to identify the asymmetry causes and to reconcile the mirror figures wherever possible..

- Brazil experience: In Brazil the statistical harmonization (reconciliation) of trade data has two objectives: (i) improve the quality of statistical data for national purposes and (ii) submit to the trade negotiators figures that are accepted by both countries. For further details, see Annex 9.4

9.45.   *Cross-country comparability*. Cross-country comparability is an important quality dimension and the basic working assumption when comparing data from two or more countries. To a large degree it depends to what extend the international concepts and definitions for trade statistics are applied by countries and the impact on the data of any deviations. The UNSD has conducted multiple studies in which countries were asked about their compliance with the international recommendations. Further, it is recommended that countries inform in their metadata about their practices and any deviations from the international standards.[59]

9.46.   *Bilateral data exchange – example USA-Canada*. As outcome of bilateral reconciliation studies between the United States and Canada both countries agreed to derive their exports statistics from the partner countries statistics on imports. The agreement was implemented January 1990 and both countries consequently eliminated the requirements for filing export documents for goods destined to the other. From United States perspective this eliminated undocumented shipments to Canada, improved the accuracy of the data and increased the inclusion of data in the correct statistical month. The data exchange was implemented when both partners primarily used paper export declarations. The benefits may not be as great where export declarations are collected electronically[60]

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57 Report on the Statistical Discrepancy of Merchandise Trade between the United States and China, Ministry of Commerce of the People's Republic of China, U.S. Department of Commerce, Office of the U.S. Trade Representative, October 2009. Additional research has been conducted, see: Reconciling Trade Statistics from China, Hong Kong and Their Major Trading Partners - A Mathematical Programming Approach, Z. Wang, M. Gehlhar and S. Yao (GTAP Technical Paper No. 27), September 2007.
58Establish an asymmetry exchange project between Sweden and Denmark, in: Economic Statistics 2008:10, Statistics Sweden, 2008.
59 See IMTS 2010, para. 9.23 (a).
60U.S. Merchandise Trade Statistics - A Quality Profile.

D. Inter-agency collaboration on data quality

9.47.   *WTO Common data set*.[61]The CDS is a joint effort by Eurostat, OECD, UNSD, UNCTAD and WTO to reconcile their time series on merchandise trade statistics, using international standards as a benchmark. Each agency is in charge of supplying figures for a predefined set of reporting economies. Reconciliations, co-ordinated by WTO, consist of scrutinising significant differences between the agencies' data to determine the best value. In many instances, this results in finding an agreement on substitution values and estimates, with the objective for each participating agency to review and correct their own data. The CDS database gives access to statistics and documentation of both officially reported and reconciled series. It covers annual total merchandise export and import values of over 200 economies, whose series are updated annually and presented back to the year 1995.

9.48.   *Cooperation on methodology, data compilation and dissemination*. The international organizations active in the area of merchandise trade statistics are part of the Task Force on International Merchandise Trade Statistics (TF-IMTS) in which issues and developments on methodology and databases, including quality issues are discussed on regular basis. Members of this TF-IMTS regularly participate on the Expert-Group in IMTS which assists UNSD in the update of the international recommendations and this compilation guide. Further, OECD and UNSD implemented a coordinated collection of annual data which avoids duplication of efforts and ensures that both organizations use exactly the same data for OECD countries. However, both organizations went much further and agreed on the processing standards for annual trade statistics and implemented a joint processing system. All international organizations have full access to UNSD's UN Comtrade database which allows the use of exactly the same data by all organizations and which ensures that there is ongoing interest by international organizations that highest quality standards are followed and arising issues are addressed.

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61 See http://imts.wto.org/common_dataset_e.htm.

Annex 9.1: **Brazilian statistical depuration system** (Example for exports)

A9.1.   The statistical depuration system of Brazilian exports is applied at three different moments: (1) Preventive depuration – before the export register is actually accomplished; (2) continuously – during the operations (export registers with significant values and others criteria's); and (3) "A posterior" (Post Depuration) – after the exports operations are completed.

1.   Preventive depuration

A9.2.   The ultimate goal of the system is to validate specific fields of the Export Register that are of statistical concern, in order to achieve the highest possible level of accuracy in Brazilian statistics of foreign trade. To reach this goal, the system sets parameters for the following characteristics:

   (a) US$ FOB / kilogram relation by NCM code;

   (b) US$ FOB / statistical measure unit relation by NCM code.

A9.3.   These relations are set in accordance with the following rules: (i) It considers the number of occurrences; (ii) Eliminates peak and bottom distortions; (iii) Establishes middle values (by kilogram and statistical measure unit); (iv) Establishes maximum and minimum values (by kilogram and statistical measure unit); (v) Creates a table of parameters by merchandise (NCM – HS code).

A9.4.   Those tables of average parameters were created using a statistical model (number of occurrences, average prices, standard deviation and minimum and maximum) based on a period of not less than six months, which feeds the criticism (MIRC) of the SISCOMEX.

A9.5.   The FOB value in US$, the net weight in kilograms, and the quantity in the statistical unit are considered to calculate the average value of the parameters (the latter, for the cases of products that are sold in units different than kilograms). In order to avoid slowing operations or creating difficulties for the exporter, there is tolerance for minimum and maximum values: a) Minimum value tolerance: one decimal equivalence (-90%); b) Maximum value tolerance: one decimal equivalence (+900%).

A9.6.   Within these margins, the exporter is informed that there may be an error in his operation, but it does not stop it. Outside these margins, however, the Export Register is centralized for analysis by the appropriate department of our office (SECEX), which can communicate itself by system with the exporter, who will proceed to ratify or justify the data presented in his Export Register.

A9.7.   When the exporter inserts data in the SISCOMEX (Integrated System of Foreign Trade), this system analysis and compares them with the parameters of middle value (by merchandise), with the following possible occurrences in the preventive depuration:

   (a) Between the minimum and maximum parameters for the specific merchandise: operation pass through.
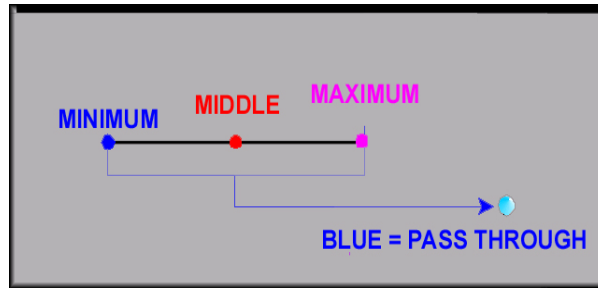
(b) Outside the minimum and maximum parameters for the specific merchandise, BUT within the tolerance margin: the system informs the exporter about the possibility of error, allowing him to rectify or confirm the informations. If he confirms it, the operation proceeds regularly and the Export Register is flagged for posterior analysis.
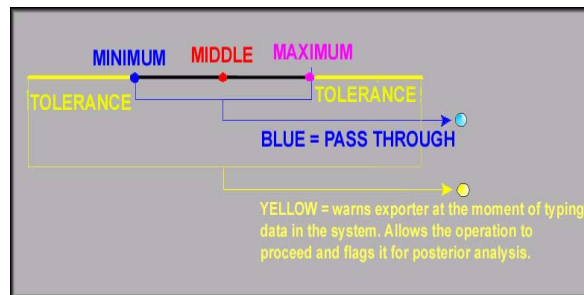
(c) Outside the minimum and maximum parameters for the specific merchandise AND out of the tolerance margin: the Export Register is centralized in SECEX (Foreign Trade Secretary) for analysis in 24 hours at the most. If it has errors, the exporter receives a message by system containing the instructions to solve them.
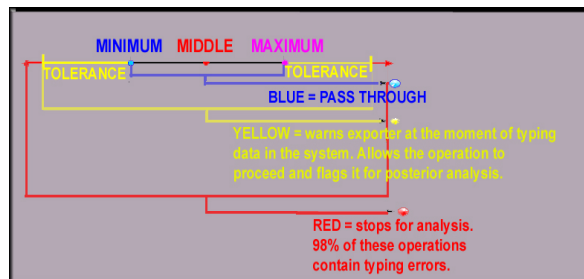
A9.8. The exporter may receive the following alert codes:

(a) M95 (inside tolerance – posterior analysis) or R95 (previous analysis) - Occurrence of low price related to quantity. Quantity may be higher than correct or value may be lower than correct.

(b) M96 (inside tolerance – posterior analysis) or R96 (previous analysis): – Occurrence of high price related to quantity. Quantity may be lower than correct or value may be higher than correct.

(c) M97 (inside tolerance – posterior analysis) or R97 (previous analysis) – Occurrence of low price related to net weight. Net weight may be higher than correct or value may be lower than correct.

(d) M98 (inside tolerance – posterior analysis) or R98 (previous analysis) – Occurrence of high price related to net weight. Net weight may be lower than correct or value may be higher than correct.

(e) M99 (posterior analysis only) – Operations with FOB value over one million dollars which receive check and confirmation of values.

A9.9.   Most causes for centralization of an Export Register for statistical analysis are errors in the following information: (i) Value (US$ FOB); (ii) Net weight (Kg); (iii) Quantities according to the statistical measure unit; (iv) Merchandise code (NCM – HS); (v) Currency; (vi) INCOTERM.

A9.10. The analysis of the centralized RE follows the methodology below:

(a) In an analysis of centralized RE for statistical verification, it should be considered a series of possibilities and variables, and the analyst have always to be in hand the framework of the operation table and the table of average parameters. The basic methodology is comparative.

(b) Most of errors happens on filling the fields of values and quantities (kg net weight and quantity in the statistical unit), with the wrong shift of the decimal point, provided, in most cases, by the U.S. punctuation criteria adopted by the Bank Central of Brazil (decimal point and comma for separating thousands).

A9.11. The following fields should be checked in sequence:

(a) *Framework*: The identification of the frame's operation contributes to the solution of some cases, especially those with very low average price, like used material operations.

(b) *Incoterms*: Most Incoterms in exports is Free On Board (FOB). When it is different, depending on the Incoterm type, can mean higher or lower price. Anyway, the system reports the value and unit price at the loading place.

(c) *Value (place of shipment and / or operation):* This problem may occur in typing (decimal).

(d) *Currency code:* Incorrect reporting can occur. For example, an export to Italy, all values are in euros and the exporter used the dollar code.

(e) *Classification of goods (NCM = MERCOSUR Common Nomenclature, composed by SH-6 more two additional digits):* Some cases are caused by the wrong classification of the product, i.e., all information is correct, only that the NCM code was entered wrong. As the parameter table is directly related to the NCM, the criticism ends up being made of another product other than the exporter actually want to export.

(f) *Net weight in kg:* The field net weight in kg is responsible for most errors, caused by the displacement of the decimal point. In some cases, the exporter repeats the same number of quantity, although sometimes it is not equal to the net weight in kilograms.

(g) *Quantity in the statistical unit:* In most of the NCM's, these fields do not require completion in order that the statistical unit is kg. The error that occurs with some frequency is the same field above, i.e., typing error by moving the decimal place or repeats the same field number of net weight in kg, even when it comes to another drive other than weight.

A9.12. More than 99% of centralized registers have typing errors and are approximately 1% of twenty thousand daily operations for exports (more or less two hundred a day).

2. Continuous depuration

A9.13. Executed using management reports including the main daily operations. It uses as criteria a significant value principle.

A9.14. Executed by means of partial comparative statistics.

3. Post depuration

A9.15. Executed after the conclusion of the export operation (shipment), according with depuration reports such as:

(a) Comparison between the main statistical unit (kilogram) with the second standard sales;

(b) Checking the relation merchandise / country for past periods.

(c) Analysis of the Export Registers flagged by yellow and red occurrences.

Annex 9.2:   ASYCUDA Data quality assurance, measurement and reporting – Controls and reports

1. Existence controls

A9.16. This type of controls checks whether the data element that has been declared as mandatory is really entered. A data element can be declared as mandatory by programming or through the configuration module. The configuration module allows the ASYCUDA user countries to adapt the data capture of any document to their specific requirements and circumstances (e.g. a data element could be declared as mandatory in the Country A while it is prohibited in Country B).

2. Data Format controls

A9.17. This type of controls verifies that the format of the entered data element corresponds to the format that has been declared during the implementation (e.g. the data element must be a numeric with three decimals, or a date format). ASYCUDA supports various data formats (or data types): numeric (with or without decimals), characters and date.

3. Referential and validity controls

A9.18. It verifies whether the data element is correct according to the reference tableto which it is related. This means that the data element must exists in the reference table and is valid according to the defined time period (date of validity).The simple example is the list of (partner) countries, which also includes its validity.

A9.19. There are more than 40 reference tables exist, some of them are the following (this list is not exhaustive): Importers or Exporters, Declarants, Countries, Customs Procedure Codes, Terms of Delivery (INCOTERMS), Places of loading /discharge, Terms of Payments, Mode of Transport, etc.

A9.20. Additional information: the Customs Integrated Tariff is a particular and complex reference table allowing the check of the Customs commodity code and other related elements (e.g. quantity units associated with a specific tariff).

4. Consistency controls

A9.21. This validation makes sure that:

(a) The use of several data elements is consistent depending from the content of one or more control tables. This means that a specific data element must not be only valid per se (as in the above paragraph) but also in combination of one data element controlled in another table (e.g. the mode of transport at border must not only exist in the table of the modes of transports it must also be authorized for the declared Customs office of entry /exit).

(b) The existence of a specific data element is depending from the value of the other data element (e.g. the quantity unit "number of items" is not mandatory in all cases but if requested by the tariff commodity code then it becomes mandatory)

In addition,

5. ASYCUDA statistical reports

A9.22. In addition to the checks explained above (which focuses during data entry), ASYCUDA also provides statistical reporting module. These reports are intended to provide a summary or overview in a specific time period; however they can also be used as validation purposes. As an example, see below the summary report by commodities:

Commodity code	Import			Export		
	Quantity (in kilos)	CIF Value (national currency)	Number of stat. units	Quantity (in kilos)	FOB Value (national currency)	Number of stat. units

Annex 9.3:   Detailed discussion of data items that affect statistical discrepancies between countries and further guidance

A9.23. *Coverage*. Specific goods or types of transactions may be defined differently, and may be included in trade statistics by one partner but excluded by the other (e.g., leased goods, military goods, goods imported or exported for or after repair). Countries usually have different provisions for treatment of low-value shipments, which may be excluded from statistics, reported in less detail or estimated instead of compiled.

A9.24. *Trade systems*. If one partner uses the special system of trade and the other the general system, goods moving between premises for customs warehousing and customs free zones of those countries will not be accounted for by the country using the special system. Where both countries use the special system of trade, goods moving between customs free zones will not be recorded by any country and will not affect their export and import totals. To facilitate reconciliation, countries should clearly define their statistical territories, specifying any particular inclusions and exclusions. For example, Puerto Rico and the United States Virgin Islands are part of the statistical territory of the United States; therefore, exports to/imports from those territories should be recorded as trade with the United States in any reconciliation study involving the United States.

A9.25. *Timing of recording*. Many factors contribute to timing differences, including the bringing of shipments to the point from which the international carrier will depart; warehousing while waiting for international transport; arriving at the point of destination; warehousing while waiting to clear customs formalities; and the filing and recording of various documents at different stages and having them recorded on the basis of different conventions. For example, in one country the trade flow may be attributed to the time period in which the invoice is received in the importing country, while another country may attribute the transaction to the time period in which the amounts owed to the customs administration are paid. As a result, a given import may be recorded as having occurred in a different month/year from the corresponding export.

A9.26. There may also be differences resulting from reporting practices in the two countries, such as the deadline for reporting statistical information, the use of summary reporting, the definition of the reporting period and the procedures for handling late or incorrect records. Such timing differences can be significant, particularly in the case of monthly data or where the level of trade in a given commodity has changed extensively (so that effects of timing differences between the study period and the preceding and succeeding periods are not equivalent).

A9.27. *Interpretation and application of the commodity classification*. All trading countries have adopted the Harmonized System for commodity classification. Despite that significant achievement there are differences in interpreting and applying HS, both within the same country and among different countries. In order to reconcile trade in particular commodities, an analysis of uniformity of the HS application is very much advisable. Differences and errors in classification normally affect only the distribution of the goods among different classes; however, they may sometimes lead to differences in total trade. The reasons for this include the use of different threshold values for various commodities so that, depending on where a particular commodity is classified, it may or may not be included in the statistics.

A9.28. *Valuation*. Since exports are normally recorded on an FOB basis and imports on a CIF basis, CIF imports would exceed the counterpart export value by the value of international insurance and freight charges even if there were no other sources of difference. Where such charges have been included, a negative adjustment is made to remove them, for comparison to FOB export values. If the actual freight charges are not known, estimates may be derived from unit value differences or other approaches, such as the application of general CIF/FOB ratios. The determination of the customs value of imported goods is regulated by the WTO Agreement on Valuation. IMTS 2010, para 4.4 recommends that countries adopt the WTO Agreement on Customs Valuation as the basis for valuation of their international merchandise trade for statistical purposes (whether a country is a WTO member or not) for both imports and exports.

A9.29. There can also be specific reasons for valuation differences. In such cases as charitable/relief shipments, barter trade or related party transactions, since products are not actually bought and sold their value in export and import records can be estimated differently. The valuation of commodities which have a high service component (e.g., computer software or repair transactions) may vary considerably and requires a detailed knowledge of the partner country's practices to develop compensating adjustments.

A9.30. Currency conversion practices may also cause discrepancies between one country's import value and the counterpart export value, particularly when the exchange rate between the partners fluctuates rapidly. The use of differing procedures by the customs services for converting the values of goods invoiced in foreign currencies, as well as the procedures used in the reconciliation for expressing both sets of statistics in the same currency for comparison purposes, can also create discrepancies.

A9.31. *Partner country attribution*. Attribution of imports to the country of origin and exports to the country of last known destination can explain many significant differences between the statistics of trading partners in cases when goods move from the country of origin to the country of destination via third countries. Suppose goods were produced in country A, sold and shipped to country B and afterwards resold and dispatched to country C. In such a case, the trade statistics of country B will show exports to country C, but statistics of country C will not attribute its imports to country B; they will indicate that goods were imported from country A.

A9.32. If countries have different rules of origin, the trade flows will be differently recorded also. Consider the following example. Goods are produced in country C, imported by country A, undergo certain processing and are exported to country B. If countries A and B have different rules of origin, the processed goods dispatched from country A to country B may be considered (in country A) as a domestic export to country B but as an import from country C in country B (if the rules of origin adopted by country B do not recognize that processing in country A as origin-conferring). The reverse situation may arise if country A does not consider processing as origin-conferring and does not include those goods in its exports (e.g., it may treat them as goods for temporary admission and dispatch) while country B treats the same processing as a substantial transformation and records such goods as imports from country A. Those examples illustrate the necessity of developing harmonized rules of origin.

A9.33. *Partner attribution in the case of re-exports and re-imports*. Consider the case of goods originating in country A, exported, and returning to country A from country B without being substantially transformed while abroad. Some countries record such goods as re-imports from country B, while others treat them as imports from themselves. In the latter case, there would be a discrepancy between exports of country B to country A, which would include those goods, and imports of country A from country B, which would not.

A9.34. *"Through trade" operations*. With the lowering of tariffs, "through trade" operations are increasingly taking place. That is, goods are exported from country A to country B but are shipped through country C. Instead of being declared in transit, they are declared for home use in country C and then re-exported to country B. If the exporter in country A has properly reported the country of final destination (country B), such a practice will create a discrepancy between the export data of country A and the import data of country C, as well as in the export data of country C and the import data of country B. As more and more tariffs are reduced or eliminated, that reason for discrepancy in trade statistics is likely to increase.

A9.35. In some cases, the country of destination may not be known at the time of export. For some products shipped by vessel, such as petroleum and some chemicals, the ship may sail before the goods are sold and be directed to the final destination en route. In reconciliation, those kinds of transactions should be identified and the trade flows followed through with exporters to identify final destination.

A9.36. *Other sources of discrepancy*. A considerable discrepancy between import and export statistics may exist since import documentation is normally more complete than export documentation. Differences in data-collection procedures may also noticeably contribute to data divergences (e.g., export statistics compiled using sampling techniques might be quite different from imports data derived from customs records). Reporting errors may in some instances seriously affect the comparability of data sets as well.

A9.37. *Adjustments to data to achieve mutually agreed sets of trade figures*. The preparation of analytical tabulations comparing import and export data for various groupings and at various levels of details helps to identify and assess the disparities. Once the analytical tables are completed, a series of adjustments may be applied to align data as closely as possible. There are three broad categories of adjustment: (a) systematic adjustments affecting all products in a detectable way (e.g., inclusion of the cost of freight and insurance, and differences in timing); (b) known adjustments, which are needed at all times but are more difficult to track and may affect only selected commodities when countries record imports of special commodities separately and do not include them in regular official statistics (however, those amounts must be incorporated to balance the trade for the relevant commodity group; e.g., trade in military aircraft should be included in total trade in aircraft); and (c) irregular adjustments, that is, adjustments which may change over time (e.g., coding and processing errors). Adjustments may be based on supplementary information or derived by a series of estimates.

A9.38. Depending on the reconciliation methodology and procedures agreed upon, adjustments are applied at either high-level aggregates or detailed product levels. Adjustments at high-level aggregates include adjustments for differences in commodity coverage and trade system

definition; varying procedures of valuation, insurance and freight, and timing; and under-reporting; country definition; indirect trade, re-exports and re-imports. In some cases, it may be necessary to investigate discrepancies in transaction level data and make use of information supplied by declarants, trade associations and other government agencies or obtained by means of special investigations.139 Classification adjustments may also be applicable, especially if items shown in chapters 98 and 99 of HS are not included in the total trade. In such cases, they should be distributed at least to the chapter level and investigated for possible reclassification and inclusion. There may be cases where discrepancies are identified but remain unresolved because it is difficult to establish which data are more reliable for adjustment purposes without involving unreasonable amounts of time and resources. Depending upon the information available, it may or may not be possible to estimate the effect of every identified difference and agree on an appropriate adjustment. Difficulties in the preparation of adjustments may lead to further reconciliation activities, such as analysis of the differences at a more detailed commodity level and calculation of the residual adjustment (referred to as "other") by subtracting the adjusted export value from the agreed-upon adjusted import value.

A9.39. *Conclusions of the reconciliation study*. The partners must decide at what point to consider the study to be "done". They must also decide how to present the results— whether to compute a "reconciled" value for each direction of trade or simply to present an explanation of why the two data sets differ. The reconciliation study may be concluded by a summary statement of its major results and a set of annexes detailing specific findings. It is unlikely that all significant discrepancies can be resolved. Although reconciliations between partner countries are usually unique for each set of countries, common kinds of major adjustments have typically been applied to arrive at reconciled trade flows (see annex 9.4 below for a description of the United States–Canadian–Mexican experience).

Annex 9.4:   Experience of Brazil

A9.40. Beyond quantifying and explaining the causes of the divergences such studies can also be used by the statistics agencies to correct procedures and interpretation errors. For example goods classification and coverage can be adjusted by the statistics agencies based on the results of such studies while some divergences are more difficult to resolve, i.e. the ones resulting from the time of registration and partner country attribution if the final destination cannot be known. Brazil considers such studies as a good tool to improve data quality.

A9.41. In the experience of Brazil, divergences can be caused by differences in coverage, different methods for the treatment of certain goods (e.g. military goods, ship's stores, confidential data), value increases in intermediary countries, differences in classification of goods, time lags in reporting, differences in valuation, including CIF/FOB differences, currency conversion, methods of partner country attribution, and trade via third country intermediaries. Although such divergences may be substantially reduced by the adoption of the concepts and definitions recommended in the IMTS 2010 Rev.3, they may also originate from variations in data sources, reporting errors, errors in data collection or in the processing and forwarding of results, the use of fraudulent documents or the inability of traders to furnish accurate information. Therfore a certain amount of non-comparability will remain.

A9.42. Based on the IMTS guidance, Brazil has been developing statistical harmonization of data with its trading partners within the scope of bilateral negotiations which usually aim to deepen bilateral trade and investments. In Brazil the statistical harmonization (reconciliation) of trade data has two objectives: (i) improve the quality of statistical data for national purposes (ii) submit to the negotiators figures that are accepted by both countries.

A9.43. Brazil has participated in Statistical Harmonization Groups with several countries, all with the goal to discover the causes of the numerous discrepancies, to recommend actions to correct them through the application of homogeneous and more compatible methodologies.

A9.44. When trade negotiations start Brazil proposes to include in the agenda the theme of statistical harmonization. If the partner country accepts its inclusion, Brazil presents an initial proposal for discussion between the parties.

A9.45. This proposal includes the establishment of a Working Group on Statistic Harmonization (WGSH) composed by specialists responsible for statistical production in both countries in order to enable the exchange of data and the analysis of existing divergences. In some cases Brazil also propose exchange information on methods of quality control on those data and their ways of dissemination.

A9.46. At the first meeting, the experts from both countries establish the work methodology and define the data to be exchanged for further bilateral analysis. This meeting is also useful to agree the lay out of the files, the agenda and the schedule for exchanging data, in order to complete a statistical harmonization between the two countries or, at least, to identify the causes of differences and propose solutions to reduce them.

A9.47. Initially, data are exchanged for the past three years and the months of the current year available. Later, the analysis would be complemented with remaining month's data. Those data are available at the greatest possible detail and they are presented at monthly frequency.

A9.48. To facilitate the exchange data, the Foreign Trade Secretariat (MDIC/SECEX) creates mechanisms for the electronic transfer of data in structured text file (via File Transfer Protocol - FTP) and also creates access for the representatives of the partner country to upload and download files. The files are generated in ASCII format (structured text), according to the agreed lay out. After the initial exchange of files, the following monthly data are exchanged until the 20th day of the following month.

A9.49. Normally, more than two meetings are necessary. At the second meeting, the focus is on the analysis of the flows that presents the biggest divergences, and at the third meeting, the study is completed with the analysis of the other flow and a document is prepared by both countries with their conclusions.

A9.50. Some aspects are considered important and are part of the Brazilian proposal, as following.

A9.51. The exchanged data between Brazil and its trading partner shall be used only for the purposes of the WGSH and are not transferred to other entities or government agencies. The inclusion of the countries data, in parts or integrally, in their publications intended for later circulation requires the prior written consent of the other party and an appropriate reference in the text of the publication. Confidential data are not exchanged.

A9.52. To enable a comprehensive bilateral analysis of statistical data on foreign trade, the parties exchange information about the methodology for processing these data adopted by each country. The statistical reconciliation demands the adoption of the same methodologies for the generation of data, with the exclusion of those which, for operational reasons, can not be adopted by the parties.

A9.53. To make the job of the WGSH easier, is also part of the Brazilian proposal considerations about the methodological concepts of IMTS 2010 Rev.3 and how interprets them.

A9.54. If the two partner countries adopt the UN recommendations (IMTS 2010 Rev.3) in the production of their statistics, the concepts and definitions which may have more than one interpretation are prioritized for the bilateral analysis of data divergence. Indeed, some of the discrepancies result from different uses of these recommendations, based on different interpretations.

A9.55. The content of the files always consider the following variables:
- Reporting country (BRA or USA)
- Trade (exp or imp)
- Year
- Month

- Country Code UN ISO A3(exp. = last known country of destination, imp. = origin country)
- Consignment country Code UN ISO A3 (imports only)
- Good code (SH-6 or SH-8)
- Statistic measure unit code
- Statistic measure unit quantity
- Kg net
- US$ FOB
- US$ insurance (only for import)
- US$ freight (only for import)

A9.56. Normally, Brazil adopts the following lay-out for the files. The variables fields can be alphanumeric, but the value fields (quantity, FOB, freight and insurance) are only number (15 size).

EXPORTS

Field	Content	First column	Last column	Numbers of characters	Type*
1	Informer country code	1	2	2	A
2	Type of commerce code	3	3	1	A
3	Year	4	7	4	N
4	Month	8	9	2	N
5	Code of the destination country	10	12	3	A
6	Code of goods	13	20	8	N
7	Unit of statistical measurement code	21	22	2	N
8	Quantity of statistical measurement	23	37	15	N
9	Net weight (kg)	38	52	15	N
10	FOB value (US$)	53	67	15	N

Type: N = Numeric A = Alphanumeric

IMPORTS

Field	Content	First column	Last column	Numbers of characters	Type*
1	Informer country code	1	2	2	A
2	Type of commerce code	3	3	1	A
3	Year	4	7	4	N
4	Month	8	9	2	N
5	Origin country code	10	12	3	A
6	Consignment Country code	13	15	3	A
7	Goods classification code (SH-6)	16	23	8	N
8	Unit of statistical measurement code	24	25	2	N
9	Quantity of statistical measurement	26	40	15	N
10	Net weight (kg)	41	55	15	N
11	FOB value (US$)	56	70	15	N
12	Freight value (US$)	71	85	15	N
13	Insurance value (US$)	86	100	15	N

Type: N = Numeric A = Alphanumeric

A9.57. To identify the differences and their causes, the WGSH usually follows the steps below.

Step 1 - The data is analyzed with the greatest possible detail (ideal for each operation) of each country. Initially, it can be done at the level of HS-2 (chapters); considering always more than a year.

Step 2 - After identify the differences by HS-2, it is dropped to a greater detail (HS-4, or HS-6 or HS-8 if possible), even with differences in the tables of codes of goods.

Step 3 - Once the differences by item are identified, it is checked whether there are, in the same position (SH-4) or subheading (HS-6), reversed differences and, if so, whether they compensate each other. In this case, the problem would rely on the different classification of goods for the same group of products. Most countries have adopted the harmonized system of good classification created by the Custom World Organization. Even using the same classification, there are different interpretations and applications of the Harmonized System by different countries and that means compensation in general, and more divergences there are more greater the detail of the good. Moreover, WGSH checks if differences in tariffs may be leading companies to classify products in codes that represent payment of less tax.

Step 4 - It is examined whether there is compensation between data from different periods, between years and months. If there is, the problem is the time of registration, mainly on imports if these are the special trading system. Many factors may contribute to countries having different record of the timing of an operation, mainly as a result of the characteristics of the products traded, entrepôt of time, distance between countries and used type of transport, and even of different administrative and customs procedures, which may cause delay in releases of goods and consequently at different times of output. For example, in one exporter country, the record is done when the importing country "invoice" is received while in the import country the record is done at the time of the release of goods or customs costs are paid This may mean different months and even, depending on the time of year, different years. In Brazil, the timing of both export and import is the clearance of goods. In those cases, the WGSH evaluates the distance between the two countries, the predominant type of product and the more frequently used type of transport. Averages of differences of about 4% are considered normal.

Step 5 - Persisting differences, the WGSH examine if the divergences are of values or quantities. If the quantities are similar, there may be a problem of under-valuation or over-valuation of goods and it becomes a fiscal problem. In these cases, the WGSH checks the original records of each country relating to the same operations. It is common in intra-firms trade (transfer of resources from one subsidiary to another without paying the corresponding taxes). In this specific case, it is very important that the technicians who are making the harmonization have unrestricted access to all data of the operations of export and import, in sufficient detail to allow clear identification of the cause of divergence. If the values are similar, but the quantities not, there may be differences related the unit of statistical quantity adopt by each country. The use of different units for the same product generates

significant distortions and it is, in most cases, part of differences of quantities. This happens a lot in the cases of error or different classifications for the same product.

Step 6 - Other aspects to be considered by the WGSH are the effects of indirect trade and the criteria adopted for the registration of the partner country. The values and quantities of imports whose origin are not equal to the country of origin - except the known cases of free deposits that some countries have in other countries - must be excluded from the analysis. It is common when the analysis involve exports from China. And when the partner country is member of European Union, the Rotterdam Effect is examined, because always causes significant divergence.

Step 7 - When the compared data have not the same valuation, the WGSH checks the characteristic of the goods sold and the average cost of freight and insurance. Those aspects mean, in some cases, differences of over 100% when it comes to primary products (soybeans, iron ore, etc.). In the average of industrialized products, the costs of freight and insurance, representing the difference between FOB and CIF, it is between 8% and 10% of the cost of goods. To conciliate them it is necessary that both countries make available import and export data in FOB basis with more detailed possible (HS-6 or HS-8 if possible). In Brazil, the totality of foreign trade statistic is valued on FOB basis.

A9.58. There are other causes of divergences, like coverage, trade system and method of currency conversion, which must be examined according the IMTS 2010 Rev. 3 – Concepts and Definitions every time differences occurs. In this matter, special attention is given to some operations with products like energy, board consumption, airplanes, ships, etc, or when countries has special customs regimes in your territory.

A9.59. The most advanced WGSH already resulted in significant benefits for the quality of statistical produced in both countries. Some suggestions for correction are implemented immediately by the authorities themselves entrusted with the statistical production, such as issues related to coverage and valuation. Other questions have a fiscal nature, for example, differences in goods classification and under-invoicing not caused by methodological differences. In those cases, reports are sent to customs agencies identifying all problems found for each item in the customs nomenclature of the two countries to know the analysis of statistical data and take appropriate action.

A9.60. After the implementation of corrective measures, it is continued the exchange data and the statistical monitoring of bilateral trade, in order to verify if the cases of divergences identified before are reduced or enlarged.

Compilers Manual 2010

Part II   Data compilation

Chapter 10   Data compilation in the case of customs union

Scope. This chapter will briefly describe the variety of the existing customs unions concentrating on the implications for trade data collection and compilation. Good practices in organizing data collection mechanisms under various circumstances will be identified. Attention will be given to the cooperation of the member states to facilitate compilation of comparable and timely data on intra-union and extra-union trade and their dissemination. Also other multi-country non-Customs Union data exchanges will be covered.

*Structure.*The chapter might consist of several sections focusing on:
(i)   Description of main types of customs unions and their implications for trade data compilers;
a.   European Union: Customs unions as a single market;
b.   Customs unions of developing and transitional countries;
(ii)   Current challenges and good practices in the organization of data compilation;
(iii)   Longer term strategies;
(iv)   Good practices in other multi-country data exchanges.

Chapter 10   Data compilation in the case of customs union

10.1.   *Introduction*. This chapter describes briefly the variety of the existing customs unions concentrating on the implications for trade data collection and compilation. Good practices in organizing data collection mechanisms under various circumstances are identified. Attention is given to the cooperation of the member states to facilitate compilation of comparable and timely data on intra-union and extra-union trade and their dissemination. Also other multi-country non-Customs Union data exchanges are covered.

A. Description of main types of customs unions and their implications for trade data compilers

1.   European Union: Customs unions as a single market

10.2.   *From a tariff union to a single market*. The European Union started in 1968 as a tariff union that abolished all customs duties on trade between member States. The new export opportunities gave a boost to the economies of the member States. Between 1958 and 1972 intra-Community trade increased by a factor of nine, leading to market optimism and investment growth in the Community. However, free circulation of goods within the Community was still not a reality. Numerous customs border formalities were in existence. Before 1993, all trucks were still stopped at the internal Community borders for clearance and inspection.

10.3.   *Single market*. The European Union formally became a single market on 1 January 1993, when the physical frontiers and almost all customs checks at the internal borders were removed for the free movement of goods between member States. However, the abolishment of the physical barriers for the free movement of goods (and persons) is only one aspect of the establishment of a single market. Also technical barriers such as different product standards etc. and barriers related to taxation need to be addressed to establish a single market for goods and services. The single market of the European Union aims to establish and ensure the four basic freedoms: free circulation of goods, persons, services and capital in a frontier-free internal market.[62]

10.4.   *Need for new data source*s. The disappearance of customs records, a comprehensive and very closely controlled source of information made it necessary to implement new fiscal, statistical and other systems to control or document goods crossing the internal borders. This led to the creation of Intrastat.

10.5.   *Characteristics of Intrastat*.[63] From the outset, the main characteristics of the Intrastat system have been:

> (a) direct collection of information from consignees and consignors of goods, who have to send the relevant statistical authority a summary statement of transactions for each month;

62For more information please see Europe in 12 lessons, by Pascal Fontaine, October 2006, chapter 6 Single Market, available at: http://europa.eu/abc/12lessons/index_en.htm.
63 See …

(b) a close link with the VAT system relating to intra-EU trade; in particular the definition of providers of statistical information, the reference period and the value in the VAT system allow to verify the completeness of the data collected and to make adjustments for non-reported trade;

(c) a maximum reduction of the workload on businesses by means of a system of exemption or simplification thresholds.

10.6.   *Intrastat survey and the link with the VAT system*.Intrastat is not the same as a typical business survey in which data from a small fraction of the population of enterprises is collected. It is similar to a system based on administrative data, which collects nearly all relevant observations. Only a minor part of trade (in terms of value) is not collected by Intrastat. Specifically, Member States have implemented a threshold system that allows intra-Community traders not to report on their transactions or to provide less detailed information on condition that their total trade value does not exceed a certain amount during the previous or present calendar year. To assure sufficient coverage the exemption threshold set in each Member State has to guarantee that at least 97 per cent of a member State's total trade value (which is measured based on VAT declarations) is directly collected. The remaining part is estimated on the basis of values declared for fiscal purposes. The exempted 3 per cent in value consists of about 70-80 per cent of VAT registered traders in the European Union who trade between the member States.

10.7.   About half a million companies in Europe are obliged to provide information on intra-Community goods transactions. Each month they have to declare, for statistical purposes, their goods deliveries to and from other member States. The merchandise has to be specified according to a commodity classification that contains about 10,000 codes (Combined Nomenclature), and for each goods item the value and quantity information have to be provided. For all trade operators involved, Intrastat meant a lighter workload compared with the previous system (before 1993), but the introduction of Intrastat made the statistical reporting burden apparent. Therefore Intrastat has been subject to significant efforts to decrease the reporting burden for trade operators. Only a reduced data set (eight data elements) compared with customs data is now required for Community purposes, the threshold system was expanded to exempt a larger number of enterprises, the number of nomenclature headings was reduced, and several simplified reporting measures were introduced. In addition, the Community and its Member States invested in the development of modern electronic data collection and validation tools which facilitate considerably the reporting required for Intrastat.

10.8.   *Eurostat work program on data harmonization*. To ensure coordination in terms of content, time and method, Community statistics relating to the trading of goods between member States are based on European Union legislation. However, according to the principle of subsidiarity, the Intrastat legislation allows Member States to choose, to a large extent, their method of implementing Intrastat. The legislation is discussed with countries and countries have to provide their information to Eurostat according to thisrequirements which are also referred to as community concept.[64]The legislation also includes measures such as a regular quality

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64 In some instances the community concept diverges from the international recommendations. However, many member countries simultaneously compile their data according to the so called national concept which is usually more in line with the international recommendations. The principal differences between the Community concept and

reporting. Compilation and all other relevant issues are regularly discussed between Eurostat and the member countries. Based on these discussions Eurostat provides guidance on the overall compilation and specific compilation issues to its Member States.

10.9.   *Challenges of merchandise trade statistics in the European Union*. Trade statisticians within the European Union aim to gain additional information from existing data collections without any additional burden on respondents, especially aim to gain information relevant for the analyses of globalization. This is a challenge given the policy to minimize at the same time the burden on respondents.. A long running quality concern of the Intrastat system has been asymmetries in partner reporting. Regarding the compilation of extra-EU trade a main challenge is the implementation of a modernized customs code which among other things requires the implementation of central customs clearance (see below for more details).

2.   Customs unions of developing and transitional countries

10.10. *The Southern African Customs Union (SACU)[65]*. This customs union consists of Botswana, Lesotho, Namibia, South Africa, and Swaziland. The SACU Secretariat is located in Windhoek, Namibia. SACU was established in 1910, making it the world's oldest Customs Union. Historically SACU was administered by South Africa, through the 1910 and 1969 Agreements. The customs union collected duties on local production and customs duties on members' imports from outside SACU, and the resulting revenue was allocated to member countries in quarterly installments utilizing a revenue-sharing formula. Negotiations to reform the 1969 Agreement started in 1994, and a new agreement was signed in 2002. The new arrangement was ratified by SACU Heads of State. The Economic structure of the Union links the Member States by a single tariff and no customs duties between them. The Member States form a single customs territory in which tariffs and other barriers are eliminated on substantially all the trade between the Member States for products originating in these countries; and there is a common external tariff that applies to non members of SACU.

10.11. *Common Market for Eastern and Southern Africa (COMESA).* The objective of the cooperation in trade, customs and monetary affairs is to achieve a fully integrated, internationally competitive and unified single economic space within which goods, services, capital and labor are able to move freely across national frontiers.[66]COMESA has a strong statistical program in support of these goals. The overall objectives of this program are to harmonize and improve the production of statistics and to improve capacities at both national and regional levels to

national concepts are as follows: (a) Breakdown by partner country: For arrivals, certain member States record the country of origin as the partner country, whereas the member State of consignment appears in Community statistics relating to the same movements; (b) Treatment of goods in transit. Some member States do not record goods, which they consider to be "in transit" in their national figures. This involves, first, imports from non-member countries that are cleared in these member States before being dispatched to other Member States and, secondly, goods from other member States that are immediately re-exported to non-member countries. These flows are included in the Community statistics under intra- or extra-Community trade, as appropriate. This phenomenon is sometimes referred to as the "Rotterdam effect". (see IMTS Supplement to the Compilers Manual, 2008, para. 6.41)

65 For more information on SACU, please visit website http://www.sacu.int/index.php

66 The following 19 countries are members of COMESA: Burundi, Comoros, Democratic Republic of the Congo, Djibouti, Egypt, Eritrea, Ethiopia, Kenya, Libyan Arab Jamahiriya, Madagascar, Malawi, Mauritius, Rwanda, Seychelles, Sudan, Swaziland, Uganda, Zambia and Zimbabwe. For more information on the goals and activities of COMESA please go to http://www.comesa.int/.

undertake trade policy impact assessments, with merchandise trade statistics as one of the focal areas. A main activity of COMESA for trade statistics is the installation and support (including training) of the Eurotrace software which has been installed in most member states and which is instrumental in data harmonization. COMESA also adopted "Regulations for Compilation of International Merchandise Trade Statistics (IMTS) in the COMESA Region" which came into force in 2010 and which aim at the uniform application of the IMTS concepts and definitions as contained in IMTS 2010.

10.12. *Association of Southeast Asian Nations (ASEAN).* The member countries of ASEAN agreed to establish an ASEAN Community by 2015.[67] One of the pillars is the ASEAN Economic Community (AEC) which entails the creation of a single market and production base with a free flow of goods. However, free flow of goods would require not only zero tariffs but the removal of non-tariff barriers as well. Another major component that would support the free flow of goods is trade facilitation measures such as integrating customs procedures, establishing the ASEAN Single Window, continuously enhancing the Common Effective Preferential Tariffs (CEPT), Rules of Origin including its Operational Certification Procedures, and harmonizing standards and conformance procedures.[68]

10.13. *ASEAN harmonization of trade statistics*[69]. The above requirements lead to activities for the harmonization of trade statistics within ASEAN. An EU-ASEAN Statistical Capacity Building (EASCAB) Programme will implement two pilot projects in 2011 and 2012 – IMTS and SITS/FDIS. The purpose of the IMTS pilot project is two-fold: First, it shall help to implement a reliable and timely IMTS data transmission, data production and data dissemination process at the ASEAN Secretariat, which can be taken over and continued by ASEAN Stats. Second, the active data handling and processing within the pilot project shall help to improve the quality of IMTS on ASEAN level by identifying methodological and other quality-related issues currently still preventing the proper regional harmonization of data. As of October 2011, the technical assistance team has completed the data checking, loading and processing of all the 10 countries, produced Q1 and Q2 2010 publication and will finalize Q3 and Q4 by end of 2011. It has also started processing the Q1 and Q2 2011 data sets. The data comprise figures of the ASEAN member states covering trade within the ASEAN region as well as with the rest of the world. The data has been processed according to the ASEAN Harmonized Tariff Nomenclature (AHTN) commodity classification up to the detail of eight digits as far as the member states were able to provide such data. The model publication will finally evolve into a quarterly periodical on ASEAN Trade Statistics, being regularly published by the ASEAN Secretariat. By 2012, the

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67 The following ten countries are members of ASEAN: Brunei Darussalam, Cambodia, Indonesia, Lao People's Democratic Republic, Malaysia, Myanmar, the Philippines, Singapore, Thailand and Viet Nam. For more information, please go to http://www.asean.org/about_ASEAN.html.
68 See ASEAN Economic Community Blueprint, ASEAN Secretariat, 2008, p. 6.
69The ASEAN Framework of Cooperation in Statistics (AFCS) was adopted by the ASEAN Heads of Statistical Offices Meeting (AHSOM) on 19 October 2010. The overall objective of AFCS is to strengthen the organizational framework and statistical capacity of ASEAN towards the establishment of an ASEAN Community Statistical System (ACSS) by 2015. The mission of the ACSS is to provide relevant, timely and comparable ASEAN statistics in support of evidence based policy and decision making and enhance the statistical capacity of the Member States and ASEAN Secretariat. In strengthening ASEAN statistics, among others, priority is given to the development and harmonization in four areas of regional statistics: National Accounts, International Merchandise Trade (IMT), relevant components of International Trade in Services (ITS) and Foreign Direct Investment (FDI). Reference: *Strategic Plan for the Establishment of the ASEAN Community Statistical System (ACSS) 2011 – 2015*

EASCAB Technical Assistance Team shall hand over the IMTS production process to the ASEAN Stats(Reference: *EASCAB Quarterly).*

10.14. *Customs Union between Belarus, Kazakhstan, Russia.* On 1 July 2011 Belarus, Kazakhstan and Russia lifted the customs controls between their countries as part of their customs union agreement. This means that information on trade between the member countries is not available from customs declarations anymore and that additional sources of data have to be used.

10.15. *Other customs and economic unions.* There are many other regional agreements that aim at the promotion of economic integration and cooperation among its members and with the goal to create a common market.[70] However, a customs union which is a critical step of forming a common market entails the harmonization of external tariffs and the removal of all tariffs on internal trade. Also, all non tariff barriers to the free movement of goods would need to be gradually removed. Because of the need to give up parts of the national sovereignty and because of the many consequences and required work program it appears unlikely that there will be a rapid formation of additional customs unions around the world. Even in cases where countries enter a customs union it is likely that customs controls will remain in place for security and other reasons. Instead, countries will seek other forms of economic integration such as regional trade agreements that will rely on customs controls for their enforcement.

B. Current challenges and good practices in the organization of data compilation

10.16. *Statistical work programme in preparation of a customs union.* The experiences of the European Union, SACU, COMESA and ASEAN indicate that the preparation for a customs union requires at least the adoption of an uniform nomenclature of goods, uniform rules of origin, uniform customs valuation and uniform application of certain custom procedures to allow for the uniform application for external tariffs (which are by many countries applied on a more detailed than the six digit HS level). Also, the clarification of the customs territory (and accordingly the statistical territory) appear to be an essential requirement as all members need to be aware of what territories are included and not included in the customs union. The harmonization of other elements relevant for data compilation such as coverage, trade system, detailed customs procedures, partner country attribution, quality assurance etc. might depend on the requirements and use of the data compiled by countries.

10.17. *Loss of customs information on intra-union trade.* The abolition of customs controls within a customs union means that no customs records will be available for the compilation of information on trade between members of a customs union. Possible data sources are administrative records which might be available from taxation (value added or sales tax) or from surveys of exporters and importers. In most countries the overwhelming majority of exports are conducted by mid- or large size enterprises which might be very limited in number which might

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70 For example: Cooperation Council for the Arab States of the Gulf (GCC) (see http://www.gcc-sg.org/eng/index.html); in 2010 six GCC countries agreed to postpone a decision on establishing a single customs union for a few more years; the Arab Customs Union was announced at the Arab League's 2009 Arab Economic and Social Development Summit in Kuwait; the goal is to achieve a functional customs union by 2015 and an Arab common market by 2020;

be relatively easily surveyed; while the imports of certain goods might be equally concentrated (i.e. by national importer, retailer, wholesales) an increasing part of imports might result from direct transaction between consumers and internet retailers which arrange for a direct shipment to the individual consumer. In such situation the implementation of surveys might be more difficult and costly.

10.18.   **[Example of data compilation within SACU - input required]**

10.19.   *Challenges for the compilation of extra-union trade*. In the European Union, which is the most developed customs union, the statistical data collection remained under the responsibility of the individual member countries. Statistics on extra union trade is therefore a combination of the national statistics of all member countries. In order to be able to combine the statistics of the members into reliable extra-union statistics it is necessary that the national statistics fulfil a certain quality standard and are sufficiently harmonized which can constitute a major challenge due to the different circumstances in countries.

C. Longer term strategies

10.20.   *Determination of long term data requirements.* Countries within a customs union and the customs union itself need to decide what information on trade transactions between its member countries are required(intra-union trade) and how best to fulfil the data requirements for extra-union trade in light of the need to facilitate trade.

10.21.   *Strategy and challenges regarding intra-union trade.* In the European Union the requirements for intra-union trade statistics were to a certain degree mirrored after the requirements for extra-union trade which allows to some extend to have exactly the same statistics on national level as before the customs union was established. There might be several problems with such approach. Customs records do not necessarily provide a benchmark for the information requirements, non customs sources will never provide the same set of information as customs records and maybe most important, to require similar or same information from non-customs sources as from customs records (i.e. in terms of commodity detail) puts significant burden on the data compilation and data providers for intra-union trade statistics. The development of a intra-union trade data compilation system needs to take into account the data requirements on national and customs-union level, the availability of data sources, the burden on respondents and the compilation system, but also international comparability.

10.22.   *Strategy and challenges regarding the compilation of extra union trade statistics in case of customs modernization.* Enterprises within a customs union might have facilities for production and distribution of their goods in several countries of the customs union. In order to facilitate their trade the European Union agreed to adopt a centralized custom clearance. This means that the declaration of goods for import can take place in only one country while the actual physical clearance can take place in any county of the customs union. Countries and statistical offices would need to rely on an exchange of customs declarations/ information in order to obtain information regarding their imports from outside the custom union unless additional information systems or sources are used.

D. Good practices in other multi-country data exchanges

10.23. *Possibilities of multi country exchanges.* Trading partner can agree not to compile export information but to replace it with the import information compiled by the trading partner, as the information on imports is considered more reliable (USA-Canada data exchange – see paragraph xx). Another possibility is that a country refrains from compiling export and import information for a trading partner and instead adopts the partner's export and import data as its imports and export with this trading partner (data exchange between Belarus and Russia – see paragraph below). A further possibility would be that partner countries adopt a single flow system in which only information on one trade flow (either exports or imports) is compiled by all countries (this idea has been considered in the European Union – see paragraph below). In the case of a customs union additional possibilities of multi-country data exchanges exist and could be used in the future. For example, the implementation of a central customs clearance for extra-union trade within the European Union requires the systematic data exchange between countries. Regarding intra-union trade it could be imagined that information is compiled on the union level and not on country level (see further discussion below).

10.24. *Data exchange Belarus – Russia.* **[input required]**

10.25. *Proposal of a single flow system in the European Union.* **[input required]**

10.26. *Data exchange within a customs union.* **[input on centralized customs clearance required]**

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Part II   Data compilation

Chapter 11   Integrating trade and business statistics

Scope. This chapter will describe the benefits and challenges in integrating trade and business statistics in data compilation and data dissemination. The possible approaches will be described and illustrated with examples. Special attention is devoted to the possibility of linking customs records to the national trade and business register, which may be a cost-effective way of integrating trade and business statistics. The conceptual issues and practical requirements (i.e. business identifier vs. tax identification number, establishment vs. enterprise, variables etc.) of linking the data in practice and respective country experiences will be discussed.

Structure. The chapter might consist of the following sections:
(i)   Integrated approach to economic statistics;
(ii)   The benefits of integrating trade and business statistics;
(iii)   Integrating trade and business statistics in data compilation – possibilities and examples;
(iv)   Ensuring quality of the linked data sources and the quality of the linked/ integrated data;
(v)   Generation and dissemination of additional information – possibilities and examples;
(vi)   Required institutional and working arrangements.

Chapter 11   Integrating trade and business statistics

A. Integrated approach to economic statistics

11.1.   *Background*. At its thirty-seventh session in 2006 the Statistical Commission endorsed the concept of an integrated approach to economic statistics and recommended its operational use in national economic programmes. It also recommended the establishment of a Friends of the Chair group to prepare a concept paper on the modalities of the integrated approach to economic statistics, including the feasibility of establishing a mechanism to improve coordination among international organizations and work groups engaged in economic statistics.[71]

11.2.   *Statistical Commission report of 2008*. At the thirty-ninth session of the Statistical Commission in 2008, the Friends of the Chair group on integrated economic statistics presented its final report. The Commission supported the conclusions of the Friends of the Chair (see Box 11.1) and

(a) affirmed the role of the System of National Accounts as the integrating framework in economic statistics, and recognized the importance of increasing the coherence of basic economic statistics for enhancing the quality and analytical value of both basic economic statistics and macroeconomic statistics;

(b) agreed with the need to collect and disseminate case studies and develop other practical knowledge material to share experiences and guide countries in the process of implementing an integrated approach in their national statistical systems;

(c) also agreed that there might be a need to develop a framework for establishing such guidelines, and recommended that such guidance of integration should focus, in particular, on practical aspects.[72]

Box 11.1
Conclusions of the Report on Integrated Economic Statistics[a]

(a) The integration of economic statistics is about statistical reconciliation; that is, ensuring that the messages that statistics deliver are consistent and coherent. Reconciliation covers primary economic statistics and macroeconomic accounts, short and long-term economic statistics, and national and international economic statistics. In essence, it involves dealing with conceptual, statistical production and institutional issues. Human resources issues (increasing the awareness of statistical agencies' staff concerning the impact of their work on the overall statistical system) and information technology issues (adopting common technology) also play a role and must be considered in that context;

(b) The integration of economic statistics is mainly driven by users' demand for data consistency and coherence;

(c) It is neither possible nor desirable to propagate one single and detailed implementing approach towards integrated economic statistics because national statistical systems are different. There are, however, some general guiding principles;

(d) Institutional arrangements at both the national and international levels are important for the management of integrated economic statistics and should be part of the corresponding reform programmes.

a) See E/CN.3/2008/6.

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[71]See E/CN.3/2006/32.
[72] See E/2008/24in its decision 39/105.

11.3.   *Integrated approach for international merchandise trade statistics*. Reconciliation of data from customs and non-customs sources as well as reconciliation of results with related statistics are important aspects of an integrated approach for foreign trade statistics. However, an integrated approach to foreign trade statistics means in particular that the compilation of foreign trade statistics is, to the largest extent possible, integrated and harmonized with the compilation of all other basic economic and business statistics. Despite its long history as separate and distinct statistical domain and its reliance (in most countries) on custom records as its main data source, foreign trade statistics should be seen as integral part of business statistics in compilation and dissemination in order to realize its full potential as a main source for information on globalization.

11.4.   *Need for linking business and trade statistics*. Linking and integrating trade and business statistics is important for data compilation and analytical purposes. A major development in economics statistics in recent years is the establishment and use of national business registers that not only provide a framework and basis for the conduct of business surveys but also allow to link information from different data sources, potentially leading to significant efficiency and quality gains in data collection. Further, the integration of data from different sources provides new information for many analytical purposes that would not otherwise exist. Accordingly, IMTS 2010 encourages countries to integrate their trade register with their business register and to take steps towards establishing an integrated system of economics statistics for data compilation and analysis (IMTS 2010, paras. 11.5-11.6)

11.5.   *Vision for the future of trade statistics*. In 2010 at its forty-first session the Statistical Commission endorsed new international guidelines for merchandise trade statistics and the international trade in services.[73] In February 2011 the Global Forum on Trade Statistics was organized as follow-up to the 2010 Statistical Commission decisions on trade statistics. In this forum, trade statisticians and policy makers agreed on a vision for the future of international trade statistics and called for the improvement of the relevance of international trade statistics by connecting trade information and integrating it with its economic, social, environmental and financial dimensions while minimizing the response burden, and to improve the statistical production process by better defining and organizing the co-operation among national stakeholders. In a background note titled International Trade Information System in 2020 (also called Vision 2020), which was endorsed by major international organizations active in the area of trade statistics, concrete goals for the future of trade statistics were formulated, including the integration of statistics on the trade of goods and services and the integration of trade statistics with other business statistics which concern international aspects.[74]

B. The benefits of integrating trade and business statistics;

11.6.   *Potential benefits*. In general terms, the potential benefits of integrating trade and business statistics are additional and better information without major costs, as well as potential cost savings through efficiency gains. One very specific and important goal is to gain more information about traders and their specific characteristics, such as size, sector of economic activity, and level of concentration (see para. 11.x below). This will allow a deeper analysis of

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[73] See …
[74] See http://unstats.un.org/unsd/trade/s_geneva2011/outcome.htm.

the impact of trade on national employment, production, value added and competitiveness in a globally integrated economy in which frequently many countries participate in the production of one single product.[75]Also, integrating trade and business statistics can allow obtaining more information about specific trade transactions such goods for processing and intra-firm trade, or provide information for other statistical domains such as transport statistics. Further, trade statistics can be part of a business micro-data set or data warehouse analysis for many different purposes. A further benefit is that the integration of trade and business statistics on the micro level allows for checks of consistency between both statistics

11.7. *Potential costs*. The basic requirement for integrating trade and business statistics is a functioning business register and the entry of a uniform national business identification number on the customs declaration. The development and implementation of these two elements can take a long time and requires major efforts. Also, business registers need to be maintained on an ongoing basis. Also, integrating different statistics requires very significant efforts. Pursuing an integrated approach to trade and business statistics is likely to require major investments in existing statistics and strong efforts to overcome existing institutional arrangements and legal obstacles.

C. Integrating trade and business statistics in data compilation – possibilities and examples

11.8. *The framework developed by Italy*. To provide business analysts and policy makers with information about key actors and drivers of competitiveness in global trade, a change from a product based towards a business oriented perspective in the compilation of trade statistics is required. To achieve this, the National Statistical Institute of Italy (ISTAT) established a new statistical framework based on the integration between trade and business statistics at the enterprise level. The core of this new statistical framework is a business register. The link between the list of trade operators and the business register provides the gateway for developing an array of new outputs. Three different types of output, depending on the level of integration achieved, are differentiated:
- Type one: By linking trade-flow micro data with the list of trade operators, it is possible, for instance, to derive trade statistics based on the number of trade operators by products and markets;
- Type two: If the list of operators is linked and integrated with the business register, statistics based on the business characteristics of exporting and importing enterprises can be derived.
- Type three: A full integration of trade and business statistics is achieved when the business register is further linked to and integrated with existing business surveys, administrative and fiscal data, and special surveys on globalization such as on multinationals and international sourcing. This allows conducting in-depth analyses of trade and business activity.

11.9. *New statistics and future developments in Italy*. ISTAT has experience in the production of new integrated trade statistics of types one and two. A large set of tables on trade operators and exporting and importing companies is published in the Foreign Trade Statistics Yearbook,

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[75]See Eurostat, International Trade by enterprise characteristics, in Statistics Explains at:

providing information on the business structure of the exporting community. Further, ISTAT has developed new statistics on the spatial distribution of exports and on the contribution of multinational enterprises (MNE) to foreign trade, and provided additional analyses on firms involved in international trade. ISTAT is in the process of setting up an integrated firm-level data warehouse by integrating a number of national surveys, foreign trade in goods, outward and inward multinational enterprise data and international databases that will allow to effectively monitor the behavior of firms deeply engaged in globalization. One challenge is that product-based and enterprise based-surveys are not fully harmonized. Also, there is need for benchmarking and calibration with respect to different target populations. It is intended to make this warehouse accessible to researchers, taking into account confidentiality constraints. In the case of Italy there are no additional costs for respondents.

11.10. *Linking trade and business statistics – Brazil experience*. The Brazilian SISCOMEX system integrates the tracking and administrative, customs and exchange control of foreign trade. It is linked to all commercial information through the national code for companies (CNPJ) and the national code for individuals (CPF), which are mandatory fields for the declaration of exports and imports. When a company inputs its code, SISCOMEX accesses automatically the database of companies registered at the Ministry of Finance, whereby the code is confirmed and all commercial information is transferred (complete address, city, state, National code of economic activity, number of employees, etc.). The national code for companies consists of 14 digits: the first 8 digits represent the company group; the 4 following digits represent the enterprise (filial), and the last 2 digits are used to validate the complete number. This system allows the generation and dissemination of a wide array of special reports, such as exports by company size, industry or state. Information deemed confidential is only accessible to the enterprise itself and authorized government officials, while the public information is available on the internet via ALICEWEB (http://aliceweb.mdic.gov.br).

11.11. *OECD-Eurostat trade by enterprise characteristics (TEC) database*. TEC is a joint OECD-Eurostat exercise. Datasets are compiled by linking micro data (data at trader level) with business registers. Under guidance of the OECD Steering Group "Business Economic Statistics and Trade (BEST)", a first OECD set of Linkage Tables was sent out to participating Non-EU-OECD member countries in June 2007 (see Box 11.2 below for details).However, currently the tables provided by countries are frequently not fully comparable across countries and over time. Future goals are improved access to microdata, improved comparability, and inclusion of additional enterprise information. Regarding EU member countries, the revisions of Intrastat and Extrastat legal acts make the annual compilation of these statistics compulsory from reference years 2009 and 2010 onwards, respectively.

11.12. *Summary of the compilation requirements*. The core elements for the integration of trade and business statistics are (1) the availability of a functioning and up-to-date business register, which either contains or can be linked with relevant and current company information, (2) the mandatory entry on the customs declaration of a uniform and universal identification number of the company on whose behalf the trade is conducted, and (3) the establishment of an electronic and automatic link of this information.

D. Ensuring quality of the linked data sources and the quality of the linked/integrated data

11.13. *Linking of trade operator with the statistical unit – EU experience*. The feasibility of linking external trade data with business registers has been tested in a series of pilot data collection rounds. The objective of these studies was twofold: first, to investigate to what extent and on what conditions micro data linkages are possible and, secondly, to define new statistics which can be derived from the combined dataset. At the conceptual level, the methodology can be simplified into the following framework. First, a linkage is established between trade operators and legal units in business registers. Second, the trade value of each trader, by product code and partner country, is combined with the main enterprise characteristics (economic activity and number of employees) retrieved from the business registers. Third, specific indicators are calculated. The quality of statistics based on data linkages depends very much on the matching rates between source data sets. The results of the pilot data collection rounds have shown that, in most cases, the matching rates have been very high, particularly when measured in terms of trade value.[76]

11.14. *Business registers – EU experience*. Data in business statistics are usually derived from surveys of businesses. Business registers are normally used as a tool for the preparation and co-ordination of surveys. They detect and construct the active population of statistical units (enterprises, local units and enterprise groups) from administrative units (legal units) and include information on their identification, demographic, economic and stratification characteristics, the control and ownership of units, and links with other registers. Business registers are also used as a source of information for statistical analysis of the business population and its demography. Although business data cover only a few key economic variables (employment and turnover), they can be used to obtain comprehensive data with detailed breakdowns across a full range of activities, in contrast to data that are largely based on surveys such as Structural Business Statistics. The business registers play an important role in bringing trade statistics closer to the business statistics. The links between legal units in the business registers and intra- and extra-Community trader identification codes need to be recorded in the business registers. Thus, the business registers provide a tool to link detailed external trade micro data with the statistical units used in business statistics.[77]

E. Generation and dissemination of additional information – possibilities and examples

11.15. *Tables published within the TEC framework (Eurostat and OECD)*. The Trade by Enterprise Characteristics (TEC) framework defines a harmonized set of indicators describing various aspects of the structure of international trade from the viewpoint of the characteristics of enterprises. Since the aim of these indicators is to describe enterprises rather than products, the activity sector of the trader is used as the primary classification in each indicator. There are five indicators which are available both for trade flows (imports and exports) and for intra- and extra-EU trade. All indicators use enterprise as the statistical unit and are expressed in terms of number of enterprises and trade value.

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[76]See
http://epp.eurostat.ec.europa.eu/portal/page/portal/external_trade/documents/External_trade_statistics_by_enterprise_characteristics.pdf.
[77]See ibid.

Box 11.2
Indicators of Trade by enterprise statistics

1. Trade by activity sector and enterprise size class
Trade by activity sector and enterprise size class shows the contribution of each economic activity and size class (measured in terms of number of employees) to total trade. This makes it possible, for instance, to analyse the impact of external trade on employment and to estimate the importance of small and medium-sized enterprises.
2. Concentration of trade by activity
External trade is typically concentrated on a few enterprises. This indicator shows how much of the total trade is accounted for by the top 5, 10, 20, etc. enterprises.
3. Trade by partner countries and activity
Trade by partner countries shows how many enterprises were trading with certain partner countries or country zones, and the trade value they accounted for. This makes it possible to identify most typical exports or imports markets.
4. Trade by number of partner countries and activity
Number of partner countries shows how geographically diversified the exports markets are. For imports, it shows the number of countries from which goods are imported.
5. Trade by commodity and activity
Trade by commodity and activity allocates the trade of each commodity to the economic activity of the trading enterprise. This shows which sectors were involved in the trade of each product group.

11.16. *Integrating trade information in business statistics.* Business statistics contain limited information on external trade. By linking trade and business statistics the wealth of information on the demography and activities of businesses can be supplemented with detailed trade information, allowing the analysis of the impact of trade on businesses.

11.17. *Special surveys on trading enterprises.* Certain information, such as trade between related enterprises or goods for processing without change of ownership, often cannot be derived from customs records. The link with the business registers allows to conduct surveys of specifically identified enterprises in order to obtain such information. Also, special surveys of trading enterprises could be used to explore the link between trade in goods and trade in services.

11.18. *Trade statistics as part of a geospatial information system.* In its Decision 41/110 on Global geographic information management in 2010 the Statistical Commission recognized the importance of the integration of geographic and statistical information and the opportunities provided in that context by the swift development of information technology, noting that national statistical offices are playing an increasing role in such integration.[78] Linking trade information to the business registers allows regional analysis of trade patterns, i.e., IBGE of Brazil publishes, using the address of the enterprises, a report on trade balance by states and municipalities.[79] Linking this trade information with localized employment or tax information (i.e., average wages, employment rate, enterprise and personal tax revenue) allows a detailed analysis of economic impact of trade.

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[78]See E/2010/24.

[79]The results can be distorted if the headquarters reside elsewhere than the place where the economic activity is carried out. Therefore the use of the local unit would be preferable when linking trade and business statistics. However, it might be very difficult or impossible to compile reliable business and trade information on local unit basis.

F. Required institutional and working arrangements

11.19. *Uniform business register and data access*. In many countries more than one organization or agency is involved in trade and business statistics (e.g., the national statistical institute, the customs authority and the central bank). The establishment of a uniform national business register requires legal arrangements to allow sharing and using information on individual enterprises between these agencies which is otherwise subject to confidentiality.

11.20. *Agreement on a joint vision and commitment to integrating trade and business statistics*. The cooperation of different departments within the same agency and the cooperation of different agencies responsible for different parts of the business statistics programs are required to develop and implement a program of integrated economic statistics. The cooperation itself as well as the development and implementation of such a program require the commitment of significant human resources and the willingness to accept changes in existing practices. It is therefore crucial that the concerned agencies and departments within agencies agree or at least accept the goal and vision for an integrated system for business and economic statistics.

11.21. *Access and use of information.* Business registers and data warehouses contain sensitive information about businesses. According to principle 6 of the Fundamental Principles for Official statistics, individual data collected by statistical agencies for statistical compilation, whether they refer to natural or legal persons, are to be strictly confidential and used exclusively for statistical purposes. The generation of enterprise microdata from trade statistics and it combination with information from existing business statistics requires solving issues of confidentiality and the protection of the highly sensitive business data.

Compilers Manual 2010

Part III   Compilation of particular data items

Chapter 12   Time of recording

*Scope.*The chapter is anticipated to assist countries in the implementation of the general guideline that goods should be recorded at the time when they enter or leave the economic territory of a country. Experiences in the application of this guideline under different trade systems and circumstances will be described including challenges and good practices in the use of customs and non-customs sources of data. Special cases when the goods declaration only partially reflect the timing and contents of the shipment (e.g. as in the case of partial or periodic shipments, staggered consignments") will be covered.

*Structure.*The chapter might consist of several sections focusing on:
(i)   Overview of the basic concepts and main approaches to the use of various data sources;
(ii)   Time of recording under general trade system;
(iii)   Time of recording under special trade system;
(iv)   Time of recording in case of special categories of goods or transactions;
(v)   Time of recording under special circumstances.

Chapter 12   Time of recording

A. Basic concepts and data sources: an overview

12.1.   *Time of recording.* The time of recording is the point in time used to allocate a given flow of goods to the shortest reference period for which official trade statistics are compiled. For example, if a country compiles monthly trade data then the time of recording determines what particular month is the reference period of a certain flow of goods. As a general guideline, IMTS 2010 recommends that the time of recording is the point in time when goods enter or leave the economic territory of a country that is the point in time when goods physically cross the boundary of economic territory of a country.

12.2.   *Data sources.* Customs records are the main source for determining time of recording. However, the economic territory in many cases does not coincide with the customs territory and some cross border movements of goods are not sufficiently reflected in customs records. Therefore, it is a good practice (i) to use both customs and non-customs sources of information and (ii) to develop sound approximation techniques for the cases where no reliable data exist and to consistently apply such techniques to ensure maximum possible data comparability.

12.3.   *Lodgement of customs declaration and date of lodgement.* IMTS 2010 states that in the case of customs-based data-collection systems the time of recording can be frequently approximated by the date of lodgement of the customs declaration. Compilers should be aware that RKC does not define the term "lodgment of customs declaration" and does not prescribe the rules on the date of lodgement. However, from the context of the Convention it can be understood that the date of lodgementit is the date when customs registers[80](or accepts) the declaration for processing taking into account that certain customs requirements were satisfied.

12.4.   These customs requirements for logement of the customs declaration include provision that customs "shall limit the data required in the Goods declaration to only such particulars as are deemed necessary for the assessment and collection of duties and taxes, the compilation of statistics and the application of Customs law." (General Annex, Chapter 3, Standard 3.12". Further, according to the Convention "where, for reasons deemed valid by the Customs, the declarant does not have all the information required to make the Goods declaration, a provisional or incomplete Goods declaration shall be allowed to be lodged, provided that it contains the particulars deemed necessary by the Customs and that the declarant undertakes to complete it within a specified period. (General Annex, Chapter 3, Standard 3.13". Where national legislation lays down a time limit for lodging the Goods declaration, the time allowed shall be sufficient to enable the declarant to complete the Goods declaration and to obtain the supporting documents required.3.25. Standard. National legislation shall make provision for the lodging and registering or checking of the Goods declaration and supporting documents prior to the arrival of the goods.

12.5.   In view of these provisions compilers should be aware that the date of lodgementmay not be appropriate in all cases. It follows that lodgement of the declaration and the actual time when goods cross the border of the economic territory of a country may, in some cases, vary significantly. In this connection it is a good practice that trade statistics compilers consult with

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80 The term "registers" is used in several RKC standards. For example, in standards 3.26 and 3.30.

national customs authorities about the rules which define the date of lodgement and assess in what cases it can serve as an acceptable approximation of the time of recording and when it should be replaced with more appropriate dates.

12.6.   *Use of non-customs sources.* It is a good practice to use non-customs sources only in cases where customs records do not exist or the date of lodgment significantly deviates from the moment when goods physically cross the boundary of economic territory of a country.

12.7.   *Use of time of change of ownership.* In exceptional cases when the general guideline is not applicable or is insufficient (for example, trade in ships and aircraft)IMTS 2010 recommends to use the criterion of change of ownership to determine whether and when certain goods should be recorded. In such cases time of recording should be determined by the time of change of economic ownership.

12.8.   *Use of estimates.* In a number of cases the time of cross border movement of goods is not reflected in any data source. In such cases development of sound approximation techniques becomes a necessity in order to ensure a better temporal data comparability.

12.9.   *Metadata on sources and rules used for establishing time of recording.* The determination of what data sources and rules should be used while establishing the time of recording to ensure compliance with the international recommendations and high quality of national data is the responsibility of the national compiling agency. It is a good practice to develop clear and practical rules to ensure that (a) the time which will be used for the purposes of time of recording is the closest possible approximation of the time when goods actually enter/leave the economic territory of the country and (b) reliable methods of establishing such a date are established and consistently applied. The description of the selected sources and rules should be part of the country's trade metadata.

12.10. IMTS 2010 recommends that countries use general trade system, therefore section B below provides additional details intended to assist countries applying this trade system in setting up their rules for the time of recording. The good practices described in section B, in most parts, are applicable in the case of countries using special trade system as well. Some additional details relevant only to the countries where special trade system is in use are provided in section C.

B. Approximation of time of recording

12.11. *Use of the customs territory as an approximation of the economic territory.* It is a good practice to use the boundary of the customs territory as a boundary of the economic territory (even if they diverge to some extent from each other) provided that no important economic activity is occurring in that part of the economic territory which is outside of the customs territory. If so, the use of date of lodgement of the customs declaration as the time of recording is a good practice, except for the cases when date of lodgement deviates significantly from the time of actual border crossing by the imported/exported goods (as determined by the responsible agency). However, if an important economic activity is carried out in any part of the economic territory outside of the customs territory (e.g., industrial free zones) the customs boundary cannot be used as a good approximation of the economic territory. In such cases, the time of entering

and leaving of such parts of the economic territory should be either determined using non-customs sources or estimated.

12.12. *Lodgement of provisional or incomplete declarations*. If the declarant is unable to provide all the required information at the time of lodgement the declaration the customs authority may accept a provisional or incomplete declaration and release the goods under the condition that the declarant provides the missing information afterwards within the specified period. It follows that lodgement of the proper (final) declaration and the time when goods cross the border of the customs territory may be far apart from each other. Compilers should, therefore, (a) use provisional or incomplete declarations to identify the time of lodgement and collect provisional data, and (b) use final declarations to revise/complete trade data.

12.13. *Presentation of the declaration after release of goods*. Compilers should take into account that customs allow many traders to release goods before the presentation of the corresponding declaration. Such authority is given to a growing number of traders in order to enable speedy release of the imported/exported goods without waiting for collection of the documents needed for completion of the declaration. It is a good practice to include the data provided in such declarations in the monthly statistical reports corresponding to the months when the goods actually enter or leave the economic territory of a country. If necessary it can be done as part of the regular revision of monthly data.

12.14. *Periodic lodgement of declaration*. When goods are imported (exported) frequently by the same company/person, the Kyoto convention recommends that customs allow a single goods declaration to cover all imports (exports) by that company or person for a particular reference period. That facility may be granted if the company/person keeps proper commercial records and where necessary control measures can be taken. The Convention recognizes the right of customs to require that the declarant produce, at the time the goods actually cross the border, a commercial or official document such as an invoice, waybill or dispatch note, etc. giving the main particulars of the concerned consignment. Compilers should periodically review such documents, if permitted by law, in order to be able to assign the trade to the appropriate month (based on time of crossing the border), especially in cases when trade is significant in value (amount) and/or the reference period of the reporting by the trader does not coincide with a period used for statistical reporting (normally the calendar month). Compilers should work with Customs agencies to ensure that their requirements for the reference period of the reporting by traders coincide with the period used by customs for the statistical reporting.

12.15. *Time of recording in the case of split consignments*. For convenience of shipment certain goods may be disassembled into several parts which may, with customs permission, leave the exporting country and enter the importing country at different times and at different exit/entry points. Since goods exportation/importation is not completed until the last part leaves/enters the country, it is a good practice to use the date when the last part is declared to the customs of the exporting/importing country instead of the time of lodgement of the declaration covering all consignment.

12.16. In all cases where the date of lodgement is inadequate (e.g. if goods are cleared well in advance or long after their arrival) or non-customs data sources are used (e.g. enterprise surveys)

more appropriate dates should be identified and used (e.g. the date of arrival/departure of the goods carrier as indicated in the transportation documents). It is the responsibility of countries' statistical authorities to identify (or estimate) the best proxy date of the general guideline on time of recording by taking into account the peculiarity of national rules on administrative procedures and the need in consistency in the application of the selected method.

12.17. *Use of shipping manifests, bills of landing and other transport document.*

[EG members comments/input are needed here – country examples/experiences]

12.18. *Time of recording in enterprise surveys.* Countries applying general trade system usually have to make use of enterprise surveys to ensure complete coverage of their trade statistics. The time of exports/imports indicated in such surveys reflects business accounting practices which, normally, will not coincide with the time of lodgement of the corresponding customs declaration or with the time of physical crossing the country's border, but rather when goods change ownership. […]

[EG members comments/input are needed – country examples/experiences]

12.19. *Use of time of change of ownership.* Change of ownership is defined in accordance with 2008 SNA and BPM6 as change of economic ownership. When change of ownership is used as the criteria for the recording of goods entering (leaving) an economic territory a transfer of a product should be recorded when the economic ownership changes from a resident unit to the non-resident unit. The time when the economic ownership changes from a resident unit to the non-resident unit can be approximated by the time when claims and obligations arise, are transformed or are cancelled. Although the principle is clear, its implementation is far from simple as parties do not always apply the same rules. Even when they do, differences in actual recording may occur for practical reasons such as delays in communication. Consequently, transactions may be recorded at different times by the transactors involved, sometimes even in a different accounting period. It is a good practice that trade statisticians consult compilers of balance of payments and national accounts as necessary.

12.20. *Time of recording in the case of free zones.* Even if goods are moving in and out of free zones without payment of duties or completing certain formalities applicable in the case of similar goods entering/leaving free circulation, certain customs recording of such movements exists which might be the source of valuable information for trade statistics compiler. [...] However, the use of non-customs sources becomes a necessity and it is a good practice to [...]

[EG members input is needed on country examples/experiences of time of recording in the case of free zones]

12.21. Under the special trade system the time of recording should be the time when goods enter or leave that part of the economic territory which is included in the statistical territory of the compiling country. As in the case of general trade system this time may be approximated by the date of lodgement of the customs declaration or other dates, if appropriate, depending on the circumstances. The use on non-customs sources might also be necessary.

Compilers Manual 2010

Part III   Compilation of particular data items

Chapter 13   Commodity classification

Scope. This chapter is intended to provide the background information on the Harmonized Commodity Description and Coding System (HS), details of its 2007 and 2012 editions, the World Customs Organization HS revision policy. It will discuss the implementation and use of the 2012 edition. Further, the chapter is expected to assist trade data compilers to understand better the classification decisions by the national customs authorities, to set up appropriate validation and editing checks, to communicate more effectively with both customs authorities and the user community and to be able to assist in the formulation of proposals for the future revisions of the HS. Country experiences in the application of HS to cross border flows of goods where customs records are absent will be highlighted. The chapter will outline also the main features of other international commodity classifications, namely the Standard International Trade Classification (SITC), Central Product Classification (CPC), Classification by Broad Economic Categories (BEC) and their relationships with HS. Uses of these classifications for analytical and other purposes will be described, in particular the strengths and weaknesses of HS for economic analysis. The chapter will provide details on International Standard Industrial Classification of all Economic Activities (ISIC) and will explain its uses in trade data collection, compilation and dissemination. A family of the correspondence tables between various classifications will be described and explained in order to facilitate correct data conversion.

*Structure.*The chapter might consist of several sections focusing on:
(i)   The Harmonized Commodity Description and Coding System:
    a.   History of the HS, description of its 2007 and 2012 editions and the HS revision policy;
    b.   Application of the HS for coding traded goods – challenges and good practices;
    c.   Country experiences in the use of the HS for data dissemination and analytical purposes;
    d.   Strengths and weaknesses of HS for economic analysis;
(ii)   Other classifications relevant to international merchandise trade statistics:
    a.   Standard International Trade Classification;
    b.   Central Product Classification;
    c.   Classification by Broad Economic Categories;
    d.   International Standard Industrial Classification of all Economic Activities;
(iii) Correspondence tables between different classifications and their use in data conversion.

Chapter 13   Commodity classification

A. Harmonized Commodity Description and Coding System- Introduction

13.1.   This chapter is intended to provide the background information on the Harmonized Commodity Description and Coding System (HS), details of its 2012 edition, the World Customs Organization (WCO) HS revision policy and the issues of the implementation and use of the HS. Country experiences in the application of the HS to cross border flows of goods where customs records are absent are highlighted. Use of the HS for analytical and other purposes is described, in particular the strengths and weaknesses of the HS for economic analysis. It is expected that this information will assist trade data compilers to understand better the classification decisions by the national customs authorities, to set up appropriate validation and editing checks, to communicate more effectively with both customs authorities and the user community and to be able to assist in the formulation of proposals for the future revisions of the HS.

13.2.   The International Convention on the Harmonized System (HS Convention) was adopted by the Customs Co-operation Council (CCC) in June 1983, and entered into force on 1January1988 (HS88). The Harmonized Commodity Description and Coding System(popularly known as the Harmonized System or HS) means the Nomenclature comprising the headings and subheadings and their related numerical codes, the Section, Chapter and Subheading Notes and the General Rules for the interpretation of the Harmonized System, set out in the Annex to the HS Convention.[81]The Statistical Commission, at its twenty-seventh session (22 February to 3 March 1993), recommended that countries adopt the HS for the compilation and dissemination of their trade statistics.[82] IMTS 2010 recommended that countries use the HS at the most detailed level for the collection, compilation and dissemination of international merchandise trade statistics and encouraged countries to use the most current version of the HS .

13.3.   As of 2011 almost all countries use the HS for trade data compilation and dissemination. This is a very significant achievement as it ensures the best possible international comparability of national trade data. At the same time, the experience shows that many countries face significant challenges in the consistent application of HS. The strengths and weaknesses of HS were also identified.

B. HS overview

13.4.   *Obligations of Contracting Parties*. The HS is a legal instrument. A Contracting Party to the Convention has two main obligations: to bring its Customs tariff and statistical nomenclatures into conformity with the HS; and to make its import and export trade statistics publicly available at the 6-digit level or beyond. [83] Fulfilling these obligations requires that

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81 Customs Co-operation Council, *The International Convention on the Harmonized Commodity Description and Coding System*, Brussels, 1983. As of 31 May2011there were 139Contracting Parties to the Convention, and about 60 countries or territories which were not Contracting Parties but were using the HS for customs/statistical purposes. The HS, when incorporated in the country's Customs tariff, becomes a national law. Entering wrong tariff codes in the goods declaration may entail legal consequences.
82 See Official Records of the Economic and Social Council, 1993, Supplement No. 6 (E/1993/26), para. 162 (d).
83 Developing countries, however, are permitted to apply the HS partially, i.e. they may decline, at least initially, to apply all or some of the subheadings and yet fulfill the obligations arising out of Article 3.

Contracting Parties use all the HS headings and subheadings and numerical codes, without addition or modification; that they apply, without modification, the General Rules for the interpretation of the HS as well as all Section, Chapter and Subheading Notes; and that they follow the numerical sequence of the HS. [84]

13.5.   *Maintenance of the HS.* In accordance with the Preamble to the HS Convention, which recognized the importance of ensuring that the HS be kept up to date in the light of changes in technology or in patterns of international trade, the HS is regularly reviewed and revised. The HS Convention established the Harmonized System Committee (HSC), which is composed of representatives from each of the Contracting Parties and which meets twice a year. The HSC is assisted in its work by its Working Party, by the Review Sub-Committee, and by the Scientific Sub-Committee. The HSC, inter alia, considers the needs of users as well as changes in technology and patterns of international trade and proposes amendments to the HS based on its considerations; prepares recommendations about and circulates information concerning the application of the HS; and gives guidance on matters concerning the classification of goods.

13.6.   To assist users with the implementation of the HS, the WCO issues and periodically updates the following supplementary information:

- The *Explanatory Notes to the Harmonized System;*
- The *Alphabetical Index to the Harmonized System;*
- the *Compendium of Classification Opinions to the Harmonized System;*
- the *Harmonized System Commodity Database;*
- the *E-learning Modules on the Harmonized System;*
- the *Correlation Tables between the Harmonized System and the 1978 version of the CCCN with its SITC, Rev.2 correlation subheadings; and*
- the *Correlation Tables between the 1988 - 1992; 1992 - 1996; 1996 - 2002; 2002 - 2007; and, 2007 – 2012 versions of the HS.*

13.7.   *HS structure and the classification scheme.* The HS is a structured nomenclature comprising a series of 4-digit headings, most of which are further subdivided into 5- and 6-digit subheadings. The 2012 edition of the HS comprises 5,205 groups of goods identified by a 6-digit code (compared to 5,052 in the 2007 edition) and is provided with the necessary definitions and rules to ensure its uniform application.HS12 comprises a total of 1,224 headings which are grouped in 96 Chapters, the latter being themselves arranged in 21 Sections. The headings are identified by a 4-digit code, with the first two digits indicating the Chapter in which the heading appears (a leading zero is used with the first nine Chapters)and the second pair of digits referring to the position of the heading within the Chapter.

13.8.   The HS classification scheme is determined by the requirement that the HS should enable customs officers to classify goods presented to them by referring mainly to characteristics which are either directly observable or which can be established by the use of scientific instruments. Therefore, many of the HS Sections, Chapters and headings are defined in terms of the goods' natural origin or material of production. However, natural origin or material of production is not

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[84] IC, *op. cit.*, Article 3 (a).

always what gives goods their essential character. In some cases goods are normally classified by industry or by main use. For example, the sections:

- "Live animals; animal products" (Section I), "Vegetable products" (Section II), "Mineral products" (Section V), are defined by natural origin or material of production; while
- "Products of the chemical or allied industries" (Section VI), "Vehicles, aircraft, vessels and associated transport equipment" (Section XVII) are defined by industry or by main use.

13.9.   As a general rule, goods are arranged in order of their degree of manufacture: raw materials, unworked products, semi-finished products, finished products. For example, live animals fall in Chapter 1, animal hides and skins, in Chapter 41, and leather footwear, in Chapter 64.Although a higher level category may be defined mainly by one criterion, its subdivision into lower level categories can be defined by other(s). For example:

- leather and articles of leather belong in Section VIII but, irrespective of having the same animal origin, they are classified in different chapters to reflect different stages of production (leather in Chapter 41, articles of leather in Chapter 42);
- heading 62.06 "Women's or girls' blouses, shirts and shirt-blouses" are divided into five subheadings according to the material from which they are made (of silk or silk waste 6206.10, of wool or fine animal hair 6206.20, of cotton 6206.30, of man-made fibres 6206.40, of other textile materials 6206.90).

13.10. Compilers of trade statistics should be aware that subheadings can be separated into two categories:

- subheadings covering goods *specifically* identified as a part of the heading by indicating one or more *specific* attributes (e.g., "Corks and stoppers" of natural cork4503.10), and
- *residual* subheadings covering all goods of the respective heading *not* included in its other subheadings (e.g., "Other" articles of natural cork4503.90).

The latter category comprises about 22% of all 6-digit codes. Such subheadings may cover quite diverse goods, and their use in the coding of particular items should be undertaken with special care.Also, setting the control range for such subheadings is problematic thus creating a data quality issue.

13.11. Some headings are split into several "one-dash" subheadings. Each such subheading is identified by a 6-digit code, where the first four digits represent the heading's code, and the latter two digits refer to the subheading's position within the heading.

For example, heading 01.04 "Live sheep and goats" is split into two one-dash subheadings: "Sheep" (0104.10), and "Goats" (0104.20).

13.12. The one-dash subheadings can be further divided into "two-dash" subheadings. In such cases, one-dash subheadings are not coded; codes are assigned only to the two-dash subheadings.

For example, heading 01.03 "Live swine", is split into two one-dash subheadings: "Pure-bred breeding animals" and "Other". The former subheading is not further subdivided

and is coded (0103.10), while the latter is split into two parts and not coded. Rather, it is subdivided into "Other, weighing less than 50 kg" and "Other, weighing 50 kg or more", which are coded 0103.91 and 0103.92 respectively.

13.13. Headings which do not contain subheadings are treated, for data processing purposes, as 6-digit codes, carrying two zeros as their last two digits.

13.14. The headings and subheadings of the HS are accompanied by Section, Chapter and Subheading Notes and interpretative rules, which form an integral part of the HS and are designed to facilitate classification decisions in general and to clarify the scope of the particular Sections, Chapters, headings or subheadings.

13.15. *HS revision policy.* In accordance with the Preamble to the HS Convention, which recognized the importance of ensuring that the HS is kept up to date in the light of changes in technology or in patterns of international trade, the HS is regularly reviewed and revised. The WCO revises the HS as becomes necessary, approximately every five years. From 1 January 2012 onwards, the HS Nomenclature 2012 edition (HS12) is the valid version applied in international trade transactions. Details of HS12 are provided in the section below. There are initial plans for the next set of amendments to be in effect in 2017.The Statistical Commission, at its twenty-seventh session, recommended that the WCO take fully into account the statistical implications of any changes proposed for the HS and the statistical needs and capacities of developing countries.[85] It is good practice when country trade statistics compilers work closely with the national customs authorities in developing proposals for future HS amendments.

C. 2012 edition of HS

13.16. HS12amended HS07. The amendments to HS07 comprise 3296-digit code additions to the coding structure and 1766-digit code deletions with a 153 net increase in number of 6-digit codes. The amendments took account of technological progress and trade patterns, clarified the text to ensure uniform application of HS, and provided a legal basis for decisions taken by the HSC. HS12comprises 5,205subheadings identified by a 6-digit code of which [4,208] are subheadings from the original HS88. [844] non-original subheadings ([17] per cent) were introduced in the subsequent HS editions (1 in 1992, 267 in 1996, 316 in 2002, 260 in 2007, and … in 2012).[86]

13.17. The 5,205subheadings of HS12are grouped in 1,224headings, 96Chapters and 21 Sections.[87]

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85 See Official Records of the Economic and Social Council, 1993, Supplement No. 6 (E/1993/26), para. 162 (e).
86 Revisions of the HS entail the creation of new or deletion of existing headings (four digit codes) and subheadings (six-digit codes). In order to facilitate the maintenance and use of data in different versions of the HS, codes for commodities which have been deleted are not supposed to be reused.
87 HS Chapter 77 is reserved for possible future use and HS Chapters 98 and 99 are reserved for special use by Contracting Parties. Countries should avoid where possible the use of Chapters 98 and 99. The revised IMTS Compilers Manual will contain more information on the practices of countries regarding the use of Chapters 98 and 99.

13.18. The general structure of HS12is as follows:

Sections I to IV:	Agricultural products
Sections V to VII:	Minerals, chemical and related products, plastics, rubber and articles thereof
Sections VIII to X:	Animal products, such as hides, skins and furskins, as well as wood, cork, pulp, paper, and articles thereof
Sections XI and XII:	Textiles, footwear and headgear
Sections XIII to XV:	Articles of stone, plaster, cement, asbestos, mica and the like, ceramic products, glass, pearls, precious or semi-precious stones, precious metals, jewelry, base metals and articles thereof
Section XVI:	Machinery, mechanical appliances and electrical equipment
Section XVII:	Vehicles, aircraft, vessels and associated transport equipment
Section XVIII:	Optical, photographic, cinematographic, measuring, checking, precision, medical or surgical instruments and apparatus, clocks and watches, musical instruments
Section XIX:	Arms and ammunition
Sections XX and XXI:	Miscellaneous manufactured articles, such as furniture, lighting fittings, prefabricated buildings, sports requisites, works of art, collectors' pieces and antiques

13.19. Environmental and social issues of global concern are the major feature of the HS12 amendments, particularly the use of the HS as the standard for classifying and coding goods of specific importance to food security and the early warning data system of the United Nations' Food and Agriculture Organization (FAO). The volume of amendments within, for instance, Chapter 3, for the separate identification of certain species of fish and crustaceans, molluscs and other aquatic invertebrates, is substantial. However, the modifications aim at improving the quality and precision of trade data in these commodities. The amendments include, *inter alia*, improved specifications for species from the Southern hemisphere. These amendments will enable economic trends in products other than those familiar to North Atlantic consumers to be monitored.

13.20. In the same vein, new subheadings have been created for the separate identification of certain edible vegetables, roots and tubers, fruit and nuts, as well as cereals. The HS12 also features new subheadings for specific chemicals controlled under the Rotterdam Convention and ozone layer depleting substances controlled under the Montreal Protocol. Other amendments resulted from changes in international trade patterns. These include deleting 43 subheadings due to the low volume of trade in specific products, separately identifying certain commodities in either existing or new headings, and reflecting advances in technology where possible.

13.21. Finally, a number of amendments aim to clarify texts to ensure uniform application of the HS.

13.22. The WCO Secretariat has issued the correlation tables between the HS12and HS07

versions of the HS[88], and updated HS publications, such as the Explanatory Notes, the Compendium of Classification Opinions and the Alphabetical Index. Customs administrations also have a serious task to ensure timely implementation of HS12, as required by the HS Convention. Trade data compilers are advised to cooperate with national customs administrations in order to ensure that data collection in terms of HS12 is carried out on time.[…need to elaborate here…]

D. Application of the HS for coding traded goods – challenges and good practices

13.23. The Harmonized System incorporates a series of preliminary provisions codifying the principles on which the HS is based and laying down general rules to ensure uniform legal interpretation. There are six of these rules, known as the General Rules for the Interpretation, also known as General Interpretative Rules (or GIRs), which are applied in hierarchical fashion, i.e., Rule 1 takes precedence over Rule 2, Rule 2 over Rule 3, etc. Compilers should apply these rules when classifying goods not classified by customs. An overview of these rules and the classification issues to which they apply is provided below.

13.24. *GIR 1: Role of titles of Sections and Chapters and Sub-Chapters*. The titles of Sections, Chapters, and Sub-Chapters are provided for ease of reference only; for legal purposes, classification shall be determined according to the terms of the headings and any relative Section or Chapter Notes. There are, however, cases where the texts of the headings and Notes do not, of themselves, determine the appropriate heading with certainty. Classification is then effected by application of the other Rules.

13.25. *GIR 2(a): Incomplete or unfinished articles; unassembled or disassembled goods*. The scope of any heading which refers to a particular article covers not only the complete article but also that article incomplete or unfinished, provided that, as presented, it has the essential character of the complete or finished article. Complete or finished articles presented unassembled or disassembled, usually presented as such due to the requirements or convenience of packing, handling or transport, are to be classified in the same heading as the assembled article. *Examples of application*:

(a) A machine lacking only a flywheel, a bedplate, calendar rolls, tool holders, etc., is classified in the same heading as the machine, and not in any separate heading provided for parts. Similarly, a machine or apparatus normally incorporating an electric motor (e.g., electro-mechanical hand tools of heading 84.67) is classified in the same heading as the corresponding complete machine even if presented without that motor.

(b) For convenience of transport many machines and apparatus are transported in an unassembled state. Although in effect the goods are then a collection of parts, they are classified as being the machine in question and not in any separate heading for parts. The same applies to an incomplete machine having the features of the complete machine, presented unassembled.

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88 See WCO Web site at www.wcoomd.org/home_hsoverviewboxes.htm.

13.26. *GIR 2(b): Mixtures or combinations of materials or substances referred to in one heading*. The scope of any heading covering certain materials or substances also includes goods consisting only partly of such materials or substances, unless another heading refers to them in their mixed or composite state. As a consequence of this rule, mixtures and combinations of materials or substances, and goods consisting of more than one material or substance, if, *prima facie*, classified under two or more headings, must be classified according to the principles of Rule 3.

13.27. *GIR 3(a): Mixtures, combinations, and goods put up in sets for retail sales, classifiable,* prima facie*, under two or more headings*. Goods should be classified in the heading giving the most specific description. However, there is a provision that if two or more headings each refer to only one of the materials or substances contained in mixed or composite goods, or to only some of the articles included in a set put up for retail sale, those headings are to be regarded as equally specific in relation to those goods, even if one of them gives a more complete description than the others. *Examples of application*:

(a) Tufted textile carpets, identifiable for use in motor cars, which are to be classified not as accessories of motor cars in heading 87.08 but in heading 57.03, where they are more specifically described as carpets.

(b) Unframed safety glass consisting of toughened or laminated glass, shaped and identifiable for use in aeroplanes, which is to be classified not in heading 88.03 as parts of goods of heading 88.01 or 88.02 but in heading 70.07, where it is more specifically described as safety glass.

13.28. *GIR 3(b): Classification of goods according to the material or component which gives them their essential character*. Covered are such articles as mixed or composite goods, goods consisting of an assembly of different articles, and goods put up in sets for retail sale. It applies only if Rule 3 (a) fails. According to this rule goods are classified in the heading applicable to the material or component which gives them their essential character. *Examples of composite goods which can be classified by reference to Rule 3 (b) are*:

(a) Ashtrays consisting of a stand incorporating a removable ash bowl.

(b) Household spice racks consisting of a specially designed frame (usually of wood) and an appropriate number of empty spice jars of suitable shape and size (usually of glass with lids of plastics or metal).

As a general rule, the components of these composite goods are packaged together.

13.29. *Examples of sets which can be classified by reference to Rule 3 (b) are*:

(a) Sets consisting of a sandwich made of beef, with or without cheese, in a bun (heading 16.02), packaged with potato chips (French fries) (heading 20.04): *Classification in heading 16.02.*

(b) Sets, the components of which are intended to be used together in the preparation of a spaghetti meal, consisting of a packet of uncooked spaghetti (heading 19.02), a sachet of grated cheese (heading 04.06) and a small tin of tomato sauce (heading 21.03), put in a carton: *Classification in heading 19.02*.

(c) Hairdressing sets consisting of a pair of electric hair clippers (heading 85.10), a comb (heading 96.15), a pair of scissors (heading 82.13), a brush (heading 96.03) and a towel of textile material (heading 63.02), put up in a leather case (heading 42.02): *Classification in heading 85.10*.

(d) Drawing kits comprising a ruler (heading 90.17), a disc calculator (heading 90.17), a drawing compass (heading 90.17), a pencil (heading 96.09) and a pencil-sharpener (heading 82.14), put in a case of plastic sheeting (heading 42.02): *Classification in heading 90.17*.

13.30. *GIR 3(c): Use of the heading last in numerical order*. This rule takes effect when goods cannot be classified by application of GIR 3 (a) or GIR 3 (b). It provides that goods should be classified in the heading which occurs last in numerical order amongst those which equally merit consideration in determining their classification.

13.31. *GIR 4: Goods which are not specifically covered by any heading*. Goods which cannot be classified in accordance with Rules 1 to 3- for example, because they have newly appeared on the world market - shall be classified in the heading appropriate to the goods to which they are most akin.Kinship can, of course, depend on many factors, such as description, character, purpose.

13.32. *GIR 5(a): Cases, boxes and similar containers, suitable for long-term use and presented with the articles for which they are intended*. These should be classified in the same heading/subheading as the articles for which they are intended. Examples are: camera cases, musical instrument cases, etc. This rule does not apply to containers which give the whole its essential character, such as a silver caddy containing tea.

13.33. *GIR 5(b): Packing materials and packing containers presented with the goods they hold*. These are to be classified in the same heading/subheading as the goods they hold. However, this provision is not binding when such packing materials or packing containers are clearly suitable for repetitive use.

13.34. *GIR 6: Classification in subheadings*. Classification in the subheadings of a heading must be determined, *mutatis mutandis*, with reference to the principles applicable to classification in the 4-digit headings; in any event, the terms of the subheadings or Subheadings Notes must be given precedence. This Rule also specifies that, for classification purposes, only subheadings of the same level are comparable; this means that, within a single heading, the choice of a one-dash subheading may be made only on the basis of the texts of the competing one-dash subheadings; similarly, selection of the appropriate two-dash subheading, where necessary, may be made only on the basis of the texts of the subdivisions within the applicable one-dash subheading.

13.35. The Rules establish classification principles which, unless the texts of headings, subheadings or Section or Chapter Notes otherwise require, are applicable throughout the HS Nomenclature. Moreover, the Rules clearly provide a step-by-step basis for the classification of goods within the HS, so that in every case a product must first be classified in its appropriate 4-digit heading, then in its appropriate 1-dash subdivision within that heading and only thereafter in its appropriate 2-dash subheading within the predetermined 1-dash subdivision; at each step no account being taken of the terms of any lower-level subdivisions. This principle applies without exception throughout the HS.

13.36. *Settlement of classification disputes*. Where a dispute arises between two or more Contracting Parties regarding the interpretation or application of the HS, the parties concerned should, in the first instance, endeavour to reach agreement among themselves. However, classification disputes which cannot be settled by direct negotiation are referred through the WCO Secretariat to the HS Committee which after examination makes appropriate recommendations for their solution. If the Committee is unable to settle a dispute, it refers the issue to the WCO Council for a recommendation on the question. In either event, the parties to a dispute may agree in advance to accept the recommendation of the Committee or the Council as binding.

13.37. Compilers should have a close dialogue with customs on implementation of the HS, and should familiarize themselves with the HS so that they can review, for statistical purposes, classification assignments made by customs and assign appropriate HS codes to commodities not labelled by customs.

13.38. *Measures to ensure proper classification*. Goods need to be properly classified in the HS, not only in order to ensure revenue collection, but also for the purposes of, for example, international trade statistics. The HS when incorporated in the national tariff becomes a national law. Entering wrong codes in the goods declaration may entail legal consequences. Compilers of trade statistics should cooperate with customs administrations in efforts to increase awareness within the business community of the importance of proper goods classification.

13.39. One important measure is to establish customs laboratories. The technical nature of classification work often demands laboratory analysis of certain products to enable their correct HS classification. Customs laboratories are able to establish an efficient system within which samples of goods for analysis are sent to the laboratory, prompt and relevant analyses of such samples are performed and results are expeditiously reported. The WCO has prepared a *Customs Laboratory Guide* [89] to serve as a practical handbook to establish or improve customs laboratories in developing countries.

13.40. The training of customs officers and statisticians is another way of ensuring more reliable classification. It is advised that statistical offices, in cooperation with customs, develop appropriate training programmes. It is also advised that trade data compilers periodically undertake special efforts to assess the accuracy of classification. These may include case-studies focusing on the most frequently exported/imported goods or on traders with a significant share in total country exports/imports.

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89 World Customs Organization (Brussels, 1996).

13.41. *Use of HS Chapters 98 and 99*. The HS considers Chapters 98 and 99 to be reserved for special use by Contracting Parties. In practice there is a tendency for countries to reserve Chapter 98 for goods which can be classified at the chapter level of the HS and to use Chapter 99 for recording special transactions and commodity categories not classified according to the HS (e.g., postal packages not classified according to kind). It is advised, where possible, that this practice be followed by all countries. Compilers are encouraged to code items attributed to Chapters 98 and 99 by applying the formats "98hh" (where "hh" is the code of the HS chapter where goods could have been classified) and "99xxxx" (where "xxxx" is a sequence of digits chosen by a country to code a particular transaction).

13.42. *Re-use of codes*. Whenever revisions are made to the HS, some existing items are deleted and new items are added by the creation of new headings (4-digit codes) or subheadings (6-digit codes). In order to accommodate users who maintain data in different versions of the HS, code numbers for commodities which have been deleted are not re-useduntil a certain period has elapsed, unless unavoidable. Where possible, compilers are encouraged to follow the same practice for the more detailed commodity codes [used in national commodity classifications].

13.43. *Measures to improve the quality of classification decisions*. As part of the technical assistance programme of its Nomenclature and Classification Sub-Directorate, the WCO periodically conducts regional training seminars to enhance the classification skills of local customs personnel. At such seminars, classification principles are reviewed and practice is given in classifying sample goods. Unresolved classification questions raised during such seminars may be forwarded to the Secretariat, which prepares an answer. If the Contracting Party does not agree it can ask that the matter be referred to the HSC for resolution. WCO has also assisted customs offices in establishing customs laboratories to which goods may be sent when technical data are required for proper classification. In addition, representatives of intergovernmental and other international organizations are often invited to be present at HSC meetings, where they are able to make the Committee aware of the need for new elements in the classification, of industry practices which affect classification (e.g., of the use of an unusual form of measurement, or a particular means of distinguishing quality, with regard to a given commodity), and of difficulties traders have with classifying certain goods.

E. Country experiences in the use of the HS for data dissemination and analytical purposes

13.44. Since 1988 countries accumulated a lot of experience in the use of the HS for data dissemination and analytical purposes.[…].

Strengths of HS, its weaknesses and challenges in the implementation and use

13.45. HS is widely used for analytical purposes. In this respect it has both strengths and weaknesses.

13.46. Strengths of HS include:

(a) HS provides the legal text and extensive explanatory notes which ensure the maximum possible uniform interpretation of the definition of the used commodity groups thus creating a universal trade language;

(b) HS enables international comparability of countries trade statistics at the 6-digit level, facilitating trade data reconciliation studies (see chapter 16);

(c) The HS Convention allows each country to add its own level of statistical detail beyond the 6-digit subheading thus providing a necessary flexibility to accommodate national needs;

(d) [Additional input?].

13.47. Weaknesses of HS and challenges in its implementation and use include:

(a) HS is very complex which makes it difficult to implement in some countries and may result in classification errors unless the adequate training is provided. Also, the HS Explanatory Notes, which are critical for classification guidance, are costly (over $1000 U.S.), which may reduce their usage;

(b) Definition of commodity groups in the HS is not always satisfactory for economic analysis. This necessitates development of various analytical classifications (see Section F below);

(c) Commodities may not be always classified in a way which reflects some countries circumstances, particularly at the most detailed levels. Many countries further divide these codes to provide the detail needed for tariff and statistical purposes.;

(d) The recommended units of quantity don't always reflect the quantity units used by industry which, in certain cases, creates additional difficulties in the HS implementation and analytical use[90];

(e) Frequent revisions of HS result in the discontinuation or merging of some codes every five or so years. This causes breaks in time series needed for analytical purposes.

13.48. In order to build up on the strengths of the HS and minimize it weaknesses countries might wish to continue to provide more detailed commodity breakdowns beyond the 6-digit HS-level.[…to be elaborated…].

13.49. In addition to the HS for trade data dissemination and analytical purposes countries are advised to use other product classifications such as SITC, CPC and BEC; ISIC, which is an international activity classification can be used to ensure better integration of trade and enterprise statistics. Details on SITC, CPC, BEC and ISIC are provided in chapter 13B.

[BOX: **Eurostat experience with the development and use of the Combined Nomenclature** – to be provided by Eurostat]

90For example, natural gas traders work in BTUs, not km3. [This is also particularly true in the textiles area].

F. Other International Classifications relevant to trade statistics

13.50. The HS classification scheme and structure, as explained in the previous chapter, reflect primarily the nature of *traded* goods. However, for *analytical* purposes, such an approach is not always the most appropriate. To provide alternative groupings of goods other classifications are developed and used internationally, namely *Standard International Trade Classification* (SITC)[91], *Central Product Classification* (CPC)[92] and *Classification by Broad Economic Categories* (BEC)[93]. The productive economic activities are classified in the *International Standard Industrial Classification of All Economic Activities (ISIC)*[94]. This chapter contains details on these classifications and their uses.

G. Standard International Trade Classification

13.51. History of the SITC is described in IMTS 2010 and is not reproduced here. It should be reminded, however, that in 1999, the Commission confirmed the recognition of SITC as an analytical tool[95] and IMTS 2010 recommended that, 'in addition to the HS, countries can use SITC for the dissemination and the analysis of trade statistics according to user requirements'. The majority of countries and international organizations continue to use SITC for various purposes, such as the market research and study of long-term trends in international merchandise trade.

13.52. This section focuses on the fourth revision of SITC.SITC, Rev.4is based on HS07 but retains the classification scheme of the SITC, Rev.3 which classifies goods taking into account the following considerations:

      (a) the nature of the merchandise and the materials used in its production,

      (b) the processing stage,

      (c) market practices and the uses of the product,

      (d) the importance of the commodity in terms of world trade, as well as

      (e) technological changes.

13.53. In the past the United Nations Statistics Division (UNSD) had issued appropriate correspondence tables between SITC, Rev 3, and each new edition of the HS. However, a strict period-to-period comparability was being lost for a growing number of series owing to significant changes in the HS classification scheme. The Statistical Commission, at its thirty-fifth session (2-5 March 2004), agreed that the fourth revision of SITC was needed in view of

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91 The fourth revision of SITC was issued in 2006 and contains a description of its origin and development. See United Nations publication, Sales No. E.06.XVII.10.
92 The latest version of CPC is available at http://unstats.un.org/unsd/cr/registry/cpc-2.asp.
93 The fourth revision of BEC was issued in 2003. See United Nations publication, Sales No. E.03.XVII.8.
94 The fourth revision of ISIC was issued in 2008. See United Nations publication, Sales No. E.08.XVII.25.
95See Official Records of the Economic and Social Council, 1999, Supplement No. 4 (E/1999/24), Chapter II, para. 24 (c).

accumulated changes in the HS.[96] SITC, Rev 4, was prepared by the United Nations in cooperation with a number of interested international organizations and issued in 2006.[97]

13.54. The scope of SITC, Rev 4, remains the same as that of SITC, Rev 3, that is SITC, Rev 4 covers all goods classifiable in the HS except for monetary gold, gold coin and current coin. All SITC, Rev 4 basic headings (except for 911.0 and 931.0) are defined in terms of HS07 subheadings. Since SITC is now recommended only for analytical purposes, there was no need, except in several special cases, to create new basic headings in SITC, Rev 4, which would be in one-to-one correspondence with the new HS07 subheadings.

13.55. As a general rule, an SITC, Revision 3, basic heading was deleted if:

(a) corresponding HS88 subheadings had been deleted from HS07 or

(b) its scope could not be defined in terms of HS07 subheadings without significant change (this occurred when involved HS88 subheadings were partially correlated to several HS07 subheadings).

A new SITC, Rev 4, basic heading was introduced if:

(a) several new HS subheadings could be grouped in an economically meaningful way and such a group fitted into the classification scheme of SITC with no (or minimal)changes in the scope of the existing SITC, Rev 3, headings;

(b) some HS subheadings merited separate identification in order to better reflect commodity structure and/or practice of customs in recording of international trade; or

(c) owing to action taken in accordance with (a) and (b), some HS07 subheadings could not be correlated to the existing basic SITC, Rev 3, headings.

In the process of revision, the scope of some headings was modified. When such a modification was deemed significant, the heading involved was assigned a new code.

13.56. SITC, Rev 4, retains the overall structure of SITC, Rev 3, and consists of the same number of sections, divisions and groups. The changes made were at the level of basic headings and some subgroups. The classification contains 3,993 basic headings and subheadings, which are assembled in 262 groups, 67 divisions and 10 sections. The SITC sections are as follows:

0   Food and live animals
1   Beverages and tobacco
2   Crude materials, inedible, except fuels
3   Mineral fuels, lubricants and related materials
4   Animal and vegetable oils, fats and waxes
5   Chemicals and related products, not elsewhere specified
6   Manufactured goods classified chiefly by material
7   Machinery and transport equipment
8   Miscellaneous manufactured articles
9   Commodities and transactions not classified elsewhere in SITC

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[96]See Official Records of the Economic and Social Council, 2004, Supplement No. 4 (E/2004/24), Chapter V, para. 4 (i).
[97]United Nations publication, Sales No.E.06.XVII.10.

13.57. The coverage of the sections in all revisions of SITC is very close, so that historical series of data are largely comparable at this level of aggregation. The historical comparability is also preserved for numerous series at the more detailed levels of the classification.

13.58. *National practices in use of SITC*. According to a survey conducted by the UNSD in 2006, SITC remains an important analytical and dissemination tool for most countries, especially for developed (82% of developed and 56% of developing countries use it). Many developing countries prefer to use the HS for this purpose as this reduces their data processing and data dissemination burden. It has to be stressed in this connection that dissemination of trade data in terms of SITC by all countries is seen as a good practice, which provides both national and international users with data of high analytical value. The conversion of the data compiled in terms of the HS into SITC commodity groupings requires minimal resources allocation as it is done electronically using appropriate conversion tables. Currently UNSD converts all HS data into SITC data and may assist interested developing countries in setting up the conversion procedures.

13.59. *International practices in use of SITC*. SITC is widely used in the international databases and trade data expressed in terms of SITC are in high demand by research institutions as the commodity aggregates provided in terms of SITC are more suitable for analytical purposes and SITC series are compiled starting from the 1950th. The UN Comtrade stores SITC defined trade data series starting from 1960th. Major international and organizations, for example World Trade Organization (WTO), United Nations Conference on Trade and Development (UNCTAD) and World Bank, publish SITC trade data and use them for analytical purposes. Research   [… needs elaboration and more examples here…]

[BOX:**UNCTAD commodity aggregates based on SITC** – to be provided by UNCTAD]

H. Central Product Classification

13.60. *History of the Central Product Classification*. The Central Product Classification (CPC) originated from initiatives in the early 1970s to harmonize international classifications. The new classification was intended to cover both goods and services (products) and would use the subheadings of the Harmonized System as building blocks for the part dealing with transportable goods.

13.61. The first release of CPC called The Provisional Central Product Classification, was approved by the Statistical Commission at its twenty-fifth session in 1989[98] and published by the United Nations in 1991.[99] Since that time several revisions of CPC were created and in 2008 CPC, Version 2.0 was completed and approved by the UN Statistical Commission. This version of CPC is divided into 10 sections, 71 divisions, 324 groups, 1,267 classes and 2,738 subclasses.

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98 See Official Records of the Economic and Social Council, 1989, Supplement No. 3 (E/1989/21), paras. 95(b) and (f).
99Provisional Central Product Classification, Statistical Papers Series M, No. 77 (United Nations publication,Sales No. E.91.XVII.7).

Sections 0 to 4 are based on HS07,[100] and aggregate the HS codes into product categories suitable for various types of economic analysis within the national accounts framework. This part of the classification, like SITC, provides for the rearrangement of HS-based international merchandise trade statistics for analytical purposes. Sections 5 to 9 of CPC, Version 2.0 go beyond the HS categories to provide a classification of service products.[101]

13.62. *National practices in use of CPC* .Only a minority of countries currently publish trade data in terms of CPC (11% of developed and 8% of developing). However, more countries are able to make such data available electronically. As in the case of SITC, the conversion of trade data to CPC does not require significant resources and can be done using appropriate conversion tables. It is advised that country agencies responsible for the dissemination of trade statistics make efforts to provide users with the data expressed in terms of CPC. Such data will significantly facilitate the use of trade statistics in economic analysis including in the assessment of the impact of external trade on the consumption and production patterns in a country and in the compilation of a country's national accounts.

13.63. [Box with an example of CPC use in a country? Any volunteers?]

13.64. *International practices in use of CPC.* The analytical value of CPC is being more and more recognized by the international organizations [… examples …]

[Use footnote to para 13.61 as an example. In fact the European CPA2008 and NACE Rev.2 are in linerespectively with CPC 2.0 (goods and services) and ISIC Rev. 4 (prevalent economic activity. <Eurostat>]

I.   Classification by Broad Economic Categories

13.65. *History of the Classification by Broad Economic Categories*. The original version of the Classification by Broad Economic Categories (BEC)[102] was devised mainly for use by the UNSD for the summarization of data on international trade by large economic classes of commodities and as a means for converting trade data compiled in terms of SITC into end-use categories that were meaningful within the framework of System of National Accounts (SNA),[103] namely, categories approximating the three basic classes of goods in SNA: capital goods, intermediate goods and consumption goods.[104] BEC has 19 basic categories that can be aggregated to approximate these three basic classes of goods, thus permitting trade statistics to be considered jointly with other sets of general economic statistics - such as national accounts and industrial statistics - for national, regional or global economic analysis.

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100 The correspondences between HS07 and CPC, Version 2.0 can be accessed at the United Nations Statistics Division website at http://unstats.un.org/unsd/class.

101 The CPC is used by many countries as the basis for development of their national product classifications. For example, the Statistical Classification of Products by Activity (CPA)was created at the level of the European Union (EU) by assigning CPC products to one single activity category.

102United Nations publication, Sales No.E.71.XVII.12.

103See Official Records of the Economic and Social Council, Forty-fourth Session, Supplement No. 10 (E/4471), paras. 116 and 118.

104See United Nations, A System of National Accounts (United Nations publication, Sales No. E.69.XVII.3), para. 1.50.

13.66. BEC contains 7 sections, namely:

1. Food and beverages
2. Industrial supplies not elsewhere specified
3. Fuels and lubricants
4. Capital goods (except transport equipment), and parts and accessories thereof
5. Transport equipment, and parts and accessories thereof
6. Consumer goods not elsewhere specified
7. Goods not elsewhere specified

These sections are broken down, as applicable, by other criteria such as primary and processed, durable, semi-durable, non-durable goods etc.

13.67. The Statistical Commission expected the BEC to serve as a guideline for the development of national classifications of imports according to broad economic categories.[105] However, at its sixteenth session (5 - 15 October 1970), the Statistical Commission recognized that countries might wish to adapt the Classification for national purposes in different ways to meet national requirements, and concluded that consequently, the classification was not to be regarded as a "standard" classification in the same sense as, for example, SITC.[106]

13.68. *Revisions of BEC*. The original BEC was defined in terms of the divisions, groups, subgroups and basic headings of the Standard International Trade Classification, Revised[107]. Over the years several correlation tables between BEC and various revised versions of SITC and the HS were prepared by UNSD and made publicly available.[108]

13.69. *National practices in use of BEC.* The UN survey of country practices confirmed that BEC is recognized as an important analytical tool and many countries (41% of developed and 46% of developing) publish trade data in terms of BEC. Many more can make such data available electronically on request. This is a good practice and should be encouraged. A number of countries use BEC for compilation of their national accounts and other purposes. There is a significant interest in trade data expressed in terms of BEC among research institutions. In this connection it should be noted that each country should prepare its customized conversion table between the HS and BEC as the main use of certain products may differ from country to country.

13.70. *International practices in use of BEC.* The usefulness of BEC is recognized by the UNSD which converts trade data reported by countries in terms of the HS to BEC categories and makes such data available via UN Comtrade. Other international organizations [… more examples here…] .

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105 See Official Records of the Economic and Social Council, Forty-fourth Session, Supplement No. 10 (E/4471), para. 123.
106 See Official Records of the Economic and Social Council, Fiftieth Session, Supplement No. 2 (E/4938), para. 95.
107Statistical Papers, Series M, No. 34, 1961 (United Nations publication, Sales No. 61.XVII.6).
108 See the UNSD website at […]

J.   International Standard Industrial Classification of all Economic Activities

13.71. *Purpose of ISIC*. Unlike the HS, SITC, BEC and CPC that are product classifications, ISIC is the international reference classification of productive activities. Its main purpose is to provide a set of activity categories that can be utilized for the collection and reporting of statistics according to such activities.

13.72. Since the adoption of the original version of ISIC in 1948,[109] ISIC has provided guidance to countries in developing national activity classifications and has become an important tool for comparing statistical data on economic activities at the international level. Wide use has been made of ISIC, both nationally and internationally, in classifying data according to kind of economic activity in the fields of economic and social statistics, such as for statistics on national accounts, demography of enterprises, employment and others.

13.73. The original ISIC was revised four times. The third and fourth revisions of ISIC put increased emphasis on harmonization with other activity classifications and product classifications, adding considerable complexity and constraints that did not apply in earlier revisions of ISIC. As ISIC occupies a central position in the international comparison and analysis of a wide range of statistics, a great deal of attention was devoted to ensuring that ISIC would be compatible with both the economic structure, the statistical practice and needs of the different countries of the world.

13.74. *Use of ISIC in economic statistics.* This classification is applied to classify statistical units, such as establishments or enterprises, according to the principle economic activity in which they engage. At each level of ISIC, each statistical unit is assigned to one and only one ISIC code. The set of statistical units that are classified into the same ISIC category is then often referred to as an industry, such as "the furniture industry", which would refer to all units classified in ISIC division 31 (Manufacture of furniture), or the "construction industry", which would refer to all units classified in ISIC section F (Construction). This standardized categorization makes ISIC an important tool for socio-economic statistics that need to be arranged in accordance with the productive system of the economy.

13.75. *The principal activity of an economic entity* is the activity that contributes most to the value added of the entity, as determined by the so called "top-down" method. According to the top-down method, it is not necessary that the principal activity account for 50 per cent or more of the total value added of an entity or even that its generated value added exceed that of all other activities carried out by the unit, although in practice it will do so in the majority of cases[110].

13.76. Wide use has been made of ISIC both nationally and internationally in classifying data according to kind of economic activity. An increasing number of countries have adapted their national activity classifications to the ISIC structure or can provide their data according to ISIC.

109*Statistical Papers*, No. 4, Lake Success, New York, 31 October 1949.
110See […] for details

13.77. *The fourth revision of ISIC.* The structure of the current fourth revision of ISIC was considered and approved by the Statistical Commission at its thirty-seventh session, in March 2006,[111] as the internationally accepted standard. It contains 21 sections, 88 divisions, 238 groups and 419 classes. The ISIC sections are listed below:

A. Agriculture, forestry and fishing
B. Mining and quarrying
C. Manufacturing
D. Electricity, gas, steam and air conditioning supply
E. Water supply; sewerage, waste management and remediation activities
F. Construction
G. Wholesale and retail trade; repair of motor vehicles and motorcycles
H. Transportation and storage
I. Accommodation and food service activities
J. Information and communication
K. Financial and insurance activities
L. Real estate activities
M. Professional, scientific and technical activities
N. Administrative and support service activities
O. Public administration and defence; compulsory social security
P. Education
Q. Human health and social work activities
R. Arts, entertainment and recreation
S. Other service activities
T. Activities of households as employers; undifferentiated goods- and services-producing activities of households for own use
U. Activities of extraterritorial organizations and bodies

13.78. It should be noted that ISIC, Rev.4 is the outcome of a review process that spanned several years and involved contributions from many classifications experts and users around the world. This process resulted in an ISIC structure that is more detailed than the previous version, responding to the need to identify many new industries separately. This is especially applicable in the case of services. Comparability has also been enhanced with a number of other regional activity classifications, making this version of ISIC a much improved tool for international data comparison. A number of alternate aggregations have been included in ISIC, Rev.4. They provide analytical tools for areas which, for conceptual reasons, do not lend themselves to aggregation within the existing ISIC structure.

13.79. *Uses of ISIC in trade statistics.* Since ISIC has been used for the collection and presentation of statistics in many areas, there has been a strong need for correspondence tables between ISIC and other classifications. When drafting ISIC, Rev.4, and simultaneously CPC, Ver.2, a strong link was established between the two classifications. By rearranging the CPC categories according to their industrial origin and using the link between CPC, SITC and HS, a

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111 See Official Records of the Economic and Social Council, 2006, Supplement No.4 (E/2006/24), chapter I, para. 3, item 37/105 (a).

detailed correspondence table between the HS, SITC, CPC and ISIC was established.[112] Countries may find this correspondence useful when rearranging the trade data compiled in terms of the HS by activity categories.

13.80. The results of the UN survey of country practices show that a significant proportion of countries publish trade data in terms of ISIC (15% developed and 24% developing). Usually such data are obtained by the transformation of HS data into the ISIC defined data using the conversion table between the HS and ISIC. Such practice may yield an acceptable approximation of commodities exports generated by various economic activities [use in imports statistics?]
   [Review/amend paras 13.79-80 to better describe the correspondence between HS,CPC
   and ISIC]

13.81. However, such data transformation may be misleading in many cases as there is no one-to-one correspondence between products and activities. In this context, IMTS 2010 gives preference to the alternative approach. Countries are advised to obtain information on trade flows by activity by identifying the activity of the trader and performing appropriate aggregation. For details on the use of ISIC in trade data collection via the enterprise surveys see chapter 4.

K. Correspondence and conversion tables and their use

13.82. *Correspondence tables.* The correspondence tables (also known as correlation tables) define the scope of headings of one classification in terms of the scope of headings of another classification. There can be a strict one-to-one correspondence between headings, when the scope of a heading of one classification is equal to the scope of a heading of another classification, or various kinds of split correspondence. A split correspondence exists when the scope of a heading of one classification overlaps with the scope of several headings of another classification. […examples to be inserted…]. Whenever successive versions of the same classification are produced, a correspondence table between the headings of the revised and original versions is issued. A reverse table, showing the correspondence between headings of the original and revised versions, is also frequently produced.

13.83. *Conversion tables.* The correspondence tables enable a continuous time series to be maintained when various versions of a given classification are used or data to be expressed in terms of another classification. However, if the scope of a heading of one classification is split between several headings of another, an exact correspondence becomes impossible and there is a discontinuity in some data series. For data processing purposes it is frequently desirable to substitute a split correspondence by an approximate, but one-to-one correspondence. When this is done the resulting table is called a conversion table. It should be noted that if there are no split correspondences, the data conversion can be done using the correspondence table. Examples of such a straightforward conversion are the conversion of HS88 data into SITC, Rev.3 data and HS07 data into SITC, Rev.4 data. On the contrary, the conversion of HS88 and HS96 data into SITC, Rev.4 data would require approximations as there exist a number of split correspondences between those versions of the HS and SITC, Rev.4.

112These and other correspondence tables are available in electronic format only and can be accessed at the United Nations Statistics Division website at http://unstats.un.org/unsd/class.

13.84. The use of conversion tables containing such approximations is warranted if the scope of the headings involved is quite similar. However, differences in scope between certain basic headings may be so great that no meaningful one-to-one correspondence is possible at that level. In such a case, a correspondence can only be established between basic headings of one version and the higher level headings of the other. The agency responsible should study what approach should be adopted to find a reasonable balance between the requirement of data series continuity and data comparability.

13.85. *Uses of the correlations and conversions.* The main uses of correlation and conversion tables in trade statistics include:

> (a) maintenance of comparable data series when the classification used in compilation is revised;
>
> (b) reconciliation of data obtained from various sources (and expressed in different classifications); and
>
> (c) recompilation of trade data for another purpose (e.g. to analyse trade in terms of broad categories of goods or by various economic activities).

13.86. To make users aware of the methodology adopted for data conversion it is a good practice that all correlation and conversion tables are documented and made publicly available as part of the metadata. It is advised that the agency responsible alerts users regarding the data conversions which might diminish data comparability, so that the users will make their own assessment of whether such data is suitable for their purposes.

13.87. *Policy regarding preparation and dissemination of correlation and conversion tables.* The WCO produced the first version of the HS in 1988 (HS88). At the same time it issued a publication entitled *Correlation Tables between the Harmonized System and the 1978 version of the CCCN*, to link the HS with the Customs Co-operation Council Nomenclature (CCCN)[113]. This was a two-way correlation, that is, from HS to CCCN, and from CCCN to HS. When the HS is revised, the WCO issues new correlations between the new and preceding versions of the HS and makes them publicly available.[114]

13.88. The UNSD has created correlation and conversion tables between various versions of the HS, SITC and BEC, so that it could maintain its time-series data on trade. UNSD also maintains correlations and conversions between HS, CPC and ISIC[115].

13.89. *Correspondence tables with non-HS national commodity classifications.* If a country compiles data in terms of a non-HS classification (provided that said classification is quite detailed, with criteria similar to the ones applied in the HS), compilers are advised to develop a correspondence table between the non-HS classification and the HS, and to make it available to

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113 This text was initially known as the "Brussels (Tariff) Nomenclature" (BTN), but in 1974 it was renamed the "Customs Co-operation Council Nomenclature" (CCCN), to avoid any confusion as to the international organization responsible.
114See WCO Website at www.wcoomd.org/home_hsoverviewboxes.htm.
115See UNSD website at …

the interested users.

13.90. Compilers should do data conversions at the most detailed level of the applicable classifications. If compilers need to recompile their data from one classification to another they should check with WCO/UNSD about available correlations; this saves resources and enables use of standardized correlations.

Compilers Manual 2010

Part III   Compilation of particular data items

Chapter 14   Valuation

Scope. This chapter will concentrate on the technical details of determining the statistical value of internationally traded goods (e.g. on adjustments to the invoice value in view of the use of different terms of delivery (Incoterms), determination of the statistical value in the cases where cross border movement of goods did not involve their sale). It will provide more detail on the approaches to valuation in selected difficult cases identified in IMTS 2010 (including software) and on additional valuation issues (i.e. allocation of transportation costs for combined shipments, discounts etc.). Challenges and good practices in the FOB valuation of imported goods will be specially highlighted and examples will be provided. Case studies of trade transactions where more than one country is involved will be described.

Structure. The chapter might consist of several sections focusing on:
(i)   Statistical value and its components: an overview;
(ii)   Use of supporting documents;
(iii)   Compilation of the statistical value of imported goods;
    a.   General principles;
    b.   Details on the compilation of CIF value (use of the invoice price and the adjustments due to the use of different terms of delivery);
    c.   Emerging good practices in the compilation of FOB value of imported goods;
(iv)   Compilation of statistical values of exported goods;
    a.   General principles;
    b.   Details on the compilation of FOB value of exported goods (use of the invoice price and the adjustments due to the use of different terms of delivery); use of non-customs sources of data;
(v)   Valuation of selected categories of imported and exported goods (identified in IMTS 2010);
(vi)   Additional valuation issues;
(vii) Issues of currency recording and conversion.

Chapter 14   Valuation

A. Statistical value and its components: an overview

14.1.   *Statistical value.* IMTS 2010 recommends that for all goods covered in international merchandise trade statistics, whether sold, exchanged or provided without payment, a statistical value should be recorded. IMTS 2010 further recommends that the statistical value of exported goods bean FOB-type value and the statistical value of imported goods be a CIF-type value. Countries are encouraged to compile FOB-type value of imported goods as supplementary information. The statistical value is defined in terms of three components: (a) the transaction value of the goods, (b) the value of services performed to deliver the goods to the border of the exporting country, which are not included in the transaction value, and (c) the value of the services performed to deliver the goods from the border of the exporting country to the border of the importing country, which are not included in the transaction value. FOB-type value comprises components (a) and (b), while CIF-type value is the sum of (a), (b) and (c).

14.2.   The recommendations imply that compilers should develop statistical procedures to make use of all price/value information available in customs records, other administrative sources and commercial documents and to estimate the statistical value of goods where such information is absent or insufficient. In order to obtain statistical value of the goods compilers should have a clear understanding of the basic concepts relevant to the valuation as well as the knowledge of advantages and limitations of various data sources.

14.3.   *Definition of transaction value.* IMTS 2010 recommends that the transaction value of the goods should be established in accordance with the WTO Agreement on Customs Valuation which defines it as "the price actually paid or payable for the goods when sold for export to the country of importation adjusted in accordance with the provisions of Article 8"[116] (IMTS 2010, Annex D, article 1).This price is to be calculated as "the total payment made or to be made by the buyer or for the benefit of the seller for the imported goods"; payments can be monetary or in the form of specified goods or services. [117]The compiler should be aware that the total payment made or to be made by the buyer or for the benefit of the seller for the imported goods according to Article 8 of the Agreement of the should include only the following items to the extent that they are incurred by the buyer but are not included in the price actually paid or payable for the goods:

(a) commissions and brokerage, except buying commissions[118];

(b) the cost of containers which are treated as being one for customs purposes with the goods in question;

(c) the cost of packing whether for labour or materials;

(d) the value, apportioned as appropriate, of the goods and services supplied directly or indirectly by the buyer free of charge or at reduced cost for use in connection with the

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116116 World Trade Organization, *The Results of the Uruguay Round of Multilateral Trade Negotiations: The Legal Texts* (Geneva, 1995), page 198
117 Ibid. Annex 1, Note to Article 1 and General Introductory Commentary, para. 1, p. 211
118 Buying commissions are […]

production and sale for export of the imported goods, to the extent that such value has not been included in the price actually paid or payable:

(e) royalties and license fees related to the goods being valued that the buyer must pay, either directly or indirectly, as a condition of sale of the goods being valued, to the extent that such royalties and fees are not included in the price actually paid or payable;

(f) the value of any part of the proceeds of any subsequent resale, disposal or use of the imported goods that accrues directly or indirectly to the seller.

Any costs incurred by the seller associated with goods delivery to the buyer and which buyer agrees to pay can be part of transaction value (e.g., export taxes and duties).

[WCO will be consulted on this to ensure correctness and to provide relevant examples]

14.4.   Even if legally the Agreement applies only in the case of imported goods subject to *ad valorem* duties IMTS 2010 recommends that for statistical purposes the transaction value of all imported and exported goods should be established on the basis of the Agreement.

14.5.   *Relationships between transaction value, customs value and statistical value.* Compilers should be aware of the fact that the Agreement defines customs value as transaction value, but gives customs authorities a lot of flexibility in determining its components. Countries are free to include in or exclude from the customs value, in whole or in part: (a) the cost of transport of the imported goods to the port or place of importation, (b) loading, unloading and handling charges associated with the transport of the imported goods to the port or place of importation; and (c) the cost of insurance. This means that depending on the country customs practice the transaction value can be defined differently and cover partially of wholly the cost of services performed to deliver the goods from their location in the exporting country to the border of the importing country.

14.6.   Customs rules may require that the transaction value of imported goods includes all cost components of CIF-type value and that the transaction value of exported goods include all components of FOB-type value. Whenever this is the case, it is a good practice to accept the customs value as the statistical value. In all other cases compilers should make the necessary adjustments to the available customs values as set out in Article 8.1 of the WTO Agreement on Valuation, including insurance and freight. If the required information is not available or does not exist (e.g., where goods cross the border without being sold, as with food and other humanitarian aid), the statistical value should be estimated using valuation principles set out below.

14.7.   *Statistical value and invoice price.* These are two different concepts. The invoice price represents an expected direct monetary payment to the seller and may not take account of other payments (both monetary or non-monetary) which should be included in or excluded from the transaction value. Therefore, the invoice price is usually only a starting point in the derivation of the customs and/or statistical values and has to be adjusted as necessary. The invoice price may not be acceptable for this purpose if the conditions of Article 1 of the WTO Agreement on

Customs Valuation are violated (e.g., the buyer is precluded by the seller from reselling the goods), in which case the transaction value should be determined on another basis provided for in the Agreement. Further, the invoice value depends on the terms of delivery of the goods and may include various service components conceptually covered in items (b) and (c) of paragraph 2. Therefore, it is very important that when estimating statistical value compilers have information about the delivery terms, so that the specific cost items included/not included in the invoice price can be identified and compilers are in a position to make needed calculations to obtain the recommended statistical value (see sections B and C).

14.8.   *The value of service components.* The services rendered in the delivery of goods to the border of the exporting or importing country include, for example, loading/unloading of the goods, fulfilling the customs formalities such as **[…?]**, transportation, and insurance. They may or not be included in the invoice price and, in many cases they should be evaluated in order to be included or excluded from the invoice price in order to obtain the required statistical value. It is advised, that compilers apply generally accepted accounting principles which would allow the establishment of the value of these services, broadly following the definition of the transaction value of goods as provided in the WTO Agreement on Customs Valuation. It is further advised that the 2008 SNA and BPM6 guidelines on valuation of services be taken into account whenever appropriate.

14.9.   *List of cost items relevant to determination of the statistical value*.**[EG members are requested to carefully review this list and provide their comments as it will be used in the subsequent tables describing adjustments to invoice price].**The main cost items relevant to determination of the statistical value of the goods for purposes of international merchandise trade statistics are:

(a) Cost of the goods at "factory" gates

(b) Cost of loading on internal transport

(c) Cost of transportation from seller's warehouse to main carrier

(d) Cost of insurance to border of exporting country

(e) Contract of carriage, trade documents in exporting country

(f) Cost of loading on main carrier

(g) Cost of customs clearance at exportation, including any export duties and other charges

(h) Cost of international carriage to border of importing country

(i) Cost of insurance while in international carriage

(j) Cost of customs clearance at importation, including import duties and other charges

(k) Cost of unloading at the port of importation

(l) Cost of transportation in the importing country

(m) Cost of insurance while in transport in the importing country

(n) Cost of unloading at the buyer's warehouse

Clarification of the content of cost items **[EG suggested that the content of cost items has to be clarified. To do this properly UNSD would need more input.** It is already suggested that item (c) - cost of transportation - should be interpreted in a broad sense (for example they could also cover cost for necessary treatment of the goods during transportation. Any further suggestions are very much welcome and that item (h) - cost of international carriage to border of importing country - includes intermediary handling fees.]

B. Compilation of the statistical value of imported goods

14.10. *Use of customs value as the statistical value*. If customs value is determined in conformity with the WTO Agreement on Customs Valuation the statistical value of imported goods is either equivalent to the customs value or can be derived from it by adding the cost of certain services as per Article 8.2 of the WTO Agreement. The consequence of this provision of Article 8 is that the customs value of imported goods may or may not cover the value of all the services required for inclusion in the statistical value of imported goods, e.g., may or may not include insurance and freight. If a country chooses to include all the required cost items in the customs value, then the customs value will be the statistical value. If not, compilers need to add the costs (possibly estimated) of these services to the customs value to obtain the statistical value.

14.11. *Use of customs value if the terms of delivery are CIF or CIP*. The customs value for imports should be accepted as the statistical value without any adjustments if

   (a) The customs value was established in accordance with Articles 1-8 of the Agreement; and

   (b) The terms of goods delivery are CIF (Cost, Insurance and Freight … at the border of the importing country), or CIP (Carriage and Insurance Paid to ... at the border of the importing country), and none of the exclusions from the customs value allowed in Article 8 (2) were made.

14.12. *Use of the customs value if the terms of delivery are other than CIF/CIP*. The terms of goods delivery may be other than CIF or CIP. (For various terms of delivery as standardized by the International Chamber of Commerce, see INCOTERMS 2010). In these cases the customs value should be accepted as the statistical value, provided that the appropriate adjustments were made by the customs or the trader to the invoice price. Compilers should confirm with customs authorities that, if the terms of delivery are other than CIF/CIP, the customs value includes the value of the services covered by the definition of CIF-type statistical value and that it excludes any other costs. An outline of the required adjustments to the invoice price is contained in Table 1, below.

14.13. It is the responsibility of customs to ensure the proper calculation of the customs value. To ensure accuracy, many countries require the importer to complete a special form - the declaration of the customs value. This declaration identifies the cost components which are included in the customs value, depending on the terms of delivery. If such a declaration is

available, it is a good practice, in the case of high value shipments, to review the cost components listed in it in order assess whether any adjustments to the customs value are necessary. It is also advised that compilers cooperate with the customs in efforts to improve the reliability of the valuation procedures.

14.14. *Compilation of the statistical value in the absence of the customs value.* If the customs value deviates from the requirements of the Agreement, or if there is no customs value, compilers should derive or estimate the statistical value following the principles of the Agreement. The Agreement is reproduced in IMTS 2010, annex E.

14.15. *Adjustments to invoice value of imported goods depending on the terms of delivery.* Customs administrations generally require the FOB- or CIF-type value to be placed on the customs declarations by traders or, if needed, calculate those values themselves based on the various documents submitted by traders. Such supporting documents may include the contract of sale, which would normally contain the terms of delivery of goods and the price of the goods, and the invoice issued by the seller of the goods to the buyer. The price of the goods negotiated between traders and reflected in the invoice (also referred to as invoice price) depends on the terms of delivery. The terms of delivery are an agreement between the seller and the buyer as to who is responsible for the cost and risk of delivering the goods to the agreed place. Types of terms of delivery used in international commerce, including FOB and CIF, are defined by the International Chamber of Commerce and are described in IMTS 2010, Annex E. Compilers have to make appropriate adjustments to the invoice price to obtain CIF- or FOB-type values of goods if such values are not available from customs or other sources

14.16. Terms of delivery are shown in the top row of Table 1[119]. Cost items are listed in the left-hand column. The list of cost items is indicative, and may not be applicable in all cases. The content of a cost item as well as its inclusion in/exclusion from the invoice price might be different from one transaction to another, depending on national legal requirements and on the contractual agreements between the parties. The CIF column of the table identifies cost items which are covered by the definition of the CIF-type value, and which are assumed to be normally included in the invoice price of imported goods when delivered under those terms [marked (Y)]. Other columns of each table indicate whether a cost item is assumed to be (a) included in the invoice price when the goods are delivered under those terms, with no adjustment needed [marked (*)]; (b) excluded from the invoice price and to be added to it [marked (+)]; or (c) included in the invoice price and to be subtracted from it [marked (-)]. A blank indicates that the item is assumed to be excluded from the invoice value and, therefore, from the CIF- or FOB-type value as well. If, in a particular case an assumption regarding inclusion or exclusion of any cost item in the invoice price is not correct, that item should be subtracted or added as appropriate. The term FCA is marked FCA/x to indicate that it is interpreted as FCA, border of exporting country.

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[119]Incoterms 2010 defines 11 terms of delivery: Ex works (EXW), Free Carrier (FCA), , Carriage paid to (CPT), Carriage and insurance paid to (CIP), Delivered at Terminal (DAT), Delivered at Place (DAP), Delivered duty paid (DDP), Free Alongside Ship (FAS), Free on Board (FOB), , Cost and Freight (CFR) and Cost, Insurance and Freight (CIF),

14.17. The use of Table 1 can be illustrated as follows. If, for example, goods are imported under the DDP (delivered duty paid to buyer's warehouse) term, then the insurance while in international transport should be added, however the cost of customs clearance at importation, including import duties and other charges, cost of transportation in the importing country and cost of insurance while in transport in the importing country, and the cost of unloading at the buyer's warehouse, should all be subtracted from the invoice price to obtain a CIF-type value as recommended for import statistics.

Table 1. Adjustments to invoice price to obtain CIF-type value of imported goods

Cost items	Terms of delivery										
	CIF	EXW	FCA/x	FAS	FOB	CFR	CPT	CIP	DAT	DAP	DDP
Costs in exporting country											
1. Cost of loading on internal transport	Y	+	*	*	*	*	*	*	*	*	*
2. Cost of transportation from seller's warehouse to main carrier	Y	+	*	*	*	*	*	*	*	*	*
3. Cost of insurance to border of exporting country	Y	+	*	*	*	*	*	*	*	*	*
4. Contract of carriage, trade documents in exporting country	Y	+	*	+	*	*	*	*	*	*	*
5. Cost of loading on main carrier	Y	+	+	+	*[c]	*	*	*	*	*	*
6. Cost of customs clearance at exportation, including any export duties and other charges	Y	+	*	+	*	*	*	*	*	*	*
Main carriage											
7. Cost of international carriage to border of importing country	Y	+	+	+	+	*	*	*	*	*	*
8. Cost of insurance while in international carriage	Y	+	+	+	+	+	+	*	+	+	+
Costs in importing country											
9. Cost of customs clearance at importation, including import duties and other charges											-
10. Cost of unloading at the port of importation	Y[d]	+	+	+	+	*	*	*	*	+	*
11. Cost of transportation in the importing country											-
12. Cost of insurance while in transport in the importing country											-
13. Cost of unloading at the buyer's warehouse											-

14.18. *Establishing the statistical value*. Commercial practices in international merchandise trade display a variety of detail in the terms of delivery of goods. Statisticians should carefully examine the available data sources and information, including the terms of delivery of goods, in order to derive the recommended CIF-type values. In addition, they should establish a close

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[c] Under the FOB term the cost of loading on board a ship may be divided between seller and buyer and may be only partially included in the invoice value of the goods. Since the loading of goods on board of a ship is required if goods are to be made available to the buyer in the importing country, its cost should be included in the statistical value of imported goods in full.
[d] Under the CIF term the cost of unloading in the port of importation may be divided between seller and buyer and may be only partially included in the invoice value. Since the unloading of goods in the port of importation is required if goods are to be made available to the buyer in the importing country, its cost should be included in the statistical value of imported goods in full.

cooperation with the customs and other primary data collectors in order to provide guidance on the methodology regarding the statistical value and to ensure the availability of adequate data.

Emerging good practices in the compilation of FOB value of imported goods.

[EG input is needed here. Please comment and/or provide examples]

14.19. In cases where FOB values are not available from the primary trade data source, they can be estimated using actual or estimated freight and insurance costs for transactions provided by traders on declarations, supplemented by information on freight and insurance rates from providers of these services. CIF/FOB adjustment factors could be obtained from a sample of imports by supplementary questionnaires to importers. The sample could be selected from the imports declarations, with information on importers' names and contact addresses being the basis for the survey. Another possibility is to obtain information on the exported value in cooperation with authorities in the exporting countries, if processing systems and confidentiality rules allow declarations to be accessed.

14.20. Table 2 **(Brazil's proposal, a bit modified. Again, the list of cost items has to be reviewed and agreed)** provides guidance on adjustments to invoice price to obtain FOB-type value of imported goods. (See para […] for explanation of the notation used in table 2)

Table 2. Adjustments to invoice price to obtain FOB-type value of imported goods

Cost items	Terms of delivery										
	FOB	EXW	FCA/x	FAS	CFR	CIF	CPT	CIP	DAT	DAP	DDP
Costs in exporting country											
1. Cost of loading on internal transport	Y	+	*	*	*	*	*	*	*	*	*
2. Cost of transportation from seller's warehouse to main carrier	Y	+	*	*	*	*	*	*	*	*	*
3. Cost of insurance to border of exporting country	Y	+	*	*	*	*	*	*	*	*	*
4. Contract of carriage, trade documents in exporting country	Y	+	*	+	*	*	*	*	*	*	*
5. Cost of loading on main carrier	Y[a]	+	+	+	*	*	*	*	*	*	*
6. Cost of customs clearance at exportation, including any export duties and other charges	Y	+	*	*	*	*	*	*	*	*	*
Main carriage											
7. Cost of international carriage to border of importing country					-	-	-	-		-	-
8. Cost of insurance while in international carriage						-		-			-
Costs in importing country											
9. Cost of customs clearance at importation, including import duties and other charges											-
10. Cost of unloading at the port of importation					-	-[b]	-		-		-
11. Cost of transportation in the importing country											-
12. Cost of insurance while in transport in the importing country											-
13. Cost of unloading at the buyer's warehouse											-

14.21. The allocation of work in this area between trade statistics and balance of payments compilers will depend on national circumstances, but the interlinked nature of the tasks means that there should be close cooperation. As freight and insurance costs vary with factors such as the commodities involved, mode of transport, size of consignment, and distance between ports, adjustment factors should be derived in some detail, for example by country, product, and mode of transport. To the extent that the costs vary over time and with the mix of products, they will need to be updated frequently. For adjustment factors from samples, the degree of detail is likely to be considerably less than is possible with complete coverage from customs declarations. Adjustment factors are usually expressed as percentages of trade values, but this is only an approximation, as some costs relate to weight or volume rather than to value. In addition, the relative prices of the good and its transport costs might move in different ways (for example, if metal prices fall, there is no reason to expect that freight costs would also fall). The insurance companies which insure goods when they leave countries are possible sources of information on insurance.

C. Compilation of statistical values of exported goods

14.22. *Use of customs value as the statistical value*. The customs value and the statistical value of both imported and exported goods should be consistent. In this connection IMTS 2010 recommends that countries adopt the WTO Agreement on Customs Valuation as the basis for valuation of all goods flows (IMTS 2010, para. []). This approach builds on Article VII of GATT which requires that the same principles of valuation should apply to valuation of both imported and exported goods. However, there is no international agreement on implementation of the Article VII of GATT with respect to the customs value of exported goods[120]. IMTS 2010 recommends that an FOB-type value be used as the statistical value of exported goods.

14.23. Customs administrations are free in their interpretation of how the customs value of exported goods should be determined. In general, customs requires that actual prices paid for the goods and costs of delivery to the border be declared, so that an FOB-type customs value can be established. In the absence of price information customs might require certain substitutes such as the prices of identical or similar goods. The degree of verification of accuracy of the information provided by declarants depends in part on whether or not customs values are used for assessing export duties and other related charges. Countries may also have different interpretations of costs of delivery to the border of the exporting country. For example, some countries do not include in this item the cost of inland insurance.

14.24. As in many countries customs valuation of exported goods is less regulated than valuation of imported goods, it is a good practice to make special efforts to assess the compatibility of customs practices of valuation of exported goods with statistical requirements. It is further advised that if customs values of economically significant shipments of goods are established with a clear deviation from those requirements, these customs values be replaced, for statistical purpose, by values derived from non-customs sources or by estimated values (e.g., based on the value of identical or similar goods, if deemed more accurate). Compilers are

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[120]See World Trade Organization, *The Results of the Uruguay Round of Multilateral Trade Negotiations: The Legal Texts* (Geneva, 1995), p. 495.

encouraged to contact exporters of major commodities and, if necessary, to conduct special studies to determine statistical value on the basis of cost of production, including cost of materials, compensation of employees and other relevant information.

14.25. *Use of the customs value if the terms of delivery are FOB, FCA or DAF* **[DAF is not in Incoterms 2010; the text will be further amended to reflect this change and Incoterms 2010 new terms – DAT and DAP].** The customs value for exports   should be accepted as the statistical value, without adjustment if

 (a) the transaction value was established in accordance with Articles 1 - 8 of the Agreement and

 (b) provided that the terms of delivery were:

  (i) "Free on board" (FOB) at port on the frontier of the exporting country (for goods dispatched by sea or inland waterway);

  (ii) "Free carrier" (FCA) at terminal on the frontier of the exporting country (for goods dispatched by means of transport to which FOB is not applicable);

  (iii) "Delivered at Frontier" (DAF) of the exporting country (for goods dispatched by means of transport to which FOB and FCA are not applicable, e.g., when goods are exported by railroad or pipeline).

14.26. *Use of the customs value if the terms of delivery are other than FOB, FCA or DAF.* In such cases the customs value should be accepted as the statistical value, provided that appropriate adjustments were made to the invoice value. Compilers should ascertain that, if the terms of delivery are other than FOB, FCA or DAF, the customs value includes the value of the services covered by the definition of statistical value and that it excludes any other costs. An outline of the required adjustments to the invoice price is contained in Table 3, below. (See para […] for explanation of the notation used in table 2)

Table 3. Adjustments to invoice price to obtain fob-type value of exported goods

Cost items	Terms of delivery										
	FOB	EXW	FCA/x	FAS	CFR	CIF	CPT	CIP	DAT	DAP	DDP
Costs in exporting country											
1. Cost of loading on internal transport	Y	+	*	*	*	*	*	*	*	*	*
2. Cost of transportation from seller's warehouse to main carrier	Y	+	*	*	*	*	*	*	*	*	*
3. Cost of insurance to border of exporting country	Y	+	*	*	*	*	*	*	*	*	*
4. Contract of carriage, trade documents in exporting country	Y	+	*	+	*	*	*	*	*	*	*
5. Cost of loading on main carrier	Y^e	+	+	+	*	*	*	*	*	*	*
6. Cost of customs clearance at exportation, including any export duties and other charges	Y	+	*	+	*	*	*	*	*	*	*
Main carriage											
7. Cost of international carriage to border of importing country					-	-	-	-		-	-
8. Insurance while in international carriage						-		-			
9. Cost of customs clearance at importation, including import duties and other charges											
10. Cost of unloading at the port of importation	Y^d	+	+	+	+	*	*	*	-	+	*
11. Cost of transportation in the importing country											-
12. Cost of insurance while in transport in the importing country											-
13. Cost of unloading at the buyer's warehouse											-

D. Valuation of selected categories of imported and exported goods

14.27. Guidance on valuation of selected categories of goods is provided below to assist countries in setting up the appropriate valuation procedures and to ensure better international comparability.

14.28. *Banknotes and securities and coins not in circulation* [IMTS 2010, para. 1.11] should be valued at the transaction value of the printed paper or stamped metal rather than at their face value. For example, country [..] experience []. **[EG members input is required here]**

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[e] Under the FOB term the cost of loading on board a ship may be divided between seller and buyer and may be only partially included in the invoice value of the goods. Since it is necessary for goods to be loaded on board a ship if they are to be made available to the buyer in the importing country, this cost should be included in the statistical value of exported goods in full.

14.29. *Media, whether or not recorded* [IMTS 2010, para. 1.18] should be valued at their full transaction value (and not at the value of unrecorded media such as empty diskettes, blank CD-ROMs, DVDs, paper etc). The compilers should be aware that transaction value might fully or partially include the value of certain services. Media carrying customized software or software written for a specific client or originals of any nature, if identified, are to be excluded. Details on how the transaction value is established and how the value software is identified and excluded should be provided in metadata. If a significant value of customized software or software written for a specific client or originals is suspected it is a good practice that the declarant is contacted and asked about the details of product content. It should be noted that the license agreements on the usage of software (e.g., subsequent purchase of additional usage rights) which are not directly connected with a transfer of relevant media are not relevant for the valuation of media **[Eurostat proposal (?) comments are needed; also WTO will be contacted for more info on the relevant WTO valuation decisions to be reflected**).

For example, country [..] experience []. [EG members input is required here]

14.30. *Goods which cross borders as a result of transactions between related parties*.[IMTS 2010, para. 1. 22]. As the invoice may not reflect the true market value the latter should be analyzed and estimated, if necessary, based on the value which would have been realized in the event of a purchase or sales under normal market conditions. The estimations should follow the same principles applied for determining the value of identical or similar goods.

14.31. *Electricity, gas, oil and water*[IMTS 2010, para. 1. 24] should be valued net of any delivery charges not included according to FOB- or CIF type valuation. IMTS 2010 recommends that, in the absence of adequate customs records, (a) the transaction value of these goods should be obtained directly from the buyer and seller, (b) if only the overall value inclusive delivery charges is available, such charges should be identified (e.g. using other sources of information and estimation) and subtracted to obtain the statistical value of these goods, (c) delivery charges should be valued at market prices, if possible, and (d) trading partners in such transactions should value and record these flows in a uniform way to improve international comparability. The estimations of the value can be based on historical data, information from traders, stock markets, spot prices or small surveys from price statistics. For example, country [..] experience []. **[EG members input is required here]**

14.32. *Goods under financial lease* ([IMTS 2010, para. 1.28]. Goods which cross borders under financial lease should be valued on the basis of the prices of similar goods crossing borders as the result of sale. The value of any services supplied under the lease (e.g. training, maintenance, finance charges etc.) should be excluded. If the goods are not normally offered for sale, they should be valued following the general guidelines on valuation. For example, country [..] experience []. **[EG members input is required here]**

14.33. *Ships and aircraft.* [Germany's proposal: Imports and exports of ships and aircraft should be recorded using the principle of change of economic ownership, and, therefore, the statistical value of the goods should be purely the value of the commodity without any costs for transportation or insurance.**[EG members are requested to comment.]**

14.34. *Goods for processing with or without change of ownership* ([IMTS 2010, paras. 1.19-1.21]. In the case where the transaction value of goods for processing entering or leaving the compiling country without change of ownership is not available, the trade compilers should apply the appropriate methods contained in the WTO Agreement on valuation in order to derive the statistical value. Goods for processing should always be valued at their full (gross) value. The total value of the goods in their unprocessed state must be reported for transactions involving goods sent for processing. They may be based on a qualified estimation in cases where the invoice does not show this amount. Regarding transactions following processing, the full transaction value of the processed goods must be reported. The transaction value should include the value initially reported for the unprocessed goods plus the processing costs. The initial value may be based on a qualified estimation. For example, country [..] experience []. **[EG members input is required here]**

14.35. *Returned goods* [IMTS 2010, para. 1.23], if identifiable, are to be valued as at the initial transaction. When the returned goods are broken or defective, the value reported should be the value of the original sale or purchase of the goods. Returned goods are a special case of re-imports and re-exports and only in this special case the valuation at the initial transaction value applies. In all other cases re-imports and re-exports should be valued as any other good based on their transaction value. **[need more detailed comments/input on the latter statement.]**

14.36. *Food and other humanitarian aid*[IMTS 2010, para. 1.14].For example, country [..] experience []. **[EG members input is required here; there is a suggestion to advise on classification of aid in HS98 or other ways of separate identification – comments are needed]**

14.37. *Goods on consignment*[IMTS 2010, para. 1.17].For example, country [..] experience []. **[EG members input is required here]**

14.38. *Migrants' effects*[IMTS 2010, para. 1.26].For example, country [..] experience []. **[EG members input is required here]**

14.39. *Gifts and donations*[IMTS 2010, para. 1.35]. For example, country [..] experience []. **[EG members input is required here**

14.40. *Used goods.* [IMTS 2010, para. 1.37] For example, country [..] experience []. **[EG members input is required here]**

14.41. *Waste and scrap.* **[EG is requested to review and comment as this is important not only for IMTS but for other economic/environment statistics**. Text in Current Manual: The transaction value of waste and scrap should be assessed as the full payment by the importing country to the country of exportation. If such payment does not exist, or if the exporting country reimburses the importing country for accepting its waste and scrap, that waste and scrap should be excluded from the merchandise trade statistics of both countries, but separately recorded, using appropriate quantity units.]

[Germany's proposal: The value should reflect only the value of the goods whenever

possible. Services relating to the disposal of the waste should be excluded. Therefore, it might be necessary to estimate a residual value for the goods element. If the goods element has no residual value (or even a negative value) the value should be taken as zero and excluded from merchandise trade statistics]

E. Issues of currency recording and conversion

14.42. *Summary of IMTS 2010 recommendations on currency conversion.* IMTS 2010 recommends that:

(a) If the value of trade transactions is expressed initially in a variety of currencies or in other standards of value compilers should convert these values into a single (reference) unit of account;

(b) The national currency unit is the preferable reference unit of account, however, if it is subject to significantly larger fluctuations than other currencies, it might be appropriate to use another more stable unit of account;

(c) Countries should follow the provisions of the WTO Agreement on Customs Valuation with respect to exchange rate for conversion (the rate of exchange to be used shall be that duly published by the competent authorities, the conversion rate to be used shall be that in effect at the time of exportation or the time of importation etc. see IMTS 2010 para. 4.19);

(d) Compilers should apply an equivalent approach to conversion for both imports and exports in cases when both buying and selling (official/market) rates are available the rate to be used is the midpoint between the two, so that any service charge (i.e., the spread between the midpoint and those rates) is excluded. If a rate is not available for the date of exportation or importation, the average rate for the shortest period applicable should be used (see IMTS 2010, para 4.20);

(e) If multiple official exchange rates are used the trade transactions should be recorded using the actual rate applicable to specific transactions, noting which official rate was used for each currency;

(f) For transactions that involve parallel or black market rates should be handled separately from those that involve official rates. Compilers of trade statistics should attempt to estimate the exchange rate actually used in transactions in such markets, and should use that rate for conversion.

14.43. Rules for currency conversion of transactions to the national currency are established in most countries by customs. In general, the conversion is done by customs or the declarants according to the rules set by customs. Compilers are advised to review those rules and their application to assess their compliance with the recommendations contained in IMTS 2010. Compilers should cooperate with customs to ensure compliance. If values are not converted by customs or declarants according to the requirements, compilers should conduct the currency conversion themselves or adjust values to comply.

14.44. *Country experiences. Issues encountered and solutions applied.*
[EG members input is needed here]

Compilers Manual 2010

Part III   Compilation of particular data items

Chapter 15   Quantity measurement

*Scope.*This chapter will concentrate on the technical details of determining the statistical value of internationally traded goods (e.g. on adjustments to the invoice value in view of the use of different terms of delivery (Incoterms), determination of the statistical value in the cases where cross border movement of goods did not involve their sale). It will provide more detail on the approaches to valuation in selected difficult cases identified in IMTS 2010 (including software) and on additional valuation issues (i.e. allocation of transportation costs for combined shipments, discounts etc.). Challenges and good practices in the FOB valuation of imported goods will be specially highlighted and examples will be provided. Case studies of trade transactions where more than one country is involved will be described.

Structure. The chapter might consist of several sections focusing on:

(i)   Statistical value and its components: an overview;
(ii)   Use of supporting documents;
(iii)   Compilation of the statistical value of imported goods;
      d.   General principles;
      e.   Details on the compilation of CIF value (use of the invoice price and the adjustments due to the use of different terms of delivery);
      f.   Emerging good practices in the compilation of FOB value of imported goods;
(iv)   Compilation of statistical values of exported goods;
      c.   General principles;
      d.   Details on the compilation of FOB value of exported goods (use of the invoice price and the adjustments due to the use of different terms of delivery); use of non-customs sources of data;
(v)   Valuation of selected categories of imported and exported goods (identified in IMTS 2010);
(vi)   Additional valuation issues;
(vii)   Issues of currency recording and conversion.

Chapter 15   Quantity measurement

15.1.   *Introduction.* This chapter focuses on the collection, validation and reporting of quantity information in terms of the standard units of quantity of the World Customs Organization (WCO) and in terms of net weight. It describes good practices in the conversion of non-standard quantity units to the WCO units, highlighting the challenges and good practices in estimating and imputing missing quantities.

15.2.   *Recommendation.* IMTS 2010 **recommends** that countries collect or estimate, validate and report quantity information in the WCO standard units of quantity and in net weight[121] on all trade transactions.[122] Specifically, **it is recommended** that:

(a) Countries use the applicable WCO standard units of quantity when collecting and reporting international merchandise trade on the basis of the Harmonized System;[123]

(b) In the case of the HS headings (subheadings) where the standard unit is other than weight, a net weight also be compiled and reported;

(c) Weight figures be reported on a net weight basis; however, if only gross weight is available, it should be recorded and used for estimation of net weight;

(d) Countries that use units of quantity other than the WCO standard units or use units of quantity different from the one recommended for the specific commodity (HS six-digit subheading) provide the conversion factors to the recommended standard units in their metadata.

A.   An overview of the WCO standard units of quantity

15.3.   *WCO standard units of quantity.* In 1995, WCO adopted a recommendation on the use of standard units of quantity to facilitate the collection, comparison and analysis of international statistics based on the Harmonized System.[124] The WCO standard units of quantity are:[125]

- Weight: - kilograms (kg)
                   - carat (carat)
- Length: - metres (m)
- Area: - square metres (m2)
- Volume: - cubic metres (m3)
                   - litres (l)

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121 Net weight is useful for economic analysis, such as the calculation of unit values. To the extent that gross weights (including packaging) are also desired by a country, they should be collected directly. However, given that collection of gross weight data presents difficulties in many countries, countries may wish to obtain gross weights from net weights through sampling and estimation.

122 A few exceptions may apply; e.g., net weight does not apply to HS sub-heading 271600 "Electrical energy".

123 It is acknowledged that WCO standard units of quantity do not necessarily reflect industry norms for trade in certain subheadings in all countries.

124 See World Customs Organisation, *Explanatory Notes to the Harmonized Commodity Description and Coding System, second edition*, Brussels, 1996, Annex II - Recommendation of the Customs Co-operation Council on the Use of the Standard Units of Quantity to facilitate the Collection, Comparison and Analysis of International Statistics Based on the Harmonized System (WCO Recommendation on Quantity Units).

125 See WCO Recommendation on Quantity Units, introduction, para. 4.

- Electrical power: - 1,000 kilowatt-hours (1,000 Kwh)
- Number (units): - pieces/items (u)
  - pairs (2u)
  - dozens (12u)
  - thousands of pieces/items (1,000u)
  - packages (u (set/pack))

15.4.   *WCO recommendation*. In the WCO recommendation, one of the above standard units of quantity is specified for each HS six-digit subheading.[126]Further, it is recommended that member administrations and contracting parties to the Harmonized System Convention report international trade data to the United Nations and other international organizations, in terms of standard units of quantity specified in the annex to this WCO recommendation, employing as many as possible, but not less than 90 per cent of the HS subheadings.

15.5.   *Recommended quantity units on HS chapter, heading and sub-heading level*. For more than 75.2 percent of sub-headings of HS 2007 the recommended unit is kilograms and for almost 21.7 percent it is number of items. Other recommended units are mainly used for very specific commodities. For example, "square metres" is the recommended quantity unit for, among other commodities, Carpets and other textile floor coverings (HS 2007 heading 5702); "1,000 kilowatt–hours" only applies to Electrical energy (HS 2007 code 271600); "metres" is the recommended quantity for only the two headings, namely, Photographic film in rolls (HS2007 heading 3702) and Cinematographic film (HS2007 heading 3702); "pairs" is mainly used for footwear, skis etc. (HS2007 headings 6401 to 6405); "litres" is the recommended quantity unit only for Beverages, spirits and vinegar etc. (HS2007 chapter 22). For two thirds (63 out of 96) of the HS chapters, the recommended quantity is the same for the entire chapter, which covers 90 percent out of 1221 headings, indicating that the recommended quantity is the same for large parts of the commodity spectrum.

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126 See latest WCO recommendation on quantity units: World Customs Organization, *Recommendation of the Customs Co-operation Council on the Use of the Standard Units of Quantity to facilitate the Collection, Comparison and Analysis of International Statistics Based on the Harmonized System*, 1 July 2006, Annex. This WCO recommendation takes into account the amendments contained in HS07 and revokes the previous recommendation on the use of standard units of quantity.

Table 15.1 Quantity units of HS 2007 sub-headings

WCO quantity unit	WCO Abbreviation	Number of sub-headings per quantity unit	Share of quantity units in percent
No Quantity	-	2	0.0%
Area in square metres	m²	50	1.0%
Electrical energy in thousands of kilowatt-hours	1000 kWh	1	0.0%
Length in metres	m	12	0.2%
Number of items	u	1098	21.7%
Number of pairs	2u	24	0.5%
Volume in liters	l	22	0.4%
Weight in kilograms	kg	3801	75.2%
Thousands of items	1000u	1	0.0%
Number of packages	U (jeu/pack)	1	0.0%
Dozens of items	12u	0	0.0%
Volume in cubic meters	m³	32	0.6%
Weight in carats	carat	8	0.2%
Total		5052	

B. Weight concept

15.6.   *Definition of gross and net weight*. Weight units (kilograms) can be expressed on a net or a gross basis, and can be used to meet a variety of needs. While gross weight units (including packing) are more appropriate for analysis of transportation, net weight units (excluding all packaging) are very useful for economic analysis.

15.7.   *Specific guidelines on the definition of net weight*. IMTS 2010 recommends that weight figures be reported on a net weight basis. As net weight means excluding all/any packaging; this also applies when the packaging is very elaborate or expensive, although one could image cases when the packaging itself is the good [WCO will be consulted on this issue].

C. Compilation of quantity data from customs sources

SAD

D. Compilation of quantity data from non-customs sources

Intrastat

[Norway - direct reporting of petroleum products - input needed]

[Uganda - cross border survey]

E. Conversion factors from non-standard to standard units of quantity

15.8.   *Converting units of quantity*. There are two ways of converting reported units of quantity to standard HS units of quantity, namely, (a) mathematical conversion of the reported units to the standard units, and (b) converting from one unit to another unit using for example the specific gravity of the commodity or commodities involved.

15.9.   *Mathematical conversion*. Annex table 15.1 below gives examples of conversion (multiplication) factors with which specific non-standard units can be converted to standard HS units of quantity. The table contains mostly units of quantity of the United States and United Kingdom systems of measurement. Those factors are applied by the United Nations Statistics Division to convert volume measures into weight for a number of HS and SITC headings. Such conversion factors are very general and will necessarily be inaccurate in specific cases. If national or sub-national conversion factors for certain HS headings are available, then those factors will give more accurate estimates. It is a good practice to establish a comprehensive list of conversion factors and to be published and circulated this list among all agencies involved in the collection of trade statistics. There are other country-specific units of measurement, many of which apply to a single commodity; commodity board sand other organizations publish conversion factors for some of those.[127] Other reference materials gather many of those commodity-specific sources together.[128]Still other references deal with smaller groups of commodities.[129]

15.10. *Specific gravity*. The use of specific gravity to convert, for instance, litres of a certain commodity into kilograms of that commodity is much more complicated and less accurate, since it is based on empirical rather than mathematical principles. HS headings often contain a multitude of products which can all differ in, say, weight per volume or weight per unit. Even such seemingly homogeneous commodities as crude oil or milk will have different weight-per-volume indices depending on country of origin and, for example, on the sweetness (for crude oil) or the concentration of fat or time of collection (for milk) (for examples of the various conversion factors, see annex table 15.2 below).

15.11. The best conversion of volume into weight or of pieces into weight is done at the national or even sub-national level. For instance, in the case of sawnwood, FAO applies the following country-specific conversion factors: "For Canada and the United States, in converting the volume of sawnwood reported in 1,000 board feet to cubic metres (m3), the nominal conversion factor 2.36 m3 per 1,000 board feet has been applied. Sawing conventions in those countries generally result in the volume being less than the nominal volume. For example, it is estimated that for the United States, taking coniferous and non-coniferous data together, the actual average volume of rough green sawnwood would be 3 per cent less than the nominal volume, while the weighted average for surfaced dry coniferous and rough dry non-coniferous sawnwood would be

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127See, for example, *Quarterly Bulletin of Cocoa Statistics.*

128See, for example, The Economist Desk Companion: How to Measure, Convert, Calculate and Define Practically Anything (New York, John Wiley and Sons, 1998).

129See, for example, *Weights, Measures, and Conversion Factors for Agricultural Commodities and Their Products*, special report (Washington, D.C., United States Department of Agriculture, June 1992).

27 per cent less than the nominal volume".[130]

15.12. Broad-based conversions at the national or international level are inaccurate by definition and can only servethe purpose of making quantity (especially weight) estimates for general trade or transport analyses. Some examples given by FAO are:

(a) "When countries record coconuts in number instead of weight, amounts are converted to weight on the average basis of 1,000 nuts = 1 metric ton, unless official conversion factors are available."

(b) "Refined sugar is converted to raw sugar equivalent using the factor 1.087 for all countries."

(c) "Wine, vermouth and similar beverages. Quantities are expressed in weight; for countries recording their statistics in volume, it is assumed that 1,000 liters = 1 metric ton."

F. Quality issues

15.13. *The need for quantity information*. Quantity is an important dimension of international trade statistics that is indispensable for various policy and analytical purposes including for the planning of transport infrastructure, the compilation of energy, agricultural and other commodity balances, the assessment of the impact of international trade on environment, and the verification of trade values and the construction of trade index numbers.

15.14. *Challenges in the compilation of quantity data*. Often quantity, whether supplementary quantity or net weight, is not provided by the traders completing the customs declarations. In other cases the quantity provided is not correct or the supplementary quantity is provided in a quantity unit different from the one recommended for the particular commodity. There are several reasons for these problems. For instance, when a shipment contains several different commodities, it happens that the quantity is given as the gross weight of the shipment. Further, in commercial practice a quantity different than the recommended quantity is sometimes used, for example barrels are often used instead of weight and appropriate conversion factors may not available. Also, the Customs administration is generally more interested in the quantity information for imports than for exports, since quantity information is in some cases used to determine import duties and to determine the unit values used to validate the price and value information declared by the importers rather than exporters.

15.15. *Best practices in improving compilation of quantity data*. It is recommended that the training courses for traders to fill customs declarations devote sufficient attention to the correct declaring of quantity information on the customs forms.

[Insert example - input needed]

15.16. *Quantity aggregations*. The compilation of quantity aggregates has both an analytical and a quality dimension, due to the heterogeneity of the goods that constitute broader commodity

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[130]See the FAO web site (*www.fao.org*).

groups. As the proper use of quantity aggregates is limited to very specific types of analysis (e.g., transportation issues), it is a good practice to provide users with clear information on the heterogeneity underlying each quantity aggregate, and to encourage for instance the use of foreign trade indices as alternative measures of aggregate volume and price trends.

G. Estimation and imputation of quantity data

15.17. [Country examples (at least two) are needed]

15.18. *Estimation methods used by UNSD for UN Comtrade*. Estimation of quantity and net weight is performed in two cases: i) data has not been provided; ii) provided data is disregarded as it does not conform with, and cannot be mathematically converted into WCO RU. To take best possible advantage of the information provided by a country, the quantity estimation is applied in the following sequence: 1. Estimation using empirical conversion factors; 2. Estimation using partially reported quantity and/or net weight and 3. Estimation using Standard Unit Values. However, broad-based conversions and estimation of quantity at the national or international level are inaccurate by definition and can only servethe purpose of making quantity (especially weight) estimates for general trade or transport analyses. Estimates of quantities are sometimes also needed to preserve aggregated quantity information at the heading level of the HS.

Annex 15.1: Conversion factors for mathematical conversion

Reported units of quantity Name (abbreviation)	WCO standard units of quantity Name (abbreviation)	Conversion factors from the reported unit to the WCO unit of quantity
Barrel (BBL)	litres (l)	159.000
Board foot (BFT)	cubic metres (m³)	0.00236
Cubic foot (CF)	cubic metres (m³)	0.02832
Cubic yard (CYD)	cubic metres (m³)	0.7646
Cord (CD)	cubic metres (m³)	2.550
Centimetre (CM)	metres (m)	0.010
Cubic centimetre (CC)	litres (l)	0.001
Cubic metre (CBM)	litres (l)	1000.000
Dozen (DOZ)	thousands of pieces/items (1,000u)	0.0120
Dozen (DOZ)	pieces/items (u)	12.000
Foot (FT)	metres (m)	0.3048
Gallon (GAL)	litres (l)	3.785
Gram (GM)	kilograms (kg)	0.001
Gross (GR)	pieces/items (u)	144.000
Hundredweight (CWT)	kilograms (kg)	45.360
Linear feet (LFT)	metres (m)	0.3048
Long ton (LTN)	kilograms (kg)	1016.000
Litre (LTR)	cubic metres (m³)	0.001
Metric ton (TON)	kilograms (kg)	1000.000
Number (NO)	thousands of pieces/items (1,000u)	0.001
Ounces (OZ)	kilograms (kg)	0.02835
Pound (LB)	carat (carat)	2268.000
Pound (LB)	kilograms (kg)	0.4536
Pair (PR)	dozens (12u)	0.1667
Square centimetre (SCM)	square metres (m²)	10000.000
Square feet (SFT)	square metres (m²)	0.0929
Square inch (SQT)	square metres (m²)	0.0006452
Square yard (SYD)	square metres (m²)	0.8361
Short ton (STN)	kilograms (kg)	907.200
Thousand metres (THM)	metres (m)	1000.000
Thousand (THS)	pieces/items (u)	1000.000
Thousand board feet (MBF)	cubic metres (m³)	2.360
Thousand square feet (MSF)	square metres (m²)	92.900
Troy ounce (TOZ)	kilograms (kg)	0.03110
Wine gallon (WG)	litres (l)	3.785
Yard (YD)	metres (m)	0.9144

Annex 15.2:   Quantity conversion factors used by the United Nations Statistics Division

Factors used by the United Nations Statistics Division to convert volume (V) and number/ units (N) to weight (W) for selected categories of goods

HS code	From	To	HS heading	Conversion factor
040110	V	W	Milk not concentrated, < 1% fat	1.03
040120	V	W	Milk not concentrated, 1-6% fat	1.01
040130	V	W	Milk and cream not concentrated	0.99
040291	V	W	Milk and cream unsweetened	0.99
040299	V	W	Milk and cream other sweetened	0.97
040310	V	W	Yogurt concentrated or not	0.97
040390	V	W	Buttermilk, curdled milk	1.02
040410	V	W	Whey whether or not concentrated	1
040490	V	W	Products consisting of whey	1
040700	N	W	Eggs, bird, in shell	0.000058
040811	N	W	Egg yolks dried	0.000244
040819	N	W	Egg yolks other	0.000073
040891	N	W	Eggs, bird, not in shell, dried	0.000244
040899	N	W	Eggs, bird, not in shell, other	0.000073
200911	V	W	Orange juice, frozen	1
200919	V	W	Orange juice, other	1
200920	V	W	Grapefruit juice	1
200930	V	W	Citrus fruit juice, other	1
200940	V	W	Pineapple juice	1
200950	V	W	Tomato juice	1
200960	V	W	Grape juice	1
200970	V	W	Apple juice	1
200980	V	W	Fruit & vegetable juice, other	1
200990	V	W	Mixtures of juices	1
210500	V	W	Ice cream	0.7
220110	V	W	Mineral & aerated waters	1
220190	V	W	Ice & snow & potable waters	1
220210	V	W	Waters, containing sugars	1
220290	V	W	Non-alcoholic beverages	1
220300	V	W	Beer made from malt	1
220410	V	W	Grape wines, sparkling	1
220421	V	W	Grape wines, other, in bottles	1
220429	V	W	Grape wines, other	1
220430	V	W	Grape must, other	1
220510	V	W	Vermouth, in bottles	1
220590	V	W	Vermouth, other	1
220600	V	W	Fermented beverages, other	1
220820	V	W	Spirits obtained by distillation	0.925
220830	V	W	Whiskies	0.925
220840	V	W	Rum and tafia	0.925
220850	V	W	Gin and genever (Geneva)	0.925
220860	V	W	Vodka	0.925
220870	V	W	Liqueurs and cordials	0.925
220890	V	W	Other spirits with alcohol <80%	0.925
240220	N	W	Cigarettes containing tobacco	0.000001
270600	V	W	Tar distilled from coal	1
270710	V	W	Benzole	0.88
270720	V	W	Toluole	0.88
270730	V	W	Xylole	0.88

Factors used by the United Nations Statistics Division to convert volume (V) and number/ units (N) to weight (W) for selected categories of goods (continued)

HS code	From	To	HS heading	Conversion factor
270740	V	W	Naphthalene	0.735
270750	V	W	Aromatic hydrocarbon mix	0.735
270760	V	W	Phenols	0.735
270791	V	W	Creosote oils	0.735
270799	V	W	Oils, other, of coal tar	0.735
270810	V	W	Pitch	1.14
270820	V	W	Pitch coke	1.14
270900	V	W	Petroleum oils, crude	0.86
271000	V	W	Petroleum oils, other than crude	0.86
271210	V	W	Petroleum jelly	0.8
271220	V	W	Paraffin wax containing < 75% oil	0.8
271290	V	W	Mineral waxes, other	0.8
271311	V	W	Petroleum coke, not calcined	1.14
271312	V	W	Petroleum coke, calcined	1.14
271320	V	W	Petroleum bitumen	1.01
271390	V	W	Residues of petroleum oil	1.01
271500	V	W	Bituminous mixtures based on natural asphalt	1.04
340311	V	W	Lubricating oils for treatment of leather and textiles	0.9
340319	V	W	Lubricating oils, other	0.9
340391	V	W	Lubricating grease for treatment of leather and textiles	0.9
340399	V	W	Lubricating grease, other	0.9
440110	V	W	Fuel wood	0.725
440121	V	W	Wood in chips, coniferous	0.7
440122	V	W	Wood in chips, non-coniferous	0.7
440130	V	W	Sawdust and wood waste	0.7
440200	V	W	Wood charcoal	0.4
440310	V	W	Poles, treated or painted	0.7
440320	V	W	Logs, poles, coniferous	0.7
440341	V	W	Tropical wood logs, Meranti	0.75
440349	V	W	Tropical wood logs, other	0.75
440391	V	W	Logs, oak	0.75
440392	V	W	Logs, beech	0.75
440399	V	W	Logs, non-coniferous, other	0.75
440610	V	W	Railway sleepers, not impregnated	0.78
440690	V	W	Railway sleepers, other	0.78
440710	V	W	Lumber, coniferous	0.6
440724	V	W	Tropical lumber, mahogany etc.	0.7
440725	V	W	Tropical lumber, meranti, red	0.7
440726	V	W	Tropical lumber, meranti, white	0.7
440729	V	W	Tropical lumber, other	0.7
440791	V	W	Lumber, oak	0.7
440792	V	W	Lumber, beech	0.7
440799	V	W	Lumber, non-coniferous	0.7
440910	V	W	Lumber, coniferous, continuously shaped	0.6
440920	V	W	Lumber, non-coniferous, continuously shaped	0.7
450110	V	W	Natural cork, raw	0.24
450190	V	W	Natural cork, other	0.24
450200	V	W	Natural cork, roughly squared	0.24

Part III   Compilation of particular data items

Chapter 16   Partner country

*Scope.*The chapter is intended to describe details of the compilation of trade data by country of origin (imports) and country of last known destination (exports) and country of consignment (both imports and exports) including the specificity of the use of those concepts under different trade systems. Challenges and good practices (and case studies) in the approximation of those concepts in the absence of sufficient data sources and for specific categories of goods (i.e. ships and aircraft etc.) will be described. Special attention will be given to the determination of country of consignment in view of the new recommendations contained in IMTS 2010 (e.g., an indicative list of commercial transactions/operations which change the legal status of goods will be provided).

*Structure.*The chapter might consist of several sections focusing on:
(i) Country of origin and its use in import statistics:
>   a. Revised Kyoto Convention;
>   b. The status of the WCO work on the harmonized rules of origin;
>   c. Challenges in determining country of origin;
>   d. Country experiences in determination of origin of selected categories of goods;

(ii) Country of last known destination and its use in export statistics:
>   a. Concept of country of last known destination;
>   b. Experiences in the approximation of country of last known destination;

(iii)Country of consignment;
(iv)Definitions of partner country in trade between members of a customs union;
(v) Partner country coding for statistical purposes.

Chapter 16   Partner country

A. Introduction

16.1.   As stated in IMTS 2010, trade statistics by partner country, both for the total value of trade in goods and for the value and quantity of trade in individual commodities, are of significant analytical value and are used for a number of purposes including the analysis of economic trends and regional trade patterns, the calculation of trade shares, market analysis, business decisions, trade policy monitoring and negotiations, the compilation of national accounts, balance of payments, as well as for checking the accuracy and reliability of trade data. Trade-by-partner statistics are frequently used by analysts to estimate imports and exports of a country that does not report trade data (or does so only after substantial delay).

16.2.   IMTS 2010 recommends that in the case of imports, the country of origin be recorded and in the case of exports, the country of last known destination be recorded. It is recognized that the partner data compiled on the basis of the country of origin (for imports) and the country of last known destination (for exports) are very often not comparable which limits its usefulness for economic analysis. To provide more comparable data IMTS 2010 recommends that country of consignment is recorded for imports as the second partner country attribution alongside with country of origin. In the case of exports, the compilation of export statistics on the country of consignment basis is encouraged depending on a country's needs and circumstances and may be considered by some countries as a rather longer term objective. Also, IMTS 2010 recommends that the economic territory of the trading partners constitute the basis upon which the statistics on trade by partner are compiled.

16.3.   This chapter is intended to provide additional details of the compilation of trade data by partner country including the specificity of the use of those concepts under different trade systems. The chapter contains the following five sections: Country of origin and its use in import statistics (Section B), Country of last known destination and its use in export statistics (Section C), Country of consignment (Section D), Definitions of partner country in trade between members of a customs union (Section E), and Partner country coding for statistical purposes (Section F).

B. Country of origin and its use in import statistics

16.4.   Statistics on imports by country of origin depends on the country rules of origin and the ways they are applied. The compiler should be well familiar with those rules and how they are applied in order to be able to assist users to interpret the disseminated trade data and to provide the feedback to customs authorities on the possible amendments and improvements. The compiler should be aware that in the absence of the internationally accepted detailed rules of origin the only international guidance in this area is provided in Annex K of the Kyoto Convention. The Convention is instrumental in ensuring that national rules of origin have many similarities. However, Annex K is very general. In practice, national rules of origin for particular commodity groups reflect national trade policy priorities. Therefore, they may and do vary significantly. [an example is needed]

16.5.   All countries distinguish between rules of origin for non-preferential and preferential trade. Non-preferential rules of origin are used to differentiate between foreign and domestic products in order to determinate the origin of products which are subject to various kinds of commercial policy measures (such as the application of the MFN-clause, antidumping and countervailing duties, safeguard measures, origin marking, quantitative restrictions, tariff quotas and public procurement). The preferential rules of origin are related to contractual or autonomous trade regimes leading to the granting of tariff preferences.

1.   Kyoto Convention

16.6.   The Convention is intended to provide guidance on the rules of origin in non-preferential trade. Country of goods origin, according to the Convention, "means the country in which the goods have been produced or manufactured, according to the criteria laid down for the purposes of application of the Customs tariff, of quantitative restrictions or of any other measure related to trade"131.

16.7.   The convention formulates two basic criteria for the determination of goods origin:(a) the criterion of goods "wholly produced" (obtained) in a given country, where only one country enters into consideration in attributing origin, and (b) the criterion of "substantial transformation", where two or more countries have taken part in the production of the goods. In this context IMTS 2010 recommends that while defining their national rules of origin countries follow the relevant provisions of the Revised Kyoto Convention. The substantial transformation criteria are being elaborated on a product specific basis, and are to be applied to a good when more than one country is involved in its production.

16.8.   *Goods produced wholly in a given country*. According to the Convention goods produced wholly in a given country shall be taken as originating in that country. The following only shall be taken to be produced wholly in a given country[132] :

(a) mineral products extracted from its soil, from its territorial waters or from its sea-bed;

(b) vegetable products harvested or gathered in that country;

(c) live animals born and raised in that country;

(d) products obtained from live animals in that country;

(e) products obtained from hunting or fishing conducted in that country;

(f) products obtained by maritime fishing and other products taken from the sea by a vessel of that country;

(g) products obtained aboard a factory ship of that country solely from products of the kind covered by paragraph (f) above;

(h) products extracted from marine soil or subsoil outside that country's territorial waters, provided that the country has sole rights to work that soil or subsoil;

131The Revised Kyoto Convention, Annex K, E1
132The Revised Kyoto Convention, Annex K, Standard 2

(i) scrap and waste from manufacturing and processing operations, and used articles, collected in that country and fit only for the recovery of raw materials;

(j) goods produced in that country solely from the products referred to in paragraphs (a) to (i) above.

16.9. *Substantial transformation.* Where two or more countries have taken part in the production of the goods, the origin of the goods should be determined according to the substantial transformation. It is a recommended practice that in applying the substantial transformation criterion, use should be made of the International Convention on the Harmonized Commodity Description and Coding System. Where the substantial transformation criterion is expressed in terms of the ad valorem percentage rule, the values to be taken into consideration should be:

(a) for the materials imported, the dutiable value at importation or, in the case of materials of undetermined origin, the first ascertainable price paid for them in the territory of the country in which manufacture took place; and

(b) for the goods produced, either the ex-works price or the price at exportation, according to the provisions of national legislation.

16.10. *Operation which should not be regarded as substantial transformation.* The Convention stipulates that operations which do not contribute or which contribute to only a small extent to the essential characteristics or properties of the goods, and in particular operations confined to one or more of those listed below, should not be regarded as constituting substantial manufacturing or processing:

(a) operations necessary for the preservation of goods during transportation or storage;

(b) operations to improve the packaging or the marketable quality of the goods or to prepare them for shipment, such as breaking bulk, grouping of packages, sorting and grading, repacking;

(c) simple assembly operations;

(d) mixing of goods of different origin, provided that the characteristics of the resulting product are not essentially different from the characteristics of the goods which have been mixed.

16.11. *Special cases.* There are certain special cases where the Convention identifies the recommended practice, namely:

(a) Accessories, spare parts and tools for use with a machine, appliance, apparatus or vehicle should be deemed to have the same origin as the machine, appliance, apparatus or vehicle, provided that they are imported and normally sold therewith and correspond, in kind and number, to the normal equipment thereof.

(b) An unassembled or disassembled article which is imported in more than one consignment because it is not feasible, for transport or production reasons, to import

it in a single consignment should, if the importer so requests, be treated as one article for the purpose of determining origin.

(c) For the purpose of determining origin, packings should be deemed to have the same origin as the goods they contain unless the national legislation of the country of importation requires them to be declared separately for tariff purposes, in which case their origin should be determined separately from that of the goods.

(d) For the purpose of determining the origin of goods, where packings are deemed to have the same origin as the goods, account should be taken, in particular where a percentage method is applied, only of packings in which the goods are ordinarily sold by retail.

16.12. *Note on certain inputs.* It should be noted that for the purpose of determining the origin of goods, no account shall be taken of the origin of the energy, plant, machinery and tools used in the manufacturing or processing of the goods.

16.13. *Documentary evidence of origin*. The trade statistics compiler should be aware that the recommended practice is to require such evidence only when it is necessary for the application of preferential Customs duties, of economic or trade measures adopted unilaterally or under bilateral or multilateral agreements or of measures adopted for reasons of health or public order. If imported goods are being admitted to the country on a not-preferential basis and are not subject to any other customs controls requiring the evidence of their origin the recorded country of origin will be as indicated by the declarant. Small value shipments and goods granted temporary admission are also exempted from the requirement to proof origin.

2. The status of the WCO work on the harmonized rules of origin

16.14. Since the WTO Agreement on Rules of Origin came into force [1995], the Technical Committee on Rules of Origin, under the auspices of the World Customs Organization (Brussels) and the Committee on Rules of Origin, under the auspices of WTO (Geneva), have been undertaking the harmonization work programme on rules of origin in non-preferential trade, under which both Committees are to: (a) develop definitions of wholly obtained goods and of minimal operations or processes that do not by themselves confer origin to a good; (b) elaborate upon substantial transformation expressed by change in HS tariff classification; (c) develop - in cases where the exclusive use of the HS nomenclature does not allow for the expression of substantial transformation - supplementary criteria, such as ad valorem percentages and/or manufacturing or processing operations.

16.15. The WTO Agreement on Rules of Origin, which is obligatory for all WTO members, indicates such areas for their application as most-favoured-nation treatment, anti-dumping and countervailing duties, safeguard measures, origin marking requirements, quantitative restrictions and quotas. The Agreement specifically provides that the WTO rules of origin, after their adoption, will "include rules used for government procurement and trade statistics"133.

133[…]

16.16. In 1999, the TCRO concluded the technical review of the Harmonized Rules of Origin and these final results were forwarded to the CRO in Geneva for consideration. As of 2011 these results are still under consideration by the WTO. Absence of WTO agreement lead to a proliferation of bilateral or regional preferential agreements comprising rules of origin. According to a WTO estimate, there are as many as 300 such preferential agreements in place.

16.17. The Committee on Rules of Origin (CRO) in Geneva had reached a consensus on 349 of the 486 technical questions submitted by the WCO Technical Committee on Rules of Origin (TCRO). 137 questions are still pending (as of June 20110, and these are the most difficult. The harmonization work programme could not be completed yet due to sensitive aspects of trade policy and political aspects and the very important question of implications" of the Agreement on Rules of Origin on other WTO Agreements. However, the consolidated text of non-preferential rules of origin contained in working document G/RO/W/111/Rev.6is available on the WTO web-site134. The text is drafted in HS 96 and therefore needed to be transposed into the actually applied version of the HS (i.e. HS 2007 version or later). There are actually 30 countries which have notified WTO on the application of non-preferential rules of origin.

16.18. In December 2008, the CRO issued its latest consolidated draft of harmonized non-preferential ROO. In its 2009 annual report, the group acknowledged that members had considerable differences regarding technical issues and aspects of the overall architecture of the draft scheme, and that manufacturing sector ROO were still a matter of specific concern. As of March 2010, the CRO reported that consensus had been reached on country-of-origin rules for 1,528 products which is about meant 55% of the work of the committee had been completed. An agreement on specific rules of origin for 2,739 products has to be reached. In its 2010 annual report, the CRO said that it continued its work on technical ROO issues pending further direction from the Council on Trade in Goods.

16.19. *Rules of origin in the case of preferential trade.* Preferential rules of origin are used to establish whether goods are eligible for special treatment under a trading arrangement between two or more countries or customs unions. Preferential (or reduced) rates of duty are applied to goods which are found to be the products or manufacture of a country defined as a preference country. The principal objective of preferential rules of origin is to ensure that benefits are restricted to those goods which originate and are traded within the particular preference area, i.e., whose origin is particular specified countries.

16.20. Each multinational or bilateral agreement has its own rules of origin. There is no work programme for the harmonization of preferential rules of origin. However, the WTO Agreement on Rules of Origin, in annex II (Common Declaration with regard to preferential rules of origin), provides the general principles and requirements applied to non-preferential rules of origin, and these apply to preferential rules of origin as well.

16.21. These requirements include notification procedures. All members agree to provide to the WTO Secretariat, as soon as possible, their preferential rules of origin, including a listing of the preferential arrangements, judicial decisions and their administrative rulings of general application relating to their preferential rules of origin, including any modification or new

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134[…]

preferential rules of origin. In particular, members agree to ensure that: (a) in the case where the criterion of change of tariff classification is applied, such a preferential rule of origin, and any exceptions to the rule, must clearly specify the subheadings or headings within the tariff nomenclature that are addressed by the rule; (b) in the case where the ad valorem percentage criterion is applied, the method for calculating this percentage shall also be indicated in the preferential rules of origin; and (c) in the case where the criterion of manufacturing or processing operation is prescribed, the operation that confers preferential origin shall be precisely specified.

16.22. It is advised that if a country's trade statistics are compiled using preferential rules of origin with respect to certain countries, an appropriate explanation is provided in the methodological note to the disseminated data.

3. Country experiences in definition of goods origin and challenges in their application

16.23. Most countries broadly follow the Kyoto Convention guidelines with regard to both wholly produced and substantially transformed goods. However, there is a significant divergence of views regarding details of the application of the guidelines. Which goods can be considered wholly produced in a given country, and what kinds of transformations of the goods can be considered substantial remains, in many cases, a matter of trade dispute.

16.24. *National practices in defining wholly produced (obtained) goods*. [… examples to be elaborated, input is needed]. In general it is good practice […]

16.25. *National practices in defining substantial transformation.* [… examples to be elaborated, input is needed]. In general it is good practice […]

16.26. *Treatment of selected special cases.*

      (a) Used goods […];

      (b) Works of art […];

      (c) Antiques […];

      (d) Other […].

16.27. Having national rules of origin in place is important but, still, countries face numerous challenges in practice of determining country of origin of imported goods. Difficulties arise for many reasons. For instance, the information on origin with respect to different transactions may not have the same quality because of variations in the requirements to produce documentary evidence. The requirement to present a certificate of origin of goods is defined by the tariff law of the countries and does not apply to all goods entering or leaving a country.

16.28. The use of country of origin requires the customs administration/statistics compiler to establish the origin of goods in each consignment on the basis of the definition of the statistical territory of its trading partners (IMTS 2010, para ..). However, if that definition excludes certain parts of the economic territory (e.g., an industrial free zone located in a country using the strict

version of the special system of trade), it is advised that the partner country be determined on the basis of the economic territory.

C. Country of last known destination and its use in export statistics

1.   Concept of country of last known destination

16.29. IMTS 2010 defines the country of last known destination as "the last country - as far as it is known at the time of exportation - to which goods are to be delivered, irrespective of where they have been initially dispatched to and whether or not, on their way to that last country, they are subject to any commercial transactions or other operations which change their legal status."

2.   Country experiences in the approximation of country of last known destination

16.30. *The identification of the country of last known destination using customs records*. It is advised that the country of destination, as recorded by customs, be used as the partner for the purposes of export statistics, provided that customs rules require exporters to identify, as far as it is known to them, the country to which goods are to be ultimately delivered (see para. […] above for definition of partner country statistical territory). The country of destination may be taken as the country of last known destination if, at the time of exportation, no additional information is available regarding further movement of the goods. It is also advised that compilers cooperate with customs in developing and disseminating to exporters clear instructions regarding the reporting of such information. Compilers should be aware, however, that customs are not normally engaged in systematic verification of the correctness of information about the destination of most goods.

16.31. *Use of non-customs sources*. In the absence of customs records, or if compilers deem them not reliable, it is advised that non-customs sources be examined. For example, the country of destination may usually be found in the terms of delivery contained in the contract of sale, or derived from shipping or other commercial documents. Compilers may use enterprise surveys and reports of commercial banks and monetary authorities. Information contained in the markings on outer packaging of the goods may also be helpful. This work is very time consuming and it is a good practice to restrict it to goods of a very high value or to various controlled goods.

16.32. *Change of origin and the country of last known destination*. During the delivery of goods sent from one country to another the goods may enter a third country and undergo processing that will confer on them a new origin. It is advised that, in such a case, the exporting country record that third country as the country of last known destination.

16.33. *Use of partner country's data*. In some cases trading partners imports data may be helpful in identification of the final destination. Compilers may find partner country statistics to be useful in cross-checking and possibly making adjustments ex post facto. There adjustments might be applicable at least at global levels (annual aggregate exports by partner country), if there is evidence that, to a large extent, a country of transit has been indicated by a declarant as a country of destination (e.g., Hong Kong SAR of China, Netherlands). The systematic and

continuous use of such methods may noticeably improve the statistics. Care should be taken to avoid double counting and adjust for mark-ups in the partner country values.

D. Country of consignment

16.34. Special attention should be given to the determination of country of consignment in view of the new recommendations contained in IMTS 2010.

16.35. The country of consignment for the purposes of import statistics is the country from which goods were dispatched to the importing country, without any commercial transactions or other operations which change the legal status of the goods taking place in any intermediate country. If, before arriving in the importing country, goods enter one or more further countries and are subject to such transactions or operations, that last intermediate country where such transactions or operations took place should be taken as the country of consignment.

16.36. The country of consignment for the purposes of exports statistics is the country to which goods are dispatched by the exporting country, without - as far as it is known at the time of exportation - being subject to any commercial transactions or other operations which change the legal status of the goods taking place in any intermediate country. If there are several intermediate countries, then the first intermediate country after leaving the exporting country should be recorded as country of consignment.

16.37. In general, the method of compiling data by the country of consignment offers the possibility of obtaining consistent statistics and reasonable comparability since it promotes the recording of the same transactions by importing and exporting countries. This approach should result in symmetrical data sets since goods recorded as imports by one country are to be recorded as exports by another.

16.38. However, in practice the determination of country of consignment depends on availability of a clear definition of what commercial transactions or other operations do not change the legal status of the traded and/or shipped goods. A list of commercial transactions/operations which change the legal status of goods, in view of selected countries, is provided below[…]

16.39. Application of those rules is not always straightforward in practice as there can be a lack of knowledge about the destination of goods at the time of export as goods can be redirected while at sea or goods can be trans-shipped from the original country of consignment and, therefore, not included in that country's imports thus creating the incomparability in partner statistics.

16.40. It is important that country of consignment is not identified with a country from which goods were shipped. The transportation of goods from the country of consignment to the country of last destination may involve the use of multiple shippers and passage through several countries, so that at the time of goods importation the country of consignment and the country of shipment may or may not coincide. The country identified by the importer as the partner country will often be the country where the last shipment arrangements were made rather than the country from which the goods were consigned.

16.41. Compilers should ensure that the relevant customs records are collected, processed and incorporated in the trade statistics database. If such records do not exist or are not complete, non-customs sources should be used to the extent possible. Countries which do not already compile country of consignment information in the case of exports are encouraged to study the feasibility of such a compilation.

E. Definitions of partner country in trade between members of a customs union

16.42. The partner attribution in the case of intra-union trade depends on requirements of member States regarding the nature of their trade statistics. These statistics may continue to be based on the same criteria as in trade with third countries, that is, on country of origin for import statistics and country of last known destination for export statistics. This attribution is easier to follow if customs controls of movements of goods between member States are not entirely removed, and customs records require identification of the country of origin and country of destination. If such customs records do not exist compilers need to use non-customs sources to compile trade statistics, including identification of country of origin and country of last known destination.

16.43. If member States are considered as one economic territory, and information regarding origin and last known destination is not required for national use, the statistics of intra-union trade might apply another definition of partner (e.g., country of arrival/country of dispatch).

16.44. For example, in the EU the country of arrival is the member state to which goods are consigned from another member state. The country of dispatch is the member state from which goods were consigned to the member state of arrival. In practice, however, consignment is frequently approximated by shipment. [We need Eurostat elaboration on this]. We need examples of how it is done in other customs unions, say, COMESA]

16.45. Trade statistics compiled by customs union secretariats and by member States will not be directly comparable if different criteria for partner attribution are used. Data on a memberState basis will be needed for various purposes, such as analysis of the performance of individual economies. The statistics compiled on a union basis will be more appropriate for some other purposes such as analysis of trade flows between different regions of the world.

F. Partner country coding for statistical purposes

16.46. Countries are encouraged to use the UN *Standard Country or Area Codes for Statistical Use* provided on its website. The website provides names of countries or areas together with the three-digit numerical codes used by UNSD for data-processing purposes and the two- and three-digit alphabetical codes assigned by the International Organization for Standardization (ISO). The website also lists and gives codes for a number of geographical regions and economic, trade and other groupings of countries or areas. Compilers are advised to take note of this website and consider using the UN coding system for data-processing and reporting purposes if it suits their systems.

16.47. Countries may wish, in national publications, to group together countries for analytical purposes. However, it is recommended that in their databases and in reporting to regional and international organizations, countries make their data available with complete and most detailed partner breakdown. This will allow both national and international users to aggregate countries into economic and geographical groupings according to their own analytical requirements, and will facilitate the estimation of trade for late reporting or non-reporting countries.

16.48. It is possible that in the case of re-imports (imports of domestic goods which were previously recorded as exports, see para. […]) and the use of country of origin a country registers trade (imports) with itself. Yet, it is neither recommended nor common practice to record exports to itself as the country of last known destination, even if the return of the goods might be almost certain (i.e. after minor processing which does not change the country of origin). Countries applying the strict or relaxed definition of the special trade system may record trade (imports or exports) from and to their free zones (or premises for inward processing or customs warehouses). The recording of trade with its free zones (or premises for inward processing or customs warehouses) clearly indicates that the country does not use the general trade system.

Part III   Compilation of particular data items

Chapter 17   Mode of transport

Scope. The chapter is intended to provide technical details on the compilation and dissemination of international merchandise trade statistics by mode of transport at the most detailed commodity level. Special attention will be devoted to challenges and good practices in recording the means of transport used when goods enter or leave the economic territory of a country and to the recording of multiple / predominant mode of transport, whenever applicable. Experiences of countries applying the special trade system as well as the experiences in the use of customs and non-customs sources will be described.

Structure. The chapter might consist of several sections focusing on:
(i)   An overview of basic concepts and data sources;
(ii)   Country experiences in the classification of modes of transport;
(iii)   Compilation of mode of transport under the general system of trade;
(iv)   Compilation of mode of transport under the special system of trade;
(v)   Multiple modes of transport;
(vi)   Country examples and special cases;
(vii)   Quality issues.

Chapter 17   Mode of transport

A. Basic concepts and data sources: an overview

17.1.   Availability of trade data by mode of transport (MoT) is very important for many purposes, including monitoring international transport routes, formulating transportation policy, assessing the impact of trade on the environment and for other analytical purposes. In this context IMTS 2010recommends that:

(a) Countries compile and disseminate international merchandise trade statistics by mode of transport at the most detailed commodity level (as a separate data dimension), and

(b) The mode of transport which should be recorded is the means of transport used when goods enter or leave the economic territory of a country. It is a good practice to describe any diversions from these recommendations in the country's metadata.

The basic concepts and data sources used in the compilation of MOT are briefly described in this section.

1.   Basic concepts

17.2.   *Mode of transport and means of transport.* For the purposes of international merchandise trade statistics mode of transport is understood as the method of transport used for the carriage of goods135. It is a specific solution that makes use of a particular type of *means of transportation* such as aircraft, vehicle, vessel or other device used for the transport of goods or persons. The transport of a person or of cargo may involve one mode or several modes, with the latter case being called multimodal transport. Each mode has its advantages and disadvantages, and will be chosen by traders on the basis of cost, capacity, route, and speed.

17.3.   *Classification for use in the compilation and reporting of the trade statistics by mode of transport*. To allow international comparability to the best possible extent IMTS 2010 provides a classification for use in the compilation and reporting of MOT trade statistics. That classification is reproduced below.

1. Air
2. Water
    2.1 Sea
    2.2 Inland waterway
3. Land
    3.1 Railway
    3.2 Road
4. Not elsewhere classified
    4.1 Pipelines and cables[136]

135See UNECE document TRADE/CEFACT/2001/19 of 15 January 2001. RECOMMENDATION No. 19, by Centre for Trade Facilitation and Electronic Business (UN/CEFACT), Section A.
136Breakdown of the category 4.1 into 4.1.1 Pipelines and 4.1.2 Cables can be applied if countries find it desirable and feasible.

      4.1.1 Pipelines
      4.4.2 Cables
    4.2 Postal consignments, mail or courier shipments
    4.3 Self-propelled goods
    4.4 Other

2. Description of particular modes of transport

17.4. **[EG suggested that descriptions of particular items of the classification are provided to ensure better international comparability. UNSD agrees with that, but more input/comments are needed.** As an example of possible description, please see and comment on the paragraph below compiled based on *Glossary for transport statistics* prepared by the EU/ECE/ECMF Inter-secretariat Working Group on Transport Statistics (Third edition, 2003[137]**]**

17.5. *Railway transport* - Any movement of goods and/or passengers using a railway vehicle on a given railway network. When a railway vehicle is being carried on another rail vehicle only the movement of the carrying vehicle (active mode) is being considered. Railway network is understood as all lines of communication made up by rail exclusively for the use of railway vehicles. Railway vehicle is a mobile equipment running exclusively on rails, moving either under its own power (tractive vehicles) or hauled by another vehicle (coaches, railcar trailers, vans and wagons).

17.6. *Self-propelled goods* .As an example, an aircraft flown out of the compiling country under its own power should be classified as self-propelled (MoT 4.3).

3. Other considerations

17.7. [IMTS 2010 does not define headings of this classification – **do we remove this sentence?**]

17.8. IMTS 2010 encourages countries to use the main categories (1-digit) of the above classification and, if countries wish to do so, use the detailed (2- or 3-digit) categories.

17.9. *National classifications of modes of transport.* The above classification is not intended to limit the flexibility of countries to implement a more detailed national classification according to their own requirements but it is recommended that countries clearly describe in their metadata the contents of the categories used. Depending on their national requirements countries may wish to compile mode of transport at the one, two or three digit level or create even more detailed breakdowns to use in the compilation and reporting of the trade statistics by the mode of transport a specific classification; in particular, the confidentiality rules may significantly affect the level of MoT detail that can be published.

17.10. It is a good practice to adopt such a national classification, which would make possible to

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137Compilers are encouraged to consult the Glossary of transportation terms developed by the UNECE, Eurostat and International Transportation Forum (ITF), available at
http://epp.eurostat.ec.europa.eu/cache/ITY_OFFPUB/KS-RA-10-028/EN/KS-RA-10-028-EN.PDF

easily reconcile it with the international classification, at least on the level of the main categories. In particular, it should be made clear whether postal consignments, mail or courier shipments and self-propelled goods are separately classified or included in the main categories air, water and land. The category 4.4 "Other" is to be used when the available information does not allow to attribute a given transaction to any of the specific mode of transport categories.

17.11. *Multimodal transport.* The term can be used when goods are carried by at least two different modes from a place at which the goods are taken in charge by a transport operator to a place designated for delivery, on the basis of one transport contract138. (Operations of pick-up and delivery of goods carried out in the performance of a unimodal transport, as defined in such a contract, shall not be considered as multimodal transport.) Article 1.1. of the United Nations Multimodal Convention (not in force) defines multimodal transport as follows: "'International multimodal transport' means the carriage of goods by at least two different modes of transport on the basis of a multimodal transport contract from a place in one country at which the goods are taken in charge by the multimodal transport operator to a place designated for delivery situated in a different country".

17.12. *Predominant mode of transport.* Some countries might wish to use the concept of the predominant mode of transport. IMTS 2010 suggests that the predominant means of transport can, for example, be defined as the mode of transport which accounts for the majority of the transportation costs or the longest part of the route by distance. Countries should define such different criteria and record multiple modes of transport as necessary (i.e. in the case of landlocked countries) taking into account their data needs and circumstances.

[Any country experience with multimodal and predominant mode of transport? Please comment]

17.13. *Main data sources.* Countries compiling value and quantity data on either general or special trade system basis are encouraged to compile the same data by mode of transport as well. It is recognized that it is a difficult task. The main data sources which might be used for compilation of trade data by mode of transport are the same as for the compilation of other trade data that is customs records and non-customs data sources described in chapters 2, 3 and 4, however, countries might explore the possibility of using some additions sources.

17.14. *Potential additional data sources.* Some additional data sources (e.g., carrier and shipper-based sources) may contain useful supplementary information and can be used for the verification and estimation purposes. The experience of several countries is briefly described below.

[Former paragraphs 17.10 – 17.14 are removed as the USA indicated that the sources described in them are not used in the USA trade by MoT statistics]

[EG members comments/inputs are needed on their practices]

138See UNCTAD document "Implementation of multimodal transport rules" [2001] available at http://www.unctad.org/en/docs/posdtetlbd2.en.pdf

17.15. *Estimation of mode of transport data.* In many instances the adequate sources of data might be absent. If, however, there is a strong need for trade data by mode of transport the appropriate estimation procedures can be developed and used **[EG members comments and input are needed here]**

B. Compilation of MoT trade statistics: countries experiences

17.16. Counties experiences in compilation of MoT data differ for several reasons including due to the use of different trade systems, availability of data sources, etc. In the case of countries using general trade system IMTS 2010 recommendations should be fully followed. For countries which compile their trade data on special trade system basis MoT data should be compiled with respect to not all its economic territory but only to that part which is included in its statistical territory. Therefore, the mode of transport which is recorded is, for example, mode used to transport goods from the customs warehouse into a free circulation area. This might provide a misleading picture of the country's trade – if foreign goods are entering the warehouses from ships and afterwards transported by road or domestic goods are sent by road to the free customs zones and then leave the country by air. Examples of country experiences in compilation of trade data by MOT, including both good practices and challenges, are provided below.

17.17. *The U.S.A.* The USA applies the recommended in IMTS 2010 definition of MoT as the means of transport used when goods enter or leave the economic territory. Further details can be summarized as follows:

(a) The data for "all methods of transportation" include general exports and general imports by vessel, air, truck, rail, air mail, parcel post, and other methods of transportation.

(b) The data for vessel and air general exports and general imports represent merchandise actually leaving or arriving in the United States aboard a vessel or an aircraft.

(c) Imports and exports of (a) vessels moving under their own power or afloat and (b) aircraft flown into or out of the United States are included in the "all methods" data but excluded from the vessel and air statistics.

(d) Mail and parcel post shipments (including those transported by vessel or air) are included in the "all methods" data but excluded from the vessel and air statistics.

(e) Estimated low-value shipments are included in the "all methods" data but excluded from the vessel and air statistics.

(f) Imports out of U.S. Customs bonded warehouses and Foreign Trade Zones are included in the "all methods" but excluded from vessel and air statistics.

(g) In some instances, shipments between the United States and countries abroad enter or depart through Canada or Mexico. Such shipments are recorded under the method of transportation by which they enter or depart the United States regardless of the transportation mode between Canada or Mexico and the country of origin or destination. So, for example, if something is shipped from China to Canada on a

vessel, then shipped from Canada to the United States on a truck, the statistics would show an import truck shipment from China.

17.18. *Canada.* Canada follows general trade system. The main features of Canadian experience are:

(a) <u>Imports:</u> For imports, the mode of transport information represents the last mode of transport by which the cargo was transported to the port of clearance in Canada and is derived from the cargo control documents of Canadian Customs. Therefore, shipments from, for example, China destined for Canada may arrive at a Western U.S. port via marine mode and arrive in Canada via rail. Such shipments are recorded as imports from China via rail in Canadian merchandise trade statistics.

Also, the recorded mode of transport may not be the mode of transport by which the cargo arrived at the Canadian port of entry, if the cargo was cleared by Canadian Customs at an inland port. If, for example, the commodities imported from the United Kingdom arrived by ship in Toronto but are not cleared in Canada until they reach another city by truck, the mode reported in Canadian international trade statistics will be truck.

(b) <u>Exports:</u> Exports by land modes of transportation represent Canadian trade with a second country that were transshipped via a third country, generally the United States. For exports, the mode of transport information represents the mode of transport by which the international boundary is crossed. For Canadian exports via the United States to other overseas countries, the mode reported would be the mode used to cross the Canadian/U.S. border. If, for example, export shipments that are destined for the United Kingdom travel by truck through Fort Erie, Ontario, and are then shipped by water from a U.S. port to the United Kingdom, the mode reported in Canadian international trade data in this table will be truck.

17.19. *Mexico*. Mexico follows general trade system and compiles MoT trade statistics in the following way:

(a) <u>Imports:</u> For imports, the mode of transport information represents the last mode of transport by which the cargo was transported at the Mexican port of entry and is derived from the cargo control documents of Mexican Customs. This may not be the mode of transport by which the cargo arrived to the port of clearance in Mexico, above for those cases where the cargo was cleared by Mexican Customs at an inland port.

(b) <u>Exports.</u> For exports, the mode of transport information records the last mode of transport with which cargo crossed the customs border on its exit from the country.

(c) In the case of Mexico the records of the transportation authority (Ministry of Communication and Transport) give data at a general level on the transported volume by mode and this information is a supplement to the data on value provided in the customs records.

17.20. Germany:

    (a) <u>Imports.</u> If imports are leaving customs warehouse for free circulation the mode of transport at the time of entering the customs territory of the EU (and not the mode used for transportation when leaving customs warehouse) has to be reported in the customs declaration. In case the importer is not able to identify that mode of transport he has to declare the presumable mode of transport.

    (b) <u>Exports.</u> Exports are treated accordingly (presumable mode of transport when leaving customs territory).

17.21. *Quality issues.* Obtaining high quality trade data by mode of transport is a challenging undertaking. In addition to the reporting errors that affect the general merchandise trade statistics, there are reporting errors that specifically affect data tabulated by mode of transport (MOT). In general, the businesses or individuals that report the data may not be the same individuals who physically convey the shipments. This can lead to inaccurate information about how a shipment is transported and where it enters or exits a country. It is a good practice to develop various cross-checking procedures and to document them in trade statistics metadata.

17.22. *The USA experience.* For example, the U.S. Census Bureau quality assurance procedures include checking that reported MOT codes and ports are valid and performing relational checks between the ports and the method of transportation. In the future, the Census Bureau is exploring obtaining transportation information directly from the manifest, as reported by the carrier of the goods. To ensure quality, besides MOT and port relationship checking, the Census Bureau also performs relational edits on MOT/HS Commodity and MOT/HS Commodity/Shipping Weight. For example, a certain commodity such as coal cannot be shipped by air or the shipping weight of a commodity shipped by vessel cannot exceed the maximum allowed.

17.23. The Census Bureau is substituting Canadian import statistics for U.S. exports to Canada. In accordance with this data exchange, Canada requires its importers to report the MOT by which the goods departed from U.S. However, Canada does limited edit checks of this field, which can lead to inaccurate information collected for exports to Canada. Additionally, Canada does not collect containerization information on our exports as part of the data exchange and as such all containerized value and shipping weights for exports to Canada are excluded.

==[Additional and more detailed comments/inputs are needed on quality assurance of MoT data]==

C. Dissemination of MoT statistics: countries experiences

17.24. The U.S.A. makes its MoT trade statistics available in the following publications:

    (a) *U.S. Imports of Merchandise* provides import statistics in various data fields for Harmonized System (HS) commodities at the 2, 4, 6 and 10-digit level. Country and customs district data for value, quantity, method of transportation, shipping weights, import charges, duties and much more are provided on a monthly, year-to-date, and annual basis.

(b) *FT920* provides data on value, charges, insurance and freight (CIF), and shipping weight for general imports and imports for consumption by district of entry, district of unlading, world area, country of origin, and by method of transportation. Final data are released monthly.

(c) *USATradeOnline* provides Port statistics by 6-digit HS and country for value, shipping weight, and method of transportation. State export statistics that include 6-digit HS or 4-digit NAICS and country are provided for value, shipping weight and method of transportation.

(d) *U.S. Exports and U.S imports by port* provides export and import statistics by port of export and port of unlading respectively by HS commodities at the 6-digit HS level data for value, shipping weight, and method of transportation on an monthly, quarterly or annual basis.

(e) *Trans-border statistics files* (U.S. Imports and exports from and to Mexico and Canada and U.S. imports and export transshipments through Mexico and Canada) in disaggregated MOT to the U.S. Bureau of Transportation Statistics (BTS). These data, that include separate details on land (e.g. truck, rail) and other modes (e.g. mail, flyaway aircraft), are published by the BTS.

Box 1.
The North American Transportation Statistics On Line Database (NATS OD).

The database[139] presents information on transportation and transportation-related activities among Canada, the United States and Mexico, both within individual countries and between the countries. This database, presented in French, English, and Spanish is, accessible in table and time series formats, and covers twelve thematic areas, including transportation and the economy, transportation safety, transportation's impact on energy and the environment, passenger and freight activity, and transportation and trade.

Data are products of the North American Transportation Statistics working group within the North American Transportation Statistics Interchange, a trilateral initiative among the transportation and statistical agencies of Canada, the United States and Mexico. Underway since 1991, the Interchange provides a forum for the exchange of information and for the discussion of topics and issues related to transportation statistics among the participating countries.

The primary participating agencies include Statistics Canada and Transport Canada from Canada; the Secretaría de Comunicaciones y Transportes (SCT) (Ministry of Communications and Transportation), the InstitutoMexicano del Transporte (IMT) (Mexican Institute of Transportation) and the InstitutoNacional de Estadística y Geografía (INEGI) (National Institute of Statistics and Geography) from Mexico; and the Bureau of Transportation Statistics (BTS) and the U.S. Census Bureau from the United States. Other agencies throughout the three countries participated and provided data and expertise.

Major objectives of the North American Transportation Statistics working group are to: (a) identify key information that will help provide a comprehensive view of transportation in North America, (b) characterize transportation activity and impacts across and between Canada, Mexico and the United

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139Available at http://nats.sct.gob.mx/nats/sys/index.jsp?i=3

States, (c) reveal specific data comparability differences among countries, (d) identify data and information gaps and (e) begin discussions for reducing comparability differences and data gaps through cooperative activities.

The focus is on data, methodology, and analysis that provide information necessary to support a safe, environmentally sustainable and integrated transportation system for North America; for this reason the three countries have developed comparable key indicators of transportation activity such as the merchandise trade by MoT.

17.25. **Experience more countries, including developing countries, is needed here.**

Part IV   Compilation of data on trade in selected categories of goods

Chapter 18   Scope of IMTS

Scope. The chapter will elaborate the general guideline for the recording of merchandise trade and its application for specific categories of goods. In particular, it will focus on the definition and comparison of categories of goods which might be difficult <u>to</u> distinguish such as goods on consignment, goods for processing, goods for storage, goods in transit, goods temporarily admitted and dispatched, goods for maintenance and repair. Examples will be provided. One part will concentrate on categories of goods where the application of the concept of economic territory requires further explanation such as trade in ships and aircraft, bunkers and stores, travelers, enclaves/ exclaves etc. A further part will deal with the issues of cross border trade and smuggling, customs and statistical threshold.

*Structure.*The chapter might consist of several sections focusing on:
(i)   The general guideline;
(ii)   Comparison of specific categories of goods;
(iii)   Economic territory and categories of goods;
(iv)   Cross-border trade and smuggling;
(v)   Customs and statistical threshold, treatment of non-response.

Chapter 18   Scope of IMTS

18.1.   *Introduction*. The chapter will elaborate the general guideline for the recording of merchandise trade and its application for specific categories of goods. In particular, it will focus on the definition and comparison of categories of goods which might be difficult to distinguish such as goods on consignment, goods for processing, goods for storage, goods in transit, goods temporarily admitted and dispatched, goods for maintenance and repair. Examples will be provided. One part will concentrate on categories of goods where the application of the concept of economic territory requires further explanation such as trade in ships and aircraft, bunkers and stores and enclaves/ exclaves etc. A further part will deal with the issues of cross border trade and smuggling, customs and statistical threshold.

A. The general guideline

18.2.   *Recommendation*. As a general guideline, **it is recommended** that international merchandise trade statistics record all goods which add to or subtract from the stock of material resources of a country by entering (imports) or leaving (exports) its economic territory. The general guideline is subject to the clarifications provided in chapter I and other chapters of IMTS2010 and, in particular, to the specific guidelines set out in IMTS2010, chapter I, section B

18.3.   *Interpretation of the general recommendation*. The recommendation establishes two criteria for the recording of goods. Goods have to physically enter or leave the economic territory and secondly the goods need to add or subtract from the stock of material resources of a country. The interpretation of this general guideline depends of what is to be understood as good, what is to be considered the economic territory and what does it mean for goods to be part of the stock of material resources of a country. IMTS2010 provides definitions of all three terms (IMTS2010, paras. 1.5 – 1.7). The discussion of specific categories of goods in this and subsequent chapters of part IV Compilation of data on trade in selected categories of goods are touching upon these three definitions.

B. Comparison of specific categories of goods

18.4.   The below table 18.1 summarizes the definition and comparison of categories of goods which might be difficult to distinguish.

Table 18.1 Definition and comparison of specific categories of goods

Category of good	Definition	IMTS2010	Distinguish from	Additional considerations
Goods on consignment (IMTS2010, para. 1.17)	These are goods intended for sale but not actually sold when they cross the border.	Include	Goods being simply transported through a country or temporarily admitted or withdrawn are to be excluded (see paras 1.41 - 1.44 below).	Goods on consignment can be returned but their identification as returned goods might be difficult

Category of good	Definition	IMTS2010	Distinguish from	Additional considerations
Goods for processing with or without change of ownership (IMTS2010, para. 1.19)	Goods for processing are goods that are sent abroad or brought into a country under a specific arrangement between the involved parties (which may or may not include the change of ownership) and for specific operations as defined by the statistical authorities of the compiling country.	Include and identify separately	Goods for repair and maintenance are to be excluded but to be separately recorded (IMTS2010, para 1.57)	Identify separately goods for processing where no change of ownership takes place
Goods for storage/ Goods transferred from or to a buffer stock organization (IMTS2010, para. 1.27)	A buffer stock organization is one that maintains a stock of certain commodities and sells or buys them in order to influence supply and demand on the world market.	Include	Goods being simply transported through a country or temporarily admitted or withdrawn are to be excluded (see paras 1.41 - 1.44 below).	
Goods simply being transported through a country (IMTS2010, para. 1.41)	Goods are considered as simply being transported through a country if they (a) enter and leave the compiling country solely for the purpose of being transported to another country, (b) are not subject to halts not inherent to the transportation and (c) can be identified when both entering and leaving the country.	Exclude	Goods for free circulation are to be included	Goods simply being transported include goods under "in transit" or "in transshipment" customs procedures but are not limited to them
Goods temporarily admitted or dispatched (IMTS2010, para. 1.43-1.44)	At the time of admission/dispatch it is known that their intended stay in the receiving country is temporary (as defined by the statistical authority of a country) and after their stay they can be withdrawn/returned in the same state (except for normal wear and tear). This category includes, but is not limited to, goods identified in the Kyoto and Istanbul Conventions as goods covered by the "temporary admission subject to re-exportation in the same state" customs procedure.	Exclude	Goods for processing and goods on financial lease are to be included (see IMTS2010, paras 1.19-1.20 and 1.28)	It may be not known whether admitted or dispatched goods are expected to be brought back within a limited time period. Countries may wish to use one year (or less) of stay as an approximation for temporary admission.
Goods for repair or maintenance. (IMTS2010, para. 1.57)	This category comprises goods temporarily crossing borders for repair or maintenance abroad. Such activities reinstate or maintain the quality of the goods and do not result in the creation of a new product.	Exclude	This category does not include goods temporarily admitted or dispatched (see IMTS2010 paras. 1.43 and 1.44) which are to be excluded and goods for processing (see IMTS2010, paras. 1.19-1.21) which are to be included.	The identification of goods for repair or maintenance should be determined in cooperation with balance of payments compilers.

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18.5.   *Example of goods for processing*. Global manufacturing and global production chains that for example exist for products such as cars or for electronics such as mobile phones but as well for many other products require that parts of the production process and the manufacturing of the components of the final product takes place in several countries. All trade that precedes the shipment of the final product can be considered as goods for processing.

18.6.   *Example of goods for storage*. Certain important commodities such as oil and gas or wheat and rice are frequently stockpiled at specific locations for the purpose of their future distribution and use. For example, some relatively small Caribbean countries store large amounts of fuels to ensure that ships and aircraft can be properly refueled. These supplies might be fully under control of a foreign entity but nevertheless form part of the material resources of the country.

18.7.   *Example for goods simply being transported through a country*. Large trading places such as Rotterdam (for oil) and Dubai and Hong Kong (for merchandise) are frequently the destination of goods that are then reloaded to another destination. It can be difficult to distinguish whether these goods are entering the country on consignment, for storage or only as good in transit.

18.8.   *Example for goods temporarily admitted or dispatched.* This category includes, but is not limited to, goods identified in the Kyoto and Istanbul Convention as goods covered by the "temporary admission subject to re-exportation in the same state" customs procedure. Such goods include display equipment for trade fairs and exhibitions; art exhibits, commercial samples and pedagogic material; animals for breeding, show or racing; packaging, means of transport, containers and equipment connected with transport; and equipment for the working of lands adjacent to the border by person's resident abroad. In cases where movements of goods are not covered by a specific customs procedure, the statistical authorities should establish criteria for determining whether the goods movement should be considered temporary.

18.9.   *Example of goods for goods for repair or maintenance*. Ships and aircraft frequently undergo repair and maintenance in other countries which is to be recorded as a service transaction. Regular repair or maintenance might be difficult to distinguish from the refitting or refurbishing which result into an essentially new product and its import and subsequent export need to be included.

C. Economic territory and categories of goods

18.10. The application of the concept of economic territory requires further explanation in the case of trade in ships and aircraft, bunkers and stores and enclaves/ exclaves etc.

18.11. *Ships and aircraft* (IMTS2010, para. 1.29). Ships and aircraft which are goods that are mobile by definition might never enter the reporting country. However, they are nevertheless to be viewed as part of the material resources of a country if the owner is resident of that country. This can be seen as a convention which allows for the recording of ships and aircraft which is most meaningful and, despite its difficulties, most practical. The attribution of ships and aircraft to the material resources of a country could be also based on the degree of physical presence and

maintenance which however, would be less meaningful given the importance of ownership and less practical.

18.12. *Bunkers and stores* (IMTS2010, para. 1.32).The recording of bunkers and stores is conceptually and practically without much difficulties if these transactions take place within the own economy, i.e. in the case of refueling of foreign aircraft and ship as the supplies are very apparently leaving the economic territory on board of the foreign vessels and ships. It is appears obvious that such exports need to be recorded as imports by the country where the economic owner of the ship resides, despite the fact that these supplies will never cross the geographic-economic border of these countries. To further justify this practice on conceptual grounds it can be pointed out that ships and aircrafts need to be viewed as quasi economic territory of the country where the economic owner resides. These ships and aircraft contribute to the value added/GDP of the countries where there economic owner resides by at least their operating surplus and hence all inputs required to generate this value added should be attributed to that country as well.

18.13. *Enclaves* (IMTS2010, para. 2.10). The economic territory also includes territorial enclaves in the rest of the world. These are clearly demarcated land areas (such as embassies, consulates, military bases, scientific stations, information or immigration offices, aid agencies, central bank representative offices with diplomatic immunity, etc.) located in other territories and used by governments that own or rent them for diplomatic, military, scientific, or other purposes with the formal agreement of governments of the territories where the land areas are physically located.

D. Cross-border trade and smuggling

18.14. *Three cases to distinguish*. Goods acquired by all categories of travelers, if significant as defined by national law (often referred to as shuttle trade) are to be included (IMTS2010, para. 1.16) - this includes used goods such as cars (para. 1.37) or produce, and special surveys and estimation methods might be required to compile information on this trade; if those goods enter the economic territory illegally (e.g., smuggling, stolen vehicles) they should be excluded but recorded separately (IMTS2010, para. 1.59); goods in amounts or values that do not exceed limits established by national law are to be treated as part of trade in services (IMTS, para. 1.49(a));

E. Customs and statistical threshold, treatment of non-response

18.15. *Customs and statistical threshold*. The customs threshold can be defined as a threshold specified in value or quantity under which customs does not require a goods declaration to be completed. Such thresholds are applied by many countries for the goods acquired by travelers (see IMTS2010, para 1.49(a) and for goods sent by postal and courier services. Statistical authorities might adopt the customs threshold as their statistical threshold for practical reasons. If the trade which takes place under the statistical threshold is economically significant as determined by the statistical authorities of the compiling country it should be estimated and included in the trade statistics (IMTS2010, para. 1.3).

18.16. *Thresholds in the Intrastat system of the EU*. The Intrastat system applies four kinds of thresholds: the exemption threshold below which parties (taxable persons) are exempt from providing an Intrastat declaration, a simplification threshold under which parties might be exempt from providing part of the Intrastat information and a statistical threshold under which parties provide a detailed statistical declaration except the statistical value and, a small transaction threshold. The application of the simplification, statistical and small transaction threshold depend on the decision of the EU member state. Member countries are obliged to cover at least 97 percent the total amount of trade of their dispatches and 95 percent of the total amount of trade for arrivals. As EU legislation requires the transmission of total trade countries need to transmit estimations for the trade below the exemption threshold.

F. Confidential data and incomplete coverage by data omission

18.17. *Confidential data*. Some countries consider certain commodity and partner information as confidential, i.e. due to security concerns or other considerations. Examples are imports of military or other sensitive goods or information on exports of oil and gas. IMTS 2010 recommends that data that are considered confidential are included at the next higher commodity or partner detail that ensures the required confidentiality (see Chapters 1 and 26.for further details and good practices).

18.18. *Omission of data*. There are examples where information on trade transactions which are not covered by regular customs recording are omitted from inclusion in the merchandise trade statistics although information is provided and included for balance of payments statistics. It might be the case that the available information does not allow the inclusion in merchandise trade statistics on the detailed commodity and partner data level. However, in line with the general guideline on the scope of IMTS this trade should be included on the total level in order to provide full coverage.

Part IV   Compilation of data on trade in selected categories of goods

Chapter 19   Goods for processing

Scope. This chapter will define and provide examples for goods for processing. It will also explain what is not to be considered as goods for processing (i.e. goods in transit, goods for repair). The treatment of goods for processing in the 2008 SNA/ BPM6 will be explained. Challenges and good practices in the identification of goods for processing, including goods for processing where no change of ownership takes place will be described. The use of customs records and the relevant customs procedures for identifying goods for processing will be discussed.

Structure. The chapter might consist of several sections focusing on:
(i)   Definition and examples of goods for processing;
(ii)   Transactions and activities that are not goods for processing;
(iii)   Treatment of goods for processing in the 2008 SNA/ BPM6;
(iv)   Measuring trade in goods for processing – with or without change of ownership - and implications for the balance of payments compilation;
(v)   Examples of good practices.

Chapter 19   Goods for processing

19.1.   *Introduction*. This chapter will define and provide examples for goods for processing. It will also explain what is not to be considered as goods for processing (i.e. goods in transit, goods for repair). The treatment of goods for processing in the 2008 SNA/ BPM6 will be explained. Challenges and good practices in the identification of goods for processing, including goods for processing where no change of ownership takes place will be described. The use of customs records and the relevant customs procedures for identifying goods for processing will be discussed. The issue of goods for processing has gained increased attention in recent years as the production process of goods is now frequently spread out across multiple countries. This is having significant impacts on employment and the value added generated in the countries that participate in the production process. It also raises important issues about the long-term competitiveness of specific sectors of the national economy. Therefore, there is the need to separately identify and to obtain more information about these types of trade transactions. Particular urgency to improve the statistics about goods for processing is also a consequence of the need to identify goods for processing where no change of ownership over the goods takes place for national accounts and the balance of payments. Most national agencies are expected to provide over time some information on goods for processing. However, due to the issues detailed below the information will often have limitations of which users should be made aware of in the metadata.

A. Definition and examples of goods for processing

19.2.   *General Definition of Goods for processing.* Goods for processing are goods that are sent abroad or brought into a country under a specific arrangement between the involved parties (which may or may not include the change of ownership and for specific operations as defined by the statistical authorities of the compiling country (see IMTS 2010, para. 1.19). In principle, any intermediate or final good that is used in the production of a new or significantly improved product or any good that is subject to certain operations could be defined as good for processing as any arrangement or operation could be deemed as specific. However, in general, customs and statistical authorities adopt narrow definitions of goods for processing which usually would allow a clear conceptual identification of such goods in most cases.

19.3.   *Specific definitions of goods for processing based on customs procedures*. Many countries adopted definitions of goods for processing based on specific customs procedure, such as 'inward processing' under which certain goods can be brought into a Customs territory conditionally relieved from payment of import duties and taxes, on the basis that such goods are intended for manufacturing, processing or repair and subsequent exportation (Revised Kyoto Convention, Specific Annex F/ Chapter 1/ E3). To the extent that it is beneficial for traders to use specific procedures that are reserved for goods for processing, such goods are identified in a very reliable way via customs procedure codes. Some customs procedures such as 'inward processing' and 'outward processing' provide clear definitions of goods for processing. However, depending on national regulations and practices also procedures such as 'free zone' and 'drawback' could include goods for processing. In general, specific customs procedures for goods for processing are set in place as part of the trade and economic policies in direct support of certain economic activities.

19.4.   *Limitations of the use of customs procedures*. Customs procedures might not provide sufficient information about nor a reliable definition for goods for processing as in many cases using such procedures may not be seen as beneficial by traders due to the reduction or elimination of duties or other reasons. It might be preferable for traders to clear goods for processing for free circulation at import and as regular exports when leaving the country.[140]In that case, there may be no way to identify imports for processing. Identifying exports for processing or the re-export of the processed goods may be even more difficult. Also, for trade within a customs union there could be no customs procedures that could identify goods for processing.

19.5.   *Other definitions of goods for processing*. In the absence of relevant custom procedures goods for processing are defined based on economic or other criteria that might reflect specific information requirements. For example, the European Commission regulation No 1982/2004 defines processing as operations (transformation, construction, assembling, enhancement, renovation…) with the objective of producing a new or really improved item. It is specified that this does not necessarily involve a change in the product classification. However, the statistical recording of goods for processing via a so called nature of transaction code in the Extra- and Intrastat system of the European Union is limited to processing under contract without transfer of ownership to the processor. This means that processing activities on a processor's own account are not covered.[141]A proper distinction of processing without change of ownership is important for BOP and national account purposes. For this purpose it is useful to limit the definition for goods for processing to processing under contract.

19.6.   *Description of processing under contract*. Processing under contract means that no change of ownership takes place. The ordering party provides the primary or intermediate product to the subcontractor responsible for the processing and stay the owner of these products. The subcontractor sends the processed good after processing back to the ordering party or out to another trader to whom the ordering party has sold the processed good.

19.7.   *Operations considered processing*. The following operations are commonly considered as processing activities:
- Manufacturing/assembly of goods;
- Conservation (e.g. by the addition of preservatives);
- Treatment (e.g. against parasites or rust);
- Mixing goods of different qualities to produce goods of a new quality;
- Labelling of goods, providing the labels are part of a sale transaction. If not, labelling is a service;
- Bottling of liquid (e.g. wine from barrels);
- Canning of goods (e.g. tinned food);

140Also, according to the most favored nation agreements goods can be exempted from import duties and may be admitted via the customs procedure goods declared for home use (free circulation) and hence, the customs procedure used is not necessarily an indication of a processing activity.

141 European Commission, Regulation (EU) No 113/2010 of 9 February 2010, Annex II and European Commission, Regulation (EC) No 1982/2004 of 18 November 2004, Annex III, amended by Regulation (EC) No 96/2010 of 4 February 2010, Annex III

- Making up of textiles into products (e.g. clothing, handbags, curtains);
- Dilution or concentration of liquids (e.g. orange juice).

B. Transactions and activities that are not goods for processing

19.8.   *Goods for repair and service operations*: Processing should be clearly delimitated from simple service operations or repair. A repair is defined as 'the restoration of goods to their original function; this may involve some rebuilding or enhancements'. The following examples may facilitate the identification and delimitation of repair and service operations:

(a) Repairs:

- The simple replacement of part of an item indicates that a repair transaction might have been carried out. On the other hand, if it results in an really improved item, it is a process;
- Repair of damage to goods incurred during transport;
- Re-painting should be treated as repair/maintenance. However, the painting of unpainted goods should be treated as processing.

(b) Services:

- For aircraft,[142] technical maintenance activities which are carried out due to legal requirements (e.g. controls, mandatory periodic replacements);
- Testing adjusting, regulating or certification of goods (e.g. aircraft, machines, apparatus, vehicles);
- Simple ironing, washing, cleaning, drying operations;
- Simple packaging operations;
- Simple sorting, sifting, weighing, dividing and filtering of goods.

19.9.   *Difficulties*. In practice, many borderline cases might exist where repair and service can be difficult to differentiate from processing Examples of such borderline cases are a repair in which as replacement part a new model with better performance is used or the partial refitting of a ship or aircraft during repair. Cases that involve high value goods such as ships and aircraft can have a significant impact on the value of imports and exports and should therefore be reviewed on an individual basis and the users should be informed appropriately about their recording.

C. Treatment of goods for processing in the 2008 SNA/ BPM6

19.10. *Goods for processing without change of ownership.* IMTS 2010 recommends that goods for processing be recorded when they enter or leave the economic territory, irrespective of whether a change in ownership takes place (see IMTS 2010, paras 1.19-1.20 above). However, the recording of transactions in the balance of payments is based on the principle of change of ownership between residents and non-residents: Goods supplied to another economy for processing without a change of ownership and returned to the economy of the owner after processing are not recorded in the balance of payments statistics compiled according to BPM6; instead, the BPM6 records a manufacturing services on physical inputs owned by others to

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142 For further details on the recording of aircraft (and ships) please see chapter 22.

reflect the relationship between the owner and processor and only the fee charged by the processor is included under this item (BPM6, paras. 10.22(f) and 10.62-10.71). The previous version of the BPM inputed a change of ownership in the case of goods for processing but the BPM6 reversed this practice, hereby establishing a major conceptual difference to merchandise trade statistics.

19.11. *Recording of the sale of goods to a third country after processing in the BPM6*. If the goods are sold to a third economy after processing, then the value of the goods (including the value of processing) is recorded as an export of the economy of the owner and an import of the third economy; the value of the processing is recorded as an export of services of the processing economy and an import of services of the economy of the owner (BPM6, paras. 10.22(f) and 10.62-10.71).

19.12. *Definition of goods for processing in the BPM6*. Manufacturing services on physical inputs owned by others cover processing, assembly, labelling, packing, and so forth undertaken by enterprises that do not own the goods concerned. The manufacturing is undertaken by an entity that does not own the goods and that is paid a fee by the owner. In these cases, the ownership of the goods does not change, so no general merchandise transaction is recorded between the processor and the owner. Examples of processes that are often undertaken under arrangements for manufacturing services on physical inputs owned by others include oil refining, liquefaction of natural gas, assembly of clothing and electronics, assembly (excluding assembly of prefabricated constructions, which are included in construction), labelling, and packing (excluding those incidental to transport, which are included in transport services)(BPM6, paras. 10.62-10.63).

D. Measuring trade in goods for processing – with or without change of ownership - and implications for the balance of payments compilation

19.13. *Recommendation to measure trade in goods for processing*. According to the recommendations for merchandise trade in all cases, goods for processing and goods resulting from such processing (compensating products in customs terminology), are to be included in the merchandise exports and imports of the countries at their full (gross) value. Countries are encouraged to explicitly identify in their trade statistics (preferably by special coding) goods for processing and goods resulting from such processing where no change of ownership takes place. (IMTS 2010, paras. 1.20-1.21). Further, i**t is recommended** that information about the customs procedure applied to individual transactions (or the nature of transaction) be included in the dataset for trade statistics in order to facilitate the identification of re-exports and re-imports but also of other types of trade, such as goods for processing, trade between related parties, goods on consignment etc. as far as possible. For BOP compilers the measurement of manufacturing services on physical inputs owned by others is required.

19.14. *Measuring goods for processing*. Customs procedures can provide a very reliable way of identifying goods for processing. However if countries do not have customs procedures that are specific for goods for processing or if traders do not use those procedures as it might be more convenient not to use them, the information on goods for processing from customs recording might be incomplete and not accurate (see also paragraph 19.4). A further difficulty can be to

distinguish goods for processing from goods for repair and service. Also, customs records would usually not indicate whether there is a change of ownership and whether a transaction takes place between related parties. However, compilers are encouraged to use additional means such as special surveys or studies and linking custom records with information about the traders to overcome these difficulties to the extent possible.

19.15. *Avoiding double-counting in the balance of payments*. International merchandise trade statistics (IMTS) is the main source of data on trade in goods for the balance of payments and national accounts. In order to obtain the value of total goods on balance of payment basis from merchandise trade statistics, BOP compilers have to undertake several adjustments, the following three concerning goods for processing:[143]

  (a) subtract goods sent for or returned after processing without a change of ownership

  (b) add goods acquired from other economies than the own for processing abroad as imports (BPM6, para. 10.65) (i.e. additional materials used in the processing of the goods)

  (c) add goods sold abroad after processing in other economies as exports (BPM6, para. 10.66)

Only for the case (a) the transactions are within the scope of international merchandise trade statistics and would usually be included in the custom recording. Goods under (b) and (c) never cross the border of the reporting country. Compilers of balance of payments and national accounts would require additional sources of information to capture the required information regarding the transactions indicated in (b) and (c).

19.16. *Implications for users*. The figures for imports and exports of "Total goods" in the BPM6 Goods and Services Account are expected, at least for some countries, to be significantly different from the figures for total imports and exports published in trade statistics, probably often reflecting the role of goods for processing without change of ownership but also other differences. Similar differences are expected for the sub-item "re-exports". Further, the joint presentation of detailed data on trade in goods and trade in services will require explanations of why the detailed data does not add up to a total figure for trade. The agencies responsible for the dissemination on the trade in goods on IMTS and BOP/NA basis should agree on a uniform dissemination strategy that would entail uniform labeling of the different data and the provision of a reconciliation table.

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143 For an example please see Development of Trade in Goods and Services Statistics in Hong Kong, CHAN Ka-lin, Census and Statistics Department, The Hong Kong Special Administrative Region, China, presentation during the Global Forum on Trade Statistics, Geneva, 2-4 February 2011:To collect additional information for consignments imported from the Mainland involving processing of goods under the arrangement of "processing and assembling": (i) the value of processing fee paid by Hong Kong traders; and (ii) the value of raw materials / semi-manufactures concerned sent to the Mainland for processing with breakdowns into • those procured by the Hong Kong traders and exported from or through Hong Kong; • those procured by the Hong Kong traders and exported directly from place(s) other than Hong Kong; and • those procured by the Mainland processing factories.

E. Examples of good practices

19.17. *Goods for processing – example China*[.144] Processing trade accounts for a large share of Chinese exports and imports.[145] The General Administration of Customs of the People's Republic of China, which is the responsible agency for merchandise trade statistics defines goods for processing based on the customs procedure of inward processing under which certain goods can be brought into China Customs territory for manufacturing or processing with subsequent exportation. Two types of customs regimes are differentiated: Type I: the imported input remains the property of the supplier; type II: the ownership of imported inputs are transferred to Chinese producers. The placement of goods under the inward processing procedure requires authorization and customs monitors the processing operation. The external trade statistics collects information on the enterprise transaction level.

19.18. *Goods for processing – example Iceland*.[146]The metal industry, which is a major industry in Iceland imports raw material to be processed and exports goods after processing. Few companies are involved. Importers are obligated to identify on the customs declaration if the good imported is for processing. Raw material imported for manufacture is exempted from excise tax and duties (Customs regulation) which provides an incentive for the enterprises to identify goods for processing on the import declaration. Some enterprises buy the raw material from abroad and sell the finished product to abroad (change of ownership); Others make agreements with foreign enterprises to process raw material into finished product and the foreign enterprises provide the raw material and sell the good after processing (no change of ownership). There is high influence of goods for processing in the Icelandic trade data for goods and services.

F. Additional issues

19.19. *Valuation*. In merchandise trade statistics goods for processing before and after processing are recorded at their gross value or full transaction value according to the general valuation principle for IMTS. However, this valuation of goods for/after processing may significantly influence the statistical results for certain categories of goods as the value of some goods with high values (e.g. aircraft) before processing may be several times higher than the value of processing. Users should be informed in the metadata how certain transactions of high value are recorded.

144China's Practice in Statistics of Goods for Processing, H. Jin, Statistics Department, General Administration of Customs of the People's Republic of China, presentation during the Global Forum on Trade Statistics, Geneva, 2-4 February 2011.
145 Around 50 percent of exports and 30 percent in imports (ibid.).
146New manuals of trade in goods and trade in services:Goods for processing in Iceland, A. Ó. Svavarsdóttir, Statistics Iceland, presentation during the Global Forum on Trade Statistics, Geneva, 2-4 February 2011.

Part IV   Compilation of data on trade in selected categories of goods

Chapter 20   Goods which cross borders as a result of transactions between related parties

Scope. This chapter will define and provide examples for transactions between related parties. Ways to identify trade between related parties will be discussed.

Structure. The chapter might consist of several sections focusing on:
(i)   Definition of related parties and examples of trade between related parties;
(ii)   Purposes of identifying trade between related parties (including valuation);
(iii)   Ways to obtain information on trade between related parties;
(iv)   Good practices.

Chapter 20   Goods which cross borders as a result of transactions between related parties

20.1.   *Recommendation to separately identify trade between related parties.* Trade between related parties is an important dimension of international trade and there is a need to obtain more information on this kind of trade. While trade between related parties has always been included in the scope of IMTS, and in this sense is not different from trade between unrelated parties, IMTS 2010 encourages countries to separately identify (code) such goods and the types of the relationships in order to be able to review their valuation and to provide information on these transactions to users. It is acknowledged, however, that depending on their specific data needs and overall compilation strategies, countries may find it more appropriate, rather than identifying such goods in their regular trade data compilations, to estimate their share in imports/exports by conducting periodic surveys of companies that have foreign affiliates or are affiliates of the foreign companies.[147] Countries should describe their practices in this respect in their metadata to ensure proper use of their statistics and to assist in international comparisons.

A. Definition of related parties and examples of trade between related parties

20.2.   *Definition of related parties.* IMTS 2010 encourages countries to use the definition of related parties as provided in Article 15(4) of the WTO Valuation Agreement (see Box 20.1) which provide provisions for the appropriate valuation of goods traded between related parties as the prices paid between related parties might be influenced by their relationship.[148] Countries might diverge from this recommendation and use another definition of related parties such as the OECD benchmark definition for foreign investment (BD4)[149]. Countries should state in their metadata what definition is used.

Box 20.1.
WTO Definition of related parties

For the purposes of this Agreement, persons shall be deemed to be related only if:
(a) they are officers or directors of one another's businesses;
(b) they are legally recognized partners in business;
(c) they are employer and employee;
(d) any person directly or indirectly owns, controls or holds 5 per cent or more of the outstanding voting stock or shares of both of them;
(e) one of them directly or indirectly controls the other;

147Some countries view it as more appropriate to estimate the share of intra firm trade by surveys conducted every two or three years than to collect that information in the frame of regular foreign trade statistics, in particular as this information is not needed on a monthly basis.

148 However, it might be more useful to have information on whether the trade is valued according tosome transfer pricing agreement. Transfer pricing does not always go by the OECD guidelines. Countries might have transfer pricing policies outside the OECD guidelines.

[149] Related parties can also be defined according the BPM6 and the OECD benchmark definition for foreign investment (BD4) as parent cooperation and their direct investment enterprise (affiliates/ branches). A direct investment enterprise is an incorporated or unincorporated enterprise in which a direct investor who is resident in another economy owns 10 per cent or more of the voting power (for an incorporated enterprise) or the equivalent (for an unincorporated enterprise).

(f) both of them are directly or indirectly controlled by a third person;
(g) together they directly or indirectly control a third person; or
(h) they are members of the same family.

20.3.   *Examples of trade between related parties.* The most common example of trade between related parties is trade between the parent cooperation and its direct investment enterprise in another country. Such trade is frequently motivated by favorable production conditions in that country (e.g., lower costs of inputs or a favorable tax regime) or related to market access or to the distribution of the goods. However, frequently trade between related parties is part of much more complex global production and distribution processes that stretches over multiple countries. A special case is trade of goods for processing (see chapter 19), whereby goods are brought into a country under a specific arrangement between the involved parties (which may or may not be related, and which may or may not include the change of ownership of the goods) and for specific operations.

B.   Purposes of identifying trade between related parties (including valuation)

20.4.   *Understanding multinational enterprises and causes for trade.* The activities of multi-national enterprises are widely seen as a key factor in the global economy. These enterprises account for a large share of value added, employment and exports and imports in many countries and of a large share of global trade. These enterprises are considered as responsible for the development of global value chains and the spreading out of production processes over many countries, thereby accounting for a large part of the increase of global trade. In the past, trade statisticians had no detailed information on the trade carried out by multinational enterprises. The development of trade by enterprise characteristics (TEC) provides insights into the trade of large enterprises by linking trade data with information from the business registers (see Chapter 11). However, the identification of the intra-firm trade would allow a much further and detailed analysis of global trade and investment and the activities of multinational enterprises, including their impact on national growth and employment.

20.5.   *Valuation quality control.* Customs has to ensure appropriate valuation of imports according to the WTO valuation agreement but also, although not covered by this agreement, the appropriate valuation of exports. The responsible agency has to determine the appropriate statistical value for imports and exports. The valuation of the transactions between related parties can be influenced by the relationship between the parties involved in the transactions. Although customs has various means to verify the transaction value, information on whether the transaction takes place between related parties would facilitate the monitoring of the appropriate valuation of the trade of goods.

20.6.   *Level of detail needed.* As described below, there are different options to obtain information on the trade between related parties. These options might provide information on the trade between related parties at the total level only or at the transaction level. For valuation purposes information on transaction level is required. However, it might be sufficient to limit the request for this information to large transactions. For the analysis of the activities of multinational enterprises aggregate figures such as the ones suggested as part of Foreign Affiliates Statistics (FATS) statistics might be sufficient. However, only detailed commodity-

based data concerning trade between related parties will allow a detailed understanding of the trade.

C. Ways to obtain information on trade between related parties

20.7.   *Customs declaration and accompanying documentation*. Information on whether a trade transaction takes place between related parties is usually not available in the customs declaration (see Chapter 8). Also, the examination of accompanying information might not provide a sufficient indication for trade between related parties. However, countries can require traders to provide such information on the declaration (see United States example in para. 20.13 below). In this case the IT systems (such as Asycuda, Uni-Pass, Siscomex, Trim´s etc.) used in different administrations worldwide would have to be adapted to allow regular compilation of this information. At this time, concerns about the response burden, the feasibility of obtaining reliable information, etc., appear to outweigh in most countries arguments for the need of this information. A common concern regarding obtaining this information is that the traders or brokers that complete the transaction do not know the relationship between the parties for which the trade takes place, and that even the trading enterprises might not be aware of their relationship, in particular if there are frequent changes in the ownership structure. Also statistical offices and customs might not see sufficiently strong reasons for obtaining this information on detailed level or do not view it as priority.

20.8.   *Supplementary enterprise surveys and studies.* In many countries trade in specific economic sector is concentrated on a few large multinational enterprises. Given their role for domestic value added and employment, those enterprises should be well covered in the existing business statistics. These enterprises can be especially surveyed and requested to provide information on their trade with their foreign affiliates or parent enterprise(s), either on aggregate or the detailed level of the customs declaration. Such information can be collected on a regular basis (surveys) or for ad-hoc purposes (specific studies).

20.9.   *Foreign affiliates statistic (FATS).* Exports and imports are variables of FATS. Regarding the identification of trade between related parties it is suggested, for purposes of globalization analysis, to disaggregate exports and imports into a few broad categories where trade with related enterprises would be distinguished from trade with unrelated parties (MSITS 2010, para. 4.60). However, FATS does not include statistics on the parent enterprise and it appears difficult to obtain detailed information of the trade of an non-resident foreign affiliate with its parent enterprise.

20.10. *Linking customs declaration with a transnational enterprise registers*. Although currently this is mostly a theoretical possibility, it may become feasible in the future. If countries adopted the model of a seamless integrated data pipeline, it would allow to link export declarations with their corresponding import declaration (see para. 8.6). Further, if the declarations were linked to a transnational business register, it would be possible to identify the exporting and importing enterprise of a trade transaction. However, in order to learn about their relationship, countries would need to agree and establish functioning transnational enterprise register, such as the European Union's Eurogroup register (see …).

20.11. *Conclusions for most countries.* While the objective appears to be clear and is mostly supported by countries,[150] there are significant difficulties for compilation that make is unrealistic for many countries to obtain this information in the near term. Requesting the indication of intra-firm trade on the customs declaration, if possible, would be the preferred approach. Overall, the implementation gap on this recommendation is expected to persist until conditions (e.g. additional information requirements due to security concerns) or priorities change.

D. Good practices

20.12. *US experience – definition of related parties.*Related party, or intra-firm, data are defined as shipments between U.S. companies and their foreign subsidiaries as well as trade between U.S. subsidiaries of foreign companies and their affiliates abroad. For export transactions, firms are "related" if either party owns, directly or indirectly, 10 percent or more of the other party (see Section 30.7(v) of the Foreign Trade Statistics Regulations). This definition of related party corresponds exactly to that used by the Bureau of Economic Analysis in their annual surveys of multinational activity. For imports, firms are "related" if either owns, controls or holds voting power equivalent to 6 percent of the outstanding voting stock or shares of the other organization (see Section 402(e) of the Tariff Act of 1930).

20.13. *Compilation and publication of data by the U.S. Census Bureau.* Related Party data are compiled from administrative records from official U.S. import and export merchandise trade statistics. Related party shipments are identified by the indicators, "R" for related or "N" for nonrelated, that are required on all export transactions and most import transactions. Selling prices are used as a basis to determine the value of shipments, but in general, the goods sold between related parties are required to be valued as if the transactions were made between unrelated parties. *The Foreign Trade Division (FTD) of the U.S. Census Bureau re*leases aggregated related party through an annually published press release. This press release can be found at this web address:http://www.census.gov/foreign-trade/Press-Release/related_party/index.html. Additional related party data that are not published in the annual press release can be obtained from the FTD Related Party Database application. This database is available on line at: http://sasweb.ssd.census.gov/relatedparty.

20.14. **[Other examples - input requested]**

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[150] See United Nations Statistics Division, Report on the results of the first round of worldwide consultation, October 2008, p. 9, available at: http://unstats.un.org/unsd/trade/EG-IMTS/EG-IMTS%20web%20announcement.htm.

Part IV   Compilation of data on trade in selected categories of goods

Chapter 21   Electricity, gas, oil and water

Scope. This chapter will discuss the characteristics of transactions in which goods are delivered continuously across borders. Ways to measure these transactions (i.e. in cooperation with other agencies and the enterprises) will be discussed.

Structure. The chapter might consist of several sections focusing on:
(i)   Characteristics of trade in electricity, gas, oil and water;
(ii)   Recording of trade in electricity, gas, oil and water;
(iii)   Valuation issues and issues related to the timing of recording.

Chapter 21   Electricity, gas, oil and water

21.1.   *Introduction*. This chapter discusses the characteristics of transactions in which goods are delivered continuously across borders. Ways to measure these transactions (i.e., in cooperation with other agencies and the enterprises) will be discussed. Gas, oil and water not delivered via pipeline are not part of the special category of goods covered in this chapter. Nevertheless, some issues raised in this chapter concern these goods whether delivered via pipeline or not.

21.2.   International sales and purchases of electricity, gas, oil and water, although not always recorded by the customs authorities of some countries, constitute international transactions in goods and should be included in international merchandise trade statistics. Countries are encouraged to establish appropriate procedures to ensure that records of this trade are as accurate as possible. It is also important that trading partners in such transactions record these flows using the same method to improve international comparability (IMTS 2010, para. 1.24).

A. Characteristics of trade in electricity, gas, oil and water

21.3.   *Reasons for the potential lack of recording by customs*. International sales and purchases of electricity, gas, oil and water are not always recorded by the customs authorities of some countries. This can relate to the fact that these goods do not pass through the regular entry and exit points under the purview of customs. Another reason might be that in many countries the trade in gas and oil takes place via government authorities or special entities that are not obliged to submit customs declarations. Also, goods transmitted via pipeline neither allow nor require the same physical custom inspections that are or can be performed on all other goods.

21.4.   *Variety of international distribution arrangements*. There can be very different commercial or non-commercial distribution arrangements concerning goods delivered via pipeline in countries. On the one hand, the transmission of the goods can be governed by a single contract between one producer or consortium of producers and one company or consortium of companies that are responsible for the further distribution in the importing country, with the pipeline being owned by the parties of the contract. On the other hand, if trade of electricity, gas or oil is fully liberalized, individual producers can deliver to individual consumers across a pipeline that is not owned by any party of the contract. Obviously, data compilation will be affected by these different arrangements.

21.5.   *Quantity and transaction value*. A continuous transmission has the consequence that the physical border crossing of a specific quantity is not connected to a specific transaction as it is the case for other goods. Hence, the association of quantities with specific transactions is only known by the trading partners and specified in the contract or invoice while the quantities are only known from readings of the transmission meters.

21.6.   *Recommendation on valuation*. Electricity, gas, oil and water are to be valued net of any delivery charges not included according to FOB- or CIF type valuation. Such charges may or may not appear separately on the invoice. In the absence of adequate customs records, it is recommended that countries obtain the transaction value of these goods directly from the buyers

and sellers. However, if only the overall value inclusive delivery charges is available, such charges should be identified (e.g., using other sources of information and estimation) and subtracted in order to obtain the statistical value of these goods. Delivery charges should be valued at market prices, but it is acknowledged that markets for such services often do not exist and prices for such services are either set administratively or based on some cost calculation. It is recommended that trading partners in such transactions value and record these flows in a uniform way to improve international comparability.

21.7.   *Other special characteristics*. A special characteristic is that trade in electricity, gas, and oil takes place a buying and selling without related goods movement (merchanting) which in terms of their financial transactions can be very difficult or impossible to distinguish from trade with subsequent consumption. Also there are special issues of partner country attribution, particularly in case of gas and electricity (see German example).

B. Recording of pipeline trade in electricity, gas, oil and water

21.8.   *Compilation of quantities by grid operators as additional source*. Grid operators are responsible for the electric lines and the pipelines through which the goods are transported, and they have information on the quantities of electricity and gas that are crossing the border between the country and a neighboring country. Grid operators are in often not parties to the trade transactions and can therefore be viewed only as supplementary data source. Nevertheless, in some countries the grid operators might be the only data source regarding the physical movement of the goods (when and where) of which the traders might have lost track.

21.9.   *Trade transactions and merchanting*. Following the trade transactions concerning these goods would give a distorted image not consistent with the physical movements, as these goods are often changing ownership several times without being physically moved. Often it is not possible for a trader to track if and when the goods really cross the border physically. It is recommended to prefer the information on the physical border-crossing from the grid operators if it is available.

21.10. *Compilation via customs declarations and other sources*. Declarations on the trade in electricity, gas, oil and water can in some cases obtained via customs declarations in addition to other reporting channels. These declarations might not always reflect correctly all actual physical movements but they contain information on the values with which the traded quantities are to be valued. Another source of information concerning the valuation are commodity exchanges. But the prices are often not average prices as only those quantities are traded at the stock exchanges which are necessary to cover additional needs. It is recommended to derive the value from the customs declarations and other sources and to decide whether or not these declarations sufficiently reflect the physical movement across the border. Comparing the information from the grid operators with the (customs) declarations enables this decision. If the quantity information given in the (customs) declarations deviates significantly from the quantity information reported by the grid operators, the physical movement should be measured by the grid operators. In this case, the value has to be estimated based on the information from the other sources. If there is no significant difference, it is not necessary to treat the goods in a specific way.

C. Country experience in the compilation of electricity, gas, oil and water

21.11. *China example*. Goods delivered continuously across borders, such as electricity, water, and gas or oil through pipeline are required to be declared monthly, as normal goods, to Customs by the companies who sign the contract of import/export of those goods. The volume and the value of the previous month are to be accumulated if the other statistical items such as partner country, customs regime are same. The customs officer should verify the declaration form, and may check the value by reviewing the contract. Normally the price is a fixed price, and customs officers may look at the meter measurement to check the quantity. Statisticians collect the data for statistical purposes after the customs procedures are completed. For example, if a Chinese company is exporting electricity to Hong Kong, the company is required to declare the accumulated quantity and value to customs by month and within ten days. If a company exports electricity to Hong Kong and Macau, the company is required to fill two separate declaration forms, one for each of these trade partners..

21.12. *U.S. example – trade in gas and electricity*. The United States has encountered difficulties in obtaining accurate import information on pipeline shipments of natural gas. Meter readings of pipeline operators are not sufficiently reliable for statistical purposes due to factors such as the location of meters and inconsistencies in how meters are read by the pipeline operators. Through an agreement with Statistics Canada, the US Census Bureau receives Canadian data on exports of natural gas to the United States and includes them as imports from Canada. Statistics Canada uses administrative data for monthly estimates due to timing problems and revises the data when actual totals become available. Similarly for trade in electricity, the U.S. receives data on exports and imports from its trading partner Canada.

21.13. *Germany example – scope and compilation.* Energy, electricity, gas and oil as well as water are often considered as specific goods in trade statistics due to their particular mode of transport (i.e., via electric lines or pipelines), way they are traded and their fiscal treatment. In the EU, only electricity and gas that is transported via pipelines are considered as specific goods. Gas which is not transported via pipelines, whether it is in gaseous or in liquid state, is treated like all other goods.The specific rules for electricity and gas transported via pipelines are based on their very specific physical characteristics. In Germany information on trade with electricity is collected from the grid operators whose number is limited and which have turned out to be by far the most reliable data source for measuring the quantities crossing the border. However, grid operators do not have any information on prices. Therefore, average values for each partner country is calculated using the declarations of the traders. Moreover those values are crosschecked by the mirror figures of the partner countries.

D. Valuation issues and issues related to the timing of recording

[…]

Part IV   Compilation of data on trade in selected categories of goods

Chapter 22   Ships and aircraft

Scope. This chapter explains the problem of identifying and recording trade in ships and aircraft and provides an outline of how this trade can be captured in an internationally comparable way; possible data sources will be discussed; the issue of leasing will be covered.

Structure. The chapter might consist of several sections focusing on:
(i)   Difficulties encountered in the measurement of trade in ships and aircraft;
(ii)   Existing practices for measuring trade in ships and aircraft;
(iii)   Possibilities for improving the international measurement of trade in ships and aircraft;
(iv)   Leasing;
(v)   Case studies.

Chapter 22   Ships and aircraft

22.1.   *Introduction*. This chapter explains the problem of identifying and recording trade in ships and aircraft and provides an outline of how this trade can be captured in an internationally comparable way; possible data sources will be discussed; the issue of leasing will be covered. The available data indicates that there is a need to improve the statistical recording of ships and aircraft.[151]

A. Difficulties encountered in the measurement of trade in ships and aircraft

22.2.   *Physical movement and change of ownership*. The compilation of trade statistics is based on the physical movement of goods across border which is captured by customs records. Large parts of trade in ships and aircraft are not passing through customs and customs will not receive any declarations. The new recommendations for merchandise trade statistics (IMTS 2010) recommend in exceptional cases such as ships and aircraft, when the general guideline is not applicable or not sufficient, to use the criterion of change of ownership to determine whether certain goods should be recorded.[152] Change of ownership is defined in accordance with 2008 SNA[153] and BPM6[154] as change of economic ownership. When the criteria of change of ownership is used for the recording of goods entering (leaving) an economic territory an export/ import of a product should be recorded when the economic ownership changes from a resident unit to the non-resident unit.

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151 In 2009 countries reported collectively USD 141 billions of exports in ships (SITC section 793) but only USD 57 billions of imports. While trade increased dramatically this pattern has been present for many years. The registration of ships under so called flags of convenience in a limited number of relatively small countries appears to be a major factor why imports are underreported globally. Some of these countries do not report their trade data internationally. However, if the registration of ships is open to owners that are not resident in these countries those ships registered under foreign owner should not be included in their trade statistics in any case. In 2009, countries reported over 41 billions of exports in ships (SITC section 793) to only the three countries Panama, Marshall Islands and Liberia which either do not show any such imports or do not report trade data.The worldwide trade in aircraft (SITC section 793) show global exports as systematically exceeding imports by a wide margin but not as much as for ships. For detailed information see 2009 International Trade Statistics Yearbook – Volume I – Trade by Commodity, available at: http://comtrade.un.org/pb/ (the figures in 2009 and 2010 for aircraft in terms of SITC are distorted in 2009 as full commodity detail were not reported for a large amount of trade).
152 See IMTS 2010, para. 1.4. Categories of goods where the criterion of change of ownership can be applicable for the recording of international merchandise trade transactions are ships and aircraft (para. 1.29), satellites and their launchers (para. 1.33), power lines, pipelines and undersea communications cables (para 1.36) and mobile equipment that changes ownership while outside the residence of its original owner (para. 1.39).
153*System of National Accounts 2008* (2008 SNA)*,* European Commission, International Monetary Fund, Organization for Economic Co-operation and Development, United Nations, World Bank; available in PDF format at the website of the United Nations Statistics Division at http://unstats.un.org/unsd/nationalaccount/sna2008.asp.
154*Balance of Payments and International Investment Position Manual, Sixth Edition (BPM6)*, International Monetary Fund, 2008; available electronically at the website of the International Monetary Fund at http://www.imf.org/external/pubs/ft/bop/2007/bopman6.htm.

Box 22.1.
Ownership, institutional unit and residence

- *Ownership*. Two types of ownership can be distinguished, legal ownership and economic ownership. The legal owner of entities such as goods and services, natural resources, financial assets and liabilities is the institutional unit entitled in law and sustainable under the law to claim the benefits associated with the entities. The economic owner of such entities is the institutional unit entitled to claim the benefits associated with the use of the entity in question in the course of an economic activity by virtue of accepting the associated risks. Every entity (i.e. every good such as an aircraft) has both a legal owner and an economic owner, though the economic owner and the legal owner of an entity (i.e. an aircraft) can be the same. A legal owner may contract with another unit for the latter to accept the risks and rewards of using the product in production in return for an agreed amount that has a smaller element of risk in it. Such an example is when a bank legally owns a plane but allows an airline to use it in return for an agreed sum. (2008 SNA, paras. 2.46-2.49 and 2.21-3.29);

- *Institutional unit*. An institutional unit is an economic entity that is capable, in its own right, of owning assets, incurring liabilities and engaging in economic activities and in transactions with other entities. (2008 SNA, paras. 4.2).

- *Residence*. The residence of each institutional unit is the economic territory with which it has the strongest connection, in other words, its centre of predominant economic interest. (2008 SNA, paras. 4.10-4.15).

- *Clarification*: An institutional unit can be partially or entirely owned by a non-resident institutional unit and a change of ownership can take place between the parent and its affiliate resident in another country

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22.3. *Processing vs. repair/ services transactions (without change of ownership)*. Ships and aircraft can enter countries for outfitting or refitting, send by the foreign owner who retains ownership (otherwise paragraph 22.2 would apply). There is the practical issue of obtaining information on such transactions on the side of the sending/ exporting country and the side of the service providing/ processing country. However apart from the practical issue of how to capture these transaction there is the need to decide whether the transaction is a repair or other service or a processing transaction (see chapter 19 for details) which would require the recording of an import of a good when entering the country and an export of a good when leaving the country after processing. The recording of a goods transaction requires valuation at gross value, meaning valuation at the full transaction value of the ship or aircraft. Given the high value of some aircraft and ship the merchandise trade statistics of countries can be strongly affected by only a few of such transactions. Therefore compilers are advised to inform users in the metadata about such transactions and their treatment.[155] Further, countries might consider cooperating with their trading partners regarding the recording of these transactions in order to achieve a uniform recording and to improve international comparability. This is of particular importance as the sending/ exporting country might not have any information about such transactions at all while the service providing/ processing country should be well aware of large outfitting/ refitting activities taken place in their country.

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155 Compilers might wish to exclude the retrofitting/ outfitting on the basis that it is only a temporary movement of a good and that including them would distort the trade statistics. There can be borderline cases and it is for the compiler to decide whether the transaction constitutes processing or a service/ repair. However, to exclude in general processing activities involving ships and aircraft cannot be recommended. It should be considered that also other processing operations entail the recording of high values for imports and exports while the actual value added can be very minor. The individual value of such transactions might be very small compared with the value of a ship or aircraft but the value of the sum of such transactions can easily equal and exceed the value of the trade in ships and aircraft.

22.4.   *Recording of partner country*. Used aircrafts and ships do not change the country of origin. This is the case for almost all other used goods (see chapter 16 for details). IMTS 2010, paragraph 6.26 recommends that the country of consignment be recorded for imports as second partner attribution, alongside country of origin. Compilers might view that the country of consignment provides better information on the trade of ships and aircraft (and other used goods). However, in order to avoid confusion of users, this kind of partner information should be provided in addition and not as replacement and not be 'mixed together' with data that is otherwise following the country of origin concept.

B.   Existing practices for recording and measuring trade in ships and aircraft

22.5.   *Existing practices*. When aircraft and ships cross the borders of countries as items of trade and the appropriate customs records are created, those records should be used as the main source of information. However, in some countries international trade in aircraft and ships may not be recorded by customs even if they cross borders; also, customs records may be incomplete or non-existent if those items do not cross customs borders.[156] Under such circumstances, many countries use national airline or shipping registers for evidence of a trade transaction using change of ownership as indicated in the register as the basis for compilation of trade statistics. However, not all countries have national airline and ship registers and some might not use existing registers for statistical purposes. Further, the registers might not cover all transactions between residents and non-residents, might not be sufficiently updated or the information might not be suitable or sufficient for use. In particular, such registers would usually contain information on the legal owner while information on the economic ownership is required. Therefore, in addition to the use of registers, documented financial leasing agreements or agreements on the operation of the vessel or aircraft might be required to establish economic ownership. Such approach is currently explored by member countries of the European Union such as Germany (see case study below).

22.6.   *International requirements for the registration of aircraft.* Various national and international statutory instruments govern civil aviation and the registration of aircraft. Of particular international importance is the Convention on International Civil Aviation, which specifies the principles to be recognized by signatories.[157] This Convention states[158] that aircraft must be registered and shall hold the nationality of the country in which they are registered. It also states that aircraft may not be legally registered in more than one country, and that every aircraft used for international air transport must be marked with its nationality and registration number. At the national level, those global rules mean that every aircraft is entered in the national register when it is licensed for transport. In the case of imported aircraft, registration can occur only upon the applicant's producing appropriate documentation; in particular, the applicant must produce proof of acquisition of ownership. However, at least in some countries, not only

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156 A similar situation might exist in the case of trains which regularly cross borders. Also in this case the change of ownership and not the crossing of the border would need to be used as criteria for the recording of a trade transaction. Enterprises that own and/ or operate or produce and sell trains should be able to provide information about the acquisition and sale of trains.

157See Protocol Relating to an Amendment to the Convention on International Civil Aviation [articles 48 (*a*), 49 (*e*) and 61], signed at Montreal on 12 December 1956; there are currently 187 Contracting States to the Convention.

158Part I, chap. III, article 17.

the acquirer (legal owner) also the economic owner/ operator can be the applicant. Also, proof of cancellation or non-registration is required, which ensures that an aircraft has actually been registered in one country only, thus ruling out duplication or incorrect recording.

22.7.   *International requirements for the registration of ships*. As a measure to enhance ship safety and security the International Maritime organization (IMO) introduced in 1987 the IMO ship identification number scheme which became mandatory for all ships as of 1 January 1996 and which is managed by IMO and Lloyd's Register-Fairplay (LRF).[159] It aims at assigning a permanent number to each ship for identification purposes. That number would remain unchanged upon transfer of the ship to other flag(s) and would be inserted in the ship's certificates. Further, in 2004 the IMO Unique Company and Registered Owner Identification Number Scheme was introduced as a measure to enhance maritime safety, security and environmental protection, and to facilitate the prevention of maritime fraud. Its purpose is to assign a permanent number for identification purposes to each company and/or registered owner managing ships of 100 gross tonnage and above engaged on international voyages.[160, 161]The IMO Unique Company and Registered Owner Identification Number Scheme is managed, in parallel with the IMO Ship Identification Number Scheme (resolution A.600(15)) and procedures for the implementation thereof (Circular letter No.1886/Rev.3), without charge by LRF.

22.8.   *Request of additional documentation*. The statistical authority should use available customs information and registers for the maximum amount of statistical information possible and, if necessary, should request the owners named on the register or the leaseholder named on the financial lease to submit separate foreign trade statistics declarations. The last-mentioned step may have to be dealt with through enacting legislation specifying the obligation of each party (the registration authority, owners, leaseholders) to provide information.

C. Possibilities for improving the international measurement of trade in ships and aircraft

22.9.   *Data sources*. In the absence of customs records the use of national registers for ships and aircraft is the established practice in many countries. Countries need to review the contents and completeness of their registers (including their law of the flag etc.) and might use available international registers and special surveys of ship and aircraft operators to identify economic ownership and change of economic ownerships for ships and aircraft.[162] Further, countries need to obtain the information that is needed for the statistical recording of the trade in ships and aircraft, in particular information on the change of economic ownership. These documentation might entail sales and leasing contracts or agreements on the operations of the ships and aircraft.

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159 Implementation of resolution A.600(15) – IMO ship identification number scheme, International Maritime Organization, Circular letter No.1886/Rev.3, 11 December 2006.
160 Implementation of IMO Unique Company and Registered Owner Identification Number Scheme (resolution MSC.160(78)), International Maritime Organization, Circular letter No.2554/Rev.1, 7 February 2007.
161 Countries are invited to register ships engaged in domestic voyage as well.
162 In the case of ships the flag administrations (national registers) are recommended to establish a regular and standardized electronic data exchange procedure with LRF on a fleet basis which includes data on the company/ registered owner but also on the ships. The information is made available to IMO Members on the Global Integrated Shipping Information System (GISIS).

22.10. *Need for reliable criteria to identify change of ownership*. Countries should establish reliable criteria for the identification of change of economic ownership of ships and aircraft and inform about them in their metadata. On national level such criteria should be established in cooperation with national accounts and balance of payment compilers. However, in order to achieve uniform treatment of transactions, international comparability of data, to allow data exchange and to minimize global asymmetries an international approach and agreement on such criteria is required. Reliable criteria can be established in the form of a list on different types of leasing contracts and agreements on the operations of the ships and aircraft which are to be analyzed in respect to whether those constitute a transfer of risks and rewards as required for change of economic ownership. For aircraft leasing plays a predominant role while for vessels different kinds of agreements concerning the management of the vessel have to be examined.

22.11. *International approach regarding the identification of change of ownership and the recording of trade in ships and aircraft*. International cooperation and the development of a common approach and common criteria for the identification and recording of change of ownership offer possibilities to improve the statistical recording of trade in ships and aircraft. For example, as a first practical step, countries could pool and compare their information on major transactions using universal ship or aircraft identification or production numbers. However, countries might not have sufficient access to such information on national level or it might be preferable for other reasons to follow the existing national approach.

D. Leasing

22.12. *Financial and operating*. A financial lease is one where the lessor as legal owner of an asset passes the economic ownership to the lessee who then accepts the operating risks and receives the economic benefits from using the asset in a productive activity. In return, the lessor accepts another package of risks and rewards from the lessee. Under a financial lease, the legal owner is shown as issuing a loan to the lessee with which the lessee acquires the asset. An operating lease is one where the legal owner is also the economic owner and accepts the operating risks and receives the economic benefits from the asset by using it in a productive activity. (2008 SNA, paras. 17.301-17….).

22.13. *Financial leasing*. One indicator of a financial lease is that it is the responsibility of the economic owner to provide any necessary repair and maintenance of the asset. Very often the nature of the asset subject to a financial lease may be quite distinct from the assets used by the lessor in his productive activity, for example a commercial airliner legally owned by a bank but leased to an airline. A financial lease will typically be for several years and in practice, the duration of a lease has been and can be used in some cases as indication of whether a lease is financial (one year or more) or operating (less than one year).[163]However, the duration of the lease does not determine whether the lease is to be regarded as an operating or financial lease. In some cases a large complex such as an airport or even a building may be leased for short periods, perhaps only one year at a time, but on condition that the lessee takes all responsibility for the asset, including all maintenance and cover for exceptional damage, for example. The allocation of risks and rewards associated with the use of an asset is the ultimate criteria for deciding

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163 IMTS 2010, para. 1.28.

whether a lease is to be considered financial (and the good to be included in trade statistics) or operational (2008 SNA, paras. 17.301-17.309).

22.14. *Examples of financial leasing.* Only in the case of financial leasing a change of economic ownership takes place. "Dry" leasing is a financial leasing arrangement whereby the lessor provides an aircraft without crew, insurance, supporting equipment, maintenance, etc. to the lessee. It is required that the lessee puts the aircraft on its own air operator's certificate (AOC)[164] and provides the aircraft registration. A "wet" lease is an operating leasing arrangement whereby the lessor provides the aircraft, one or more complete crews (including engineers), all maintenance for the aircraft and insurance (ACMI). The period of a wet lease can go from one month to usually one to two years. Everything less than one month can be considered as ad-hoc charter.

22.15. *Sale and lease-back.* Another frequent leasing agreement for aircraft is sale and lease-back. Under this agreement an airline would sell an aircraft to a financial investor under the agreement to rent it back immediately. Most of times the sale and lease-back agreement would amount to an operating lease which means the initial sale would have to be recorded as trade transaction if taking place between a resident and non-resident. However, there might be also cases in which the leasing agreement that follows the sale has to be viewed as financial lease and hence no sale or goods transaction is to be recorded as the seller only gives up his legal but not his economic ownership (see BPM6, para. 5.57 which provides examples of situations that would normally lead to a lease being classified as a financial lease).

E. Case studies

22.16. *Use of leasing agreements or agreements on the operation of the vessel or aircraft – case study Germany.* XXX

164Air operator's certificate (AOC) is the approval granted from a national aviation authority (NAA) to an aircraft operator to allow it to use aircraft for commercial purposes. This requires the operator to have personnel, assets and system in place to ensure the safety of its employees and the general public (Source: Wikipedia).

Part IV   Compilation of data on trade in selected categories of goods

Chapter 23   Other special cases (Goods acquired by all categories of travelers, Media, whether or not recorded, waste, fishing products, leased goods, returned goods)

Scope. This chapter is intended to describe the characteristics and ways how to measure certain additional categories of goods where the application of the general guideline can pose difficulties, such as goods acquired by all categories of travelers, Media, whether or not recorded (including software), waste, fishing products, leased goods, returned goods, goods in e-commerce, goods sold in duty-free shops.

Structure. The chapter might consist of several sections focusing on:
(i)   Goods acquired by all categories of travelers;
(ii)   Media, whether or not recorded;
(iii)   Waste;
(iv)   Fishing products;
(v)   Leased goods;
(vi)   Returned goods.

Chapter 24   Overview of data compilation for national accounts and balance of payment purposes

Scope. This chapter will briefly describe all categories of goods that are of special interest for balance of payment compilers. Further it will discuss how IMTS and BOP compilers could work together in capturing these goods and how data on these items could be harmonized between the two systems. Examples of the different recording in IMTS and balance of payments of certain categories of goods or transactions (in particular transactions in which more than two countries are involved) will be described;

Structure. The chapter might consist of several sections focusing on:
(i)   Goods for repair or maintenance;
(ii)   Goods entering or leaving the economic territory of a country illegally;
(iii)   Goods treated as part of trade in services;
(iv)   Goods for processing with or without change of ownership;
(v)   Returned goods;
(vi)   Migrants' effects;
(vii)   Goods lost or destroyed;
(viii)   Goods imported for construction projects by nonresident enterprises;
(ix)   Goods transferred from or to a buffer stock organization;
(x)   Goods which cross borders as a result of transactions between related parties;
(xi)   Common metadata to be provided by IMTS and BOP compilers..

Chapter 23 (and 24 combined) Other special cases categories of goods and the compilation for national accounts and balance of payment purposes

23.1.   *Introduction*. This chapter is intended to briefly describe the characteristics and ways how to measure certain additional categories of goods where the application of the general guideline can pose difficulties and/ or where their compilation is relevant and of special interest for national accounts and balance of payment compilers. Further it will discuss how IMTS and BOP compilers could work together in capturing these goods and how data on these items could be harmonized between the two systems. Examples of the different recording in IMTS and balance of payments of certain categories of goods or transactions (in particular transactions in which more than two countries are involved) will be described;

A. Goods to be recorded similarly in IMTS and BPM6/NA

23.2.   *Goods and services*. The identification and compilation of trade in certain categories of goods poses similar or related challenges for compilers of merchandise trade and balance of payments / national accounts statistics. This section lists categories of goods that are to be recorded in IMTS and BPM6 identically. Compilers of IMTS and BPM6 can benefit from each others experiences and practices in the identification of these goods (i.e. the distinction of financial and operating leasing) and the use of additional data sources. Often transaction not included under goods trade need to be included under services trade, meaning BPM6 compilers would be interested in how the goods transactions are differentiated from the related services transactions in IMTS in order to avoid double-counting or under-coverage (i.e. in the case of media, whether or not recorded). Hence, both should work closely together.

23.3.   *Goods acquired by all categories of travellers*, including non-resident workers, to a significant scale as defined by national law are to be included in IMTS and BPM6 (IMTS, paras. 1.16 and 1.49) while goods below the threshold have to be recorded as part of travel services (MSITS, para. X.XX);

23.4.   *Media, whether or not recorded.* Media whether or not recorded is recommended to be included in IMTS, except for media used for carrying customized software or software written for a specific client or originals of any nature, although exclusion of such media may not be possible in practice (see IMTS2010, para. 1.18). Such exclusions should be based on the definitions recommended in BPM6 and should be established in close cooperation with the compilers of balance of payments and international trade in services statistics (see BPM6, table 10.4; and MSITS 2010, table 3.1). It is recognized, however, that the exclusion of such media may not be possible in view of (a) the prevailing customs practice of classifying both non-recorded and recorded media in one classification heading without any further differentiation and (b) the absence of other reliable and cost-effective data sources for systematic identification. BPM6 includes in general merchandise only non-customized packaged software and video and audio recordings on physical media, such as disks and other devices, with a license for perpetual use (BPM6, paras. 10.17(c) and 10.143-10.144).

23.5.   *Goods under financial and operating leasing*. There are two kinds of leases in common usage: financial leases and operating leases. Goods are considered to be under financial lease if

the lessee assumes the rights, risks, rewards and responsibilities in relation to the goods and from an economic point of view can be considered as the de facto owner.[165] Goods under financial lease should be included in international merchandise trade statistics. An operating lease is any lease which does not have the above characteristics. Goods under operating lease should be excluded from international merchandise trade statistics (see IMTS2010, para.1.51). In practice, it may be difficult to differentiate between these two types of leases.[166] Therefore, in some cases, the duration of the lease can be used as an indication of whether the lease is financial (one year or more) or operating (less than one year). The issue of differentiating goods under financial leases and operating leases is described in chapter 22 for ships and aircraft as leasing transactions for these categories of goods, in particular for aircraft, are very common.

23.6.   *Fish catch, minerals from the seabed and salvage.* These goods landed from vessels of one country in national ports of another country or acquired by vessels of one country on the high seas from vessels of another country are in the scope of IMTS 2010 for both exports and imports and should be recorded where economically or environmentally significant. It is recognized that data collection in respect of this category of goods may be challenging; however, countries are encouraged to develop over time the necessary data-collection and/or estimation procedures in view of the important policy needs; the balance of payment always included these goods and BOP compilers might have appropriate compilation and estimation methods in place.

23.7.   *Waste and scrap.* Waste and scrap, including products that are dangerous to the environment, should be recorded and classified under the appropriate commodity heading if their commercial value is positive; waste and scrap having no commercial value are to be excluded but should be separately recorded using appropriate quantity units (see also IMTS2010, paras. 1.38 and 1.58 below). It is recognized that data collection under this item may be challenging since, for example, the value may not be easily available when entering/ leaving the country; however, countries are encouraged to develop over time the necessary data-collection and/or estimation procedures. Waste and scrap having no commercial value need to be recorded in the balance of payments under services as a waste treatment and de-pollution service and environmental transactions (MSITS2010, paras. 3.245 and 3.298).

23.8.   *Goods for repair or maintenance* are excluded from trade in goods and to be recorded separately (IMTS, para. 1.57) as these transactions have to be included as repair and maintenance services in the balance of payments. Compilers of both IMTS and BPM6 face the challenge to differentiate these goods from goods for processing (see chapter 18 and 19 for details);

B. Goods to be recorded differently in IMTS and BPM6/NA

23.9.   *Conceptual differences and data compilation.* The main conceptual differences in the recording of international transactions in goods between IMTS 2010 and the BPM6/ 2008 SNA are described in IMTS2010, Annex F. This chapter briefly discusses the possible collaboration of IMTS and BPM6 compilers on the compilation of these goods.

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165 See IMTS2010, annex A, para. A.11.
166 See also BPM6, para, 5.57.

23.10. *Goods for processing with or without change of ownership*. These transactions are to be included in IMTS as goods trade while in the BPM6 the initial trade transaction is to be recorded as trade in services (see IMTS2010, Annex F, para. F.4 for details). Chapter 19 and 20 are discussing the possible identification of goods for processing and the trade between related parties in IMTS.

23.11. *Returned goods*. If exported goods are subsequently returned, they should be included in imports and identified as re-imports when they are returned. Similarly, goods imported and subsequently returned should be included in exports and identified as re-exports when they are returned.[167] (IMTS 2010, para. 1.23) If returned goods can be identified by IMTS compilers i.e. via the special customs procedure code this information should be made available to BPM6 compilers to allow them to void the initial transactions in their recording as required by BPM6.

23.12. *Migrants' effects*. Migrants' effects are to be included in IMTS if of a significant scale while they should be excluded from trade on BPM6 basis as no change of ownership takes place. The exclusion of this transaction in BPM6 would be greatly facilitated if those goods would be specifically identified in the statistical recording of the customs transactions.

23.13. *Goods entering or leaving the economic territory of a country illegally* (this may include legal as well as illegal goods) are recommended to be excluded from IMTS but to be separately recorded (see para. 1.59 above). BPM6 includes in general merchandise illegal goods as well as smuggled goods that are otherwise legal (BPM6, paras. 10.17(i) and 10.17 (j)). Customs and with BOP compilers should work together to reduce the amount of smuggled goods, i.e. when BOP compilers have indication from their surveys that travelers are not properly declaring their goods.

23.14.   *Goods lost or destroyed after leaving the exporting country but before entering the importing country and after ownership has been acquired by the importer* are recommended to be excluded from the IMTS of the importing country but to be separately recorded (see IMTS2010, para. 1.60). IMTS Compilers should provide information on this transaction to BOP compilers to support the proper recording of this transaction in the balance of payments.

23.15. *Goods imported for construction projects by non-resident enterprises*, where these operations are not sufficiently substantial to constitute a branch of the enterprise, are not recorded as trade in goods in BPM6 (BPM6, para. 10.22(d)) but in IMTS are recorded as exports and imports (see IMTS2010, Annex F, para. F.10). It would be useful for BPM6 compilers if those goods would be specifically identified in the statistical recording of the customs transactions.

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167 There are different cases of returned goods, such as goods returned due to poor quality or goods on consignment (see para. 1.17 above) that are not sold and returned.

C. Common metadata to be provided by IMTS and BOP compilers

23.16. *Publication of a reconciliation table*. IMTS and BPM6 compilers should provide as part of their metadata a reconciliation table between IMTS and total goods on a balance of payment basis (see IMTS2010, Annex F, table F as possible example). It is advised that this table be accompanied by information on the recording of the relevant transactions.

Part V   Metadata and dissemination

Chapter 25   Metadata

Scope. This chapter will describe all the information about the trade data which should be considered metadata. It explains that metadata are relevant for the correct understanding of the content, coverage and limitations of the data, and should guide users on the correct interpretation of the trade statistics. Metadata exist at various levels of detail, namely at the overall level indicating what the coverage of the trade statistics is, and how data were collected and processed; at the next levels information can be given about the main data variables, such as commodity classification, country nomenclature and country coverage, or valuation, and on specific trade flows. This chapter will further provide advice and examples on how best to present and disseminate the metadata. Metadata should be consistently presented; they should be comprehensive and still easily accessible.

Structure. The chapter might consist of several sections focusing on:
(i) Description of metadata for trade statistics:
> a. Coverage;
> b. Limitations and data quality;
> c. Deviations from recommendations;
> d. National nomenclatures;
> e. Specific trade flows;
> f. Access;

(ii) Presentation of metadata;
(iii)Dissemination of metadata;
(iv)Country practices.

Chapter 25   Metadata

A. Introduction

25.1.   *Definition and role of metadata*. Metadata are "data about data" that enable and facilitate sharing, querying, understanding and using statistical data over the different stages of collection, compilation and dissemination, and at their various levels of aggregation (i.e., from microdata to marcrodata). They encompass administrative facts about the data (who has created them and when), definition of concepts applied, as well as description of how data were collected and processed before they were disseminated or stored in a database (see IMTS, par. 9.20). Metadata are not only important for users, but also play a crucial role in the statistical production process, as common standards and definitions should be followed to the extent possible throughout all statistical domains in order to facilitate the linking and integration of statistical information.

25.2.   *Structural metadata.* Structural metadata are identifiers and descriptors which are essential for discovering, organizing, retrieving and processing statistical datasets.[168] They can be thought of as the 'labels' that need to be associated to each data item in order for it to have a meaning at all. In the context of international merchandise trade statistics, structural metadata include items such as unit of measurement, time period, commodity code, identification of reporting and partner countries (country codes), identification of trade flow, etc.

25.3.   *Reference metadata.* Reference metadata are of a more general nature and "may refer to specific statistical data, to entire data collections or even to the institution that provides the data".[169]More specifically, in the context of international merchandise trade statistics, reference metadata items include: (a) explanations of the concepts and definitions adopted and their practical implementation (e.g., coverage and valuation); (b) details on the methodologies used for the generation of the data (e.g., specification of data source(s), description for sampling framework in case of survey-based data, description of data validation and editing techniques, etc.), and (c) information describing the various quality dimensions of the resulting international merchandise trade statistics (e.g., relevance, accuracy, timeliness, methodological soundness, coherence, and accessibility).[170]

25.4.   *Metadata and data quality*. There is a bidirectional relationship between metadata and data quality. On the one hand, metadata provide details on the various quality dimensions of international merchandise trade statistics, as stated in the previous paragraph. On the other hand, the availability of adequate metadata to users is in itself an indicator of the accessibility of international merchandise trade statistics (see IMTS 2010, paragraphs 9.17 and 9.21). Compilers should aim to provide users with all the metadata required to understand both the strengths and the limitations of the international merchandise trade statistics they produce, documenting in a

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168 See BIS, ECB, EUROSTAT, IMF, OECD, UN, and the World Bank (2009), *SDMX content-oriented guidelines*, Annex 4: Metadata common vocabulary
169*Ibid.*, p.6
170*Ibid.,*Annex 4: Metadata common vocabulary

timely manner all methodological aspects underlying the data which are relevant for their proper use and interpretation (e.g., definitions, classifications, scope, confidentiality issues, *etc.*).

25.5.   *Institutional arrangements for metadata compilation.* To reduce the burden associated with trade metadata projects, it is a good practice for compilers to closely cooperate with the specific units responsible for ensuring within the national statistical system that metadata is produced, that it adheres to a standard format, and that it is properly maintained and updated.

B. Presentation and dissemination of metadata

25.6.   *Layered presentation of metadata*. Compilers of international merchandise trade statistics must make sufficient metadata available to enable the least and the most sophisticated users to readily assess data and their quality (see IMTS 2010, par. 9.22). It is a good practice to structure metadata in layers of incremental detail while providing clear links between high-level and specific metadata concepts. Such layered presentation allows meeting the needs of diverse groups of users who may have different levels of statistical expertise.[171]

25.7.   *Presentation of structural and reference metadata*. IMTS 2010 (par. 9.22) recommends that structural metadata be presented as an integral part of the international merchandise trade statistics database in a way that it can be extracted together with any data item and published as part of statistical tables; on the other hand, reference metadata can be presented as a detailed explanatory note describing the scope, coverage, and quality of a data set and be made available electronically alongside the database or in special publications.

25.8.   *Use of standardized metadata concepts.* It is recommended that the dissemination of metadata related to international merchandise trade statistics be done in compliance with the approach adopted by a given country to metadata across all areas of economic statistics (IMTS 2010, par. 9.25). Whenever feasible, therefore, it is a good practice that compilers of international merchandise trade statistics structure and present their metadata using standardized concepts that are relevant across statistical domains (e.g., by adopting cross-domain concepts from the SDMX framework or OECD Glossary of Statistical Terms). The aim should be to promote harmonization of statistical information and their related high-level metadata across various institutions and statistical domains, even if some specific metadata concepts are not applicable or are organized differently in different domains or institutions.

25.9.   *Linking data and metadata.* As metadata are generated and processed during every step of the compilation process, there is a strong requirement for a metadata management system to ensure that the appropriate metadata retain their links with data. IMTS 2010 recommends that metadata dissemination be an integral part of the dissemination of international merchandise trade statistics (IMTS 2010, par. 9.25). A good practice in this regard is to actively link metadata to the statistical data they describe, and vice versa,[172] by implementing metadata-driven systems and management systems for metadata along the various stages of the statistical production process. There are several information model specifications that can contribute to achieve this

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171See OECD, *Data and metadata reporting and presentation handbook*, 2007, p. 22.
172*Ibid.*

goal (most notably SDMX and DDI[173]), which are designed to perform different functions but can be used together in the same system, or complement each other in the compilation and exchange of data and metadata.[174]

25.10. *Metadata registries.* A metadata registry is a central repository (usually a database itself) with information that allows linking the detailed definitions (semantics) and the codes (representations) of the metadata items used to describe a particular statistical dataset **[Comment: need to add an example – otherwise too abstract**]. It is a good practice that compilers of international merchandise trade statistics put special emphasis on the development, maintenance and dissemination of metadata registries at the national and international level in order to improve the harmonization, standardization, use, re-use and interchange of their metadata.[175]

25.11. *Access to metadata.* Compilers international merchandise trade statistics should make every effort to ensure that users have ready access to metadata through multiple dissemination channels, both in printed and in electronic format (whereby Internet dissemination plays a key role). As a general rule, as metadata is considered as having a high public good component, their on-line dissemination should be free of charge, regardless of whether the international merchandise trade statistics they describe are disseminated for a fee according to the compiling organization's policies.[176]

C. Metadata items relevant for international merchandise trade statistics

25.12. *Structural metadata items for international merchandise trade statistics.* The following are typical structural metadata items that belong to the trade values and quantities in each international merchandise trade statistics dataset (see IMTS 2010, par. 9.23):

(a) *Reference period*: Identification of the specific month, quarter, year, etc.

(b) *Trade flow*: Whether the data refers to exports, imports, re-exports, etc.

(c) *Commodity code*: Identification of the commodity or commodity group

(d) *Commodity classification*: Name of the classification used to report the data (e.g., HS2007, SITC Rev. 4, national classification, etc.)

(e) *Partner country or region*: Identification of the partner country or region

(f) *Country or region classification* (e.g., 2- or 3-alpha ISO country codes; UN Standard Country or Area Codes for Statistical Use[177], etc.), including information on the country-composition of geographical regions.

173The Data Documentation Initiative (DDI) is an effort to create an international standard for describing data from the social, behavioral, and economic sciences.

174 See, e.g., A. Gregory, P. Heus and J. Ryssevik (2009), "Metadata", Working Paper No. 57, German Council for Social and Economic Data (RatSWD).

175 See, e.g. the Euro-SDMX registry, a metadata registry which implements the SDMX registry specifications. The ISO/IEC 11179-1 International Standard provides a more general discussion of metadata registries.

176 See OECD, *Data and metadata reporting and presentation handbook*, 2007, p. 22.

177 See http://unstats.un.org/unsd/methods/m49/m49alpha.htm

(g) *Currency unit*: Identification of the currency unit (e.g., national currency, US dollars, etc.) in which trade values are expressed

(h) *Mode of transport*

(i) *Weight unit*: Identification of the weight unit in which trade quantity data (net weight data) are expressed

(j) *Supplementary quantity unit*: Identification of the unit of measurement in which supplementary trade quantity data are expressed

(k) *Valuation*: Whether trade values are expressed in FOB or CIF terms.

(l) *Custom procedure code* (or applicable transaction code)

25.13. *Reference metadata items for international merchandise trade statistics*. The following items are typically part of the reference metadata associated with international merchandise trade statistics (see IMTS 2010, par. 9.23):

(a) *Legal framework and institutional arrangements*(e.g., references to relevant laws and regulations, role of all institutions involved in compilation, etc.)

(b) *Underlying concepts and definitions* (e.g., definition of statistical territory and trade system used, definition of statistical value, scope of international merchandise trade statistic and their relationship to national accounts and balance of payments statistics, etc.)

(c) *Description of data sources used* (e.g., customs declarations and related customs records, non-customs administrative sources, enterprise surveys)

(d) *Description of data collection and data processing procedures* (e.g., frequency of data collection, description of specific procedures used for data collection, validation, editing, aggregation, etc.)

(e) *Estimation methods* (e.g., estimation of trade below customs and statistical thresholds CIF-FOB adjustments, etc.)

(f) *Dissemination policy* (e.g., release and revision schedules)

(g) *Additional explanations and footnotes concerning the data as required* (e.g., explanatory notes on revisions, breaks in series, application of confidentiality rules, treatment of special categories of goods, etc.)

(h) *Quality reporting*

D. Country practices

25.14. *Example of United States*. Metadata on the international merchandise trade statistics of the United States is made available on-line at the United States Bureau of the Census website in a "Guide to Foreign Trade Statistics."[178] This resource provides a detailed description of the United States Foreign Trade Statistical Programme, and includes information on the legal

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178 See www.census.gov/foreign-trade/guide/sec2.html

framework ("Authority"), data sources, concepts and definitions (e.g., commodity classifications, coverage, valuation, quantity measurement, date of recording, etc), data processing procedures (e.g., seasonal adjustment, constant dollar adjustment), estimation methods for low-valued statistics, quality reporting (e.g., non-sampling errors, comparability issues, etc.), and data revision policies. This metadata dissemination resource also includes contact information and other sources of information about the United States Foreign Trade Statistics programme.

[Are there any examples/experiences on the Implementation of SDMX for international merchandise trade statistics?]

Part V   Metadata and dissemination

Chapter 26   Dissemination

Scope. This chapter describes the factors to take into consideration, when establishing the dissemination policy at the responsible national agency. These factors are timely release of data (which has to be balanced with accuracy), statistical confidentiality, revision policy, cooperation with government entities, with compilers of balance of payments and national accounts, with users, with mass media, clarification of types of data issued, and the use of information technology to improve the data dissemination.

Structure. The chapter might consist of several sections focusing on:
(i) Factors to consider in data dissemination:
  a. Timeliness;
  b. Statistical confidentiality;
  c. Revision policy;
  d. Users;
  e. Ways of dissemination, use of IT technology and transmission standards;
  f. Variables to be made available;
(ii) Combining trade in goods with trade in services;
(iii)Country practices.

Chapter 26   Dissemination

26.1.   Availability of official statistics in general and statistics of international merchandise trade in particular is one of the cornerstones of public confidence in good government as such statistics can inform the debate and decision-making both by governments and by the wider community. In this context IMTS 2010 highlights the importance of countries' adherence to the *UN Fundamental Principles of Official* Statistics which, inter alia, state that[179]:

    (a) Official statistics "provide an indispensable element in the information system of a democratic society, serving the Government, the economy and the public";

    (b) These statistics should be made "available on an impartial basis by official statistical agencies to honor citizens' entitlement to public information";

    (c) The statistical agencies should "facilitate a correct interpretation of the data", and, therefore, have "to present information according to scientific standards on the sources, methods and procedures of the statistics"; and

    (d) The statistical agencies "are entitled to comment on erroneous interpretation and misuse of statistics".

26.2.   In the light of these Principles, the dissemination of trade data and metadata should be an integral part of the national programme of trade statistics and should be carried out with great care and attention to the needs of users while, at the same time, ensuring adequate confidentiality of data providers.

26.3.   Factors which should be taken into account in the formulation and implementation of the dissemination policy to ensure its effectiveness are discussed in section A below. Section B covers issues related to a combined dissemination of statistics on international trade in goods and services.

A. Factors to consider in data and metadata dissemination

26.4.   Compilers of international merchandise trade statistics are advised to consider the following factors in designing and implementing data and metadata dissemination strategies. Each of these factors will be subsequently discussed.

    (a) Variables to be made available;

    (b) Timeliness of data and metadata dissemination;

    (c) Coherence between disseminated datasets;

    (d) Statistical confidentiality;

    (e) Revision policy;

    (f) Groups of users and their specific needs;

    (g) Formats and means of dissemination.

179The Principles are available at http://unstats.un.org/unsd/methods/statorg/FP-English.htm

1.   Variables to be made available

26.5.   *Minimum set of data and structural metadata items to be disseminated*. IMTS 2010
provides certain recommendations and encouragements in respect of what kinds of data and
structural metadata items should be disseminated. They can be summarized as follows. Countries
should release international merchandise trade statistics for four trade flows (exports, re-exports,
imports and re-imports), detailed by 6-digit HS codes and by categories of goods recommended
for separate identification, with respect to each trading partner using appropriate criteria for
partner attribution, in applicable statistical value and quantity units and by mode of transport.
Table 1 lists a suggested set of data and metadata items to be disseminated, as well as their
possible values.

Table 1   Set of possible data and structural metadata items to be disseminated

Variables	Possible values
Trade Flow	"Exports", "Re-Exports", "Imports", or "Re-Imports"
Reference period	E.g., identification of year for annual data, identification of year and month for monthly data, etc.
Commodity or commodity aggregate	6-digit HS commodity code, 4-digit HS heading, HS Chapter, etc.
Commodity classification	E.g., "HS 2012", "HS 2007", *etc*.
Country of last known destination	E.g., ISO alpha-3 country code
Country of origin	E.g., ISO alpha-3 country code
Country of consignment	E.g., ISO alpha-3 country code
Mode of transport	E.g., "Air", "Water", "Land", and their subdivisions
FOB Value	Monetary value
CIF Value	Monetary value
Currency unit	E.g., "National Currency", "US Dollar", etc.
Quantity (net weight)	Physical quantity (in kilograms)
Supplementary quantity	Physical quantity (in supplementary unit of measurement)
Supplementary unit of measurement	E.g. "Liters", etc.
Custom procedure code (or applicable transaction code)*	Code of the customs procedure applied to individual transactions by customs; any applied procedure or transaction code if customs procedure codes are not available or if additional codes are used

* This information is requested to obtain additional information about trade transactions for statistical purposes such
as re-exports, re-imports, goods for processing and intra-firm trade. However, national practices in the use of
customs procedures vary considerable and in might not always possible to derive the desired information.

26.6.   *Dissemination of new items recommended or encouraged by IMTS 2010*. It is a good
practice to disseminate newly recommended and encouraged data items (e.g., imports valued
FOB, in addition to imports valued CIF) in a way that is not confusing to users. The two tables
provided below illustrate dissemination requirements for (i) aggregate trade flows by partner
country and mode of transport (Table 2), and (ii) detailed trade data in accordance with the IMTS
2010 recommendations (R) and encouragements (E) (Table 3).

Table 2   Dissemination matrix: Aggregate data and structural metadata

Trade flow	Reference period	Country of last known destination	Country of origin	Country of consignment	Mode of transport	Value - FOB	Value - CIF	Currency
Exports	R	R		E	R	R		R
Re-exports	R	R		E	R	R		R
Imports	R		R	R	R	E	R	R
Re-imports	R		R	R	R	E	R	R

Table 3   Dissemination matrix: Detailed data and structural metadata

Trade flow	Reference period	Commodity code	Country of last known destination	Country of origin	Country of consignment	Mode of transport	Value FOB	ValueCIF	Currency	Quantity (net weight)	Supplementary quantity	Supplementary quantity unit	Customs procedure code
Exports	R	R	R		E	R	R		R	R	R	R	E
Re-exports	R	R	R		E	R	R		R	R	R	R	E
Imports	R	R		R	R	R	E	R	R	R	R	R	E
Re-imports	R	R		R	R	R	E	R	R	R	R	R	E

2.   Timeliness

26.7.   *Timeliness of first data releases.* Timeliness is defined in IMTS 2010 as the length of time between an event (the end of the reference period) and the availability of statistical information about this event. IMTS 2010 encourages countries to issue the first releases of data as follows: (a) monthly totals of exports and imports within 45 days after the end of the reference month, at least by major trading partners and basic commodity breakdown; (b) quarterly data within 60 days after the end of the reference quarter; (c) annual data within 90 days after the end of the reference year.

26.8.   *Advance release calendar.* IMTS 2010 further recommends that (i) countries announce in advance the precise dates at which those statistics will be released and revised and (ii) this advance release calendar is posted before the beginning of each year on the website of the national agency responsible for the dissemination of the official trade statistics. While implementing those recommendations and encouragements it is a good practice to make clear the dates on which the provisional estimates and the final data (no more subject to regular revision) will become available. Also, it is a good practice to inform users about availability of such calendar using all appropriate means of communication.

26.9.   *Dealing with the timeliness versus reliability and accuracy trade-off.* In producing data there is usually a trade-off between the timeliness, on the one hand, and the reliability, accuracy

and level of detail of the published data, on the other hand. Recognizing this trade-off, IMTS 2010 encourages countries, while making relevant decisions, to take into consideration a number of factors such as user requirements, timing of the collection of initial data by the customs administrations and other source agencies, the extent and timing of data revisions of the major data source, and modes of data dissemination. It is a good practice to explicitly discuss this trade-off with major user groups, to reach an understanding on the best solution, and to make this understanding publicly available.

26.10. *Early dissemination of provisional estimates.* To improve timeliness in the dissemination of international merchandise trade statistics, it is a good practice to publish on a regular basis the provisional estimates of total exports and imports, as well as of trade by major commodities and partners, soon after the end of the reference period. Such estimates, by their nature, would be based on relatively limited data content and are to be replaced by more accurate, but less timely figures at a later date. An example of the good practice in publishing the provisional estimates is provided in Box 1.

Box 1. Country X experience in the preparation and publishing the provisional estimates

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3. Coherence between disseminated datasets

26.11. *Coherence of monthly, quarterly and annual data*. Many countries use additional information for the compilation of annual trade statistics. In this connection IMTS 2010 stresses that the data for the fourth quarter (or for the twelfth month) need to be compiled and disseminated in their own right and should not be derived as the difference between the annual totals and the sum for the first three quarters (or eleven months) in order to provide undistorted data for all months and quarters. It is a good practice to provide in reference metadata an appropriate explanation in this respect to assist users in the correct interpretation and use of the data. It is also a good practice to make users aware of particularly significant cases of non-additivity over time, and to provide the reasons for their existence.

Box 2. Country X experience in coherence of monthly, quarterly and annual data

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4. Statistical confidentiality

26.12. *Statistical confidentiality vs. user needs*. Statistical confidentiality refers to the protection of information of individual statistical units and has to be differentiated from other forms of confidentiality under which information is not provided due to other considerations, for example due to national security concerns. It is a good practice by compilers of international merchandise trade statistics to always strive for a full coverage of all trade transactions which are in scope of IMTS while applying appropriate methods to keep certain information confidential. IMTS 2010 recognizes the necessity of both statistical confidentiality and of balancing it against the need for public information in cases where the application of statistical confidentiality would limit or make it impossible to provide sufficient or meaningful information.

26.13. *Development and implementation of confidentiality rules.*IMTS2010 recommends to apply passive confidentiality, *i.e.*, to treat data as confidential only when the trader requests so and the statistical authority finds the request justified based on the confidentiality rules, as much as possible, unless the use of active confidentiality is already the established, desired and accepted practice. It is further recommended that in suppressing data due to confidentiality, any information deemed confidential (suppressed) be reported in full detail at the next higher level of commodity and/ or partner aggregation that adequately protects confidentiality. However, the implementation of recommendations on statistical confidentiality depends to a large extent on each country's legislation and the general confidentiality policy adopted by its statistical system. Examples of good practices in development and implementation of confidentiality rules are provided in Box 3.

Box3. [Input/comments are needed]

Country X experience in development and application of the confidentiality rules

Country Y experience in development and application of the confidentiality rules

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26.14. *Informing about confidentiality rules.* It is a good practice that all countries develop and publish their confidentiality rules with respect to international merchandise trade data so that data reporters are assured that their right to confidentiality is guaranteed while data users are informed about certain data limitations, enabling them to use the data more appropriately. It is also a good practice to provide users details on what data areas are affected most by the application of confidentiality rules and the magnitude of this effect.

5.   Revision policy

26.15. *Features of a good revision policy.* Recognizing that data revisions are an essential part of country practices, IMTS 2010 encourages countries to develop a revision policy that is well designed, carefully managed, transparent and well-coordinated with other areas of statistics and hence, allows users to cope with revisions in a systematic manner. The following are some good practices in relation to the revision policy:

(a) Availability of a detailed description of the revision policy on the responsible agency's website;

(b) Reasonable stability of timing of the revisions from year to year;

(c) Predetermined timing of revisions (clearly reflected in the data release calendar);

(d) Prior notification to users whenever a revision requires changes in the time series going as far back as the beginning of the series to retain methodological consistency, explaining the reasons for the revision and providing information on its possible impact on the data;

(e) Easy access to sufficiently long time series of revised data;

(f) Dissemination of all revised monthly, quarterly and annual data to ensure consistency of all data available to users;

(g) Adequate documentation of revisions in the statistical publications and databases.

26.16. Country experiences in setting up and implementation of good revision policy are described in Box 4.

Box 4. [Input/comments are needed]

Revision policy of country X

Revision policy of country Y

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6.   Users

26.17. *Diversity of user groups and needs*. A key to the usefulness of trade statistics is its broad dissemination. Trade statistics are compiled to serve the needs of many users, including governments, business community, mass media, non-governmental organizations (NGOs), compilers of other economic statistics such as balance of payments and national accounts, various regional, supranational and international organizations, researchers and the public at large. The uses of trade data are numerous and range from the development of national, regional and international trade and general economic policies to market analysis, determination of the economic characteristics of traders, infrastructure planning and provision of input into the system of national accounts and balance of payments statistics.

26.18. *Equal treatment of users.* IMTS 2010 recommends that all users are treated equally and data are disseminated without preference to any national or international user group. To ensure that such treatment is upheld it is a good practice to make all kinds of trade data available to all users at the same predetermined time.

26.19. *Monitoring of data dissemination needs of users*. It is a good practice to systematically monitor changing user needs in order to ensure higher relevance of the compiled data. Such monitoring, as well as subsequent actions taken, should be part of interagency cooperation efforts within the established institutional arrangements. It is a good practice to establish close and long-term relationships with representatives of major user groups in order to identify the most effective ways of data and metadata dissemination. This might be done via standing advisory committees as well as via ad hoc promotional events. National and world statistics days can be used in this connection.

26.20. *Surveys of user satisfaction regarding data dissemination.* In order to ensure the most effective dissemination it is a good practice to conduct user satisfaction surveys. Such surveys might identify user groups which might be given more attention as they might lack certain technical means of accessing data or might need more detailed explanations with respect of how to use data properly. A well designed user satisfaction survey regarding data dissemination would normally focus on the following aspects of data dissemination:

(a) […]

(b) User-friendliness of the trade statistics database interface;

(c) Clarity and completeness of available metadata;

(d) Desirability of continuation of traditional paper publications

(e) Ways to improve data and metadata presentation;

(f) […]

26.21. *Outreach activities.* It is a good practice to conduct regular outreach activities aiming to help users to better understand data and put them to the most effective use. These include efforts to improve the statistical literacy of users and to prevent misinterpretation within the context of a broad public relations strategy to deepen the general public's understanding of the importance of statistics. As examples, the following outreach activities can be encouraged: conducting seminars focused on specific user groups; offering tutorials and user guides explaining how to find data on the dissemination website; organizing press conferences and including contact information in press releases to assist users in the correct interpretation of the statistics; participating in annual conferences of user groups, book fairs and other suitable events; launching awareness campaigns, such as a "National Statistics Day/Week/Month".

26.22. *Dealing with misinterpretation of data.* While statistics can be acceptably used and interpreted in many different ways, it is important to maintain trust in, and the credibility of, official trade statistics. Hence, a good practice by the responsible statistical agency is to draw attention to obviously erroneous public use or interpretation of the data, and undertake the necessary corrective actions such as writing letters to the editors of mass media where such misuse/misinterpretations are detected, as well as conducting press conferences and press releases. Direct contacts with other government agencies, international organizations and universities are also a good practice when these are the sources of misinterpretation of data.

7. Formats and means of dissemination

26.23. Both data and metadata can be disseminated in various formats and by various means. IMTS 2010 recommends that countries choose the dissemination format and means of dissemination that best suits their users' needs. In view of diversity of user groups it is a good practice to adopt several formats and means of dissemination to ensure that data and metadata are effectively delivered. For example, press releases of international merchandise trade statistics aimed at the general public have to be disseminated in ways that facilitate re-dissemination by mass media, while more comprehensive or detailed statistics intended for researchers need to be disseminated via on-line databases, with hard copy publications used as reference materials.

26.24. *Redesigning paper publications.* It is a good practice to periodically redesign paper publications in order to make use of the innovative ways of data and metadata presentation and better reflect the user demands. In this connection countries are advised that it is no longer necessary to issue paper publications in an old fashioned way containing a set of tables or providing very detailed data on trade in particular commodity groups and partners. A better

practice is to focus such publications on the main features of a country's external trade, presenting data in a more user friendly way by resorting to enhanced visual elements such as color charts and by adding more analytical information.

26.25. *Centrality of electronic databases*. IMTS 2010 recommends that the official country trade statistics are made available to users through the electronic databases maintained by the responsible agency. It is a good practice to ensure that such databases:

(a) Allow free and equal access to all users to any data record considered part of official trade statistics;

(b) Contain an extensive metadata and knowledge base;

(c) Allows to make queries easily and with a user-friendly interface on the entire database, and to download query results in the commonly used electronic data formats (such as comma-delimited text files) thus reducing the need for personalized handling of most data requests and greatly enhancing efficiency of data dissemination;

(d) […] <to be developed>

Box5. [Input/comments are needed]

Experience of country X in on-line data and metadata dissemination via official database

Experience of country X in on-line data and metadata dissemination via official database

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26.26. It is also a good practice to use social media such as Facebook, Twitter, and blogs as additional tools to reach trade statistics users and in particular journalists.

Box6. [Input/comments are needed]

Experience of country X in the use of social media for trade data/metadata dissemination

Experience of [Estonia] in the use of social media for trade data/metadata dissemination

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26.27. Regular data dissemination should satisfy most if not all user needs. However, some users might have special needs which would require quite complex data extraction, which the users themselves might not be able to perform. It is a good practice to offer such users premium data extraction services on a fee basis. Countries should ensure that users are made fully aware of all available options for obtaining the required data.

8.   Dissemination of metadata and information on data quality

26.28. The provision of adequate metadata and quality reports on the international merchandise trade statistics are as important as the provision of the statistical data itself. IMTS 2010 takes into account a broad spectrum of metadata requirements and recognizes that different levels of detail of metadata can be considered by countries for the dissemination. In this context IMTS 2010 recommends as a minimum the segmentation of metadata into two levels (reference and structural metadata) and developing appropriate means of their dissemination. It should be recalled that reference metadata are intended for detailed description of the scope, coverage and quality of a data and can be presented separately from data, while structural metadata items are an integral part of statistics database and should be extractable together with any data item (see chapter 25).

26.29. It is a good practice to make reference metadata available to users in a separate document placed on the website of the responsible agency with a link to the data query window, so that users are immediately informed about existence and importance of such metadata. Reference metadata can be made available in separate paper publication as well and used in various outreach activities. It is important that reference metadata are compiled following the recommendations contained in paragraph 9.23 of IMTS 2010. With respect to structural metadata it is a good practice that data query options include all relevant [minimum?] metadata variables and they are extracted by default unless explicitly "unclicked" by the user. For example, value data should be extractable with FOB or CIF identification, while […].

26.30. It is often noticed that users often do not use or read the available metadata and that additional efforts are required to raise their awareness. It is a good practice to include explanation of the importance of metadata for correct data interpretation and effective use in all relevant outreach activities. Even if detailed metadata goes unused, the very fact that it is compiled and made available is reassuring for those who wish to see high standards of credibility upheld.

26.31. *Dissemination of trade data to regional, supranational and international organizations.* IMTS 2010 encourages countries to cooperate with these organizations to identify and apply the most efficient ways of dissemination of their trade statistics and related metadata. It is a good practice to review the Statistical Data and Metadata Exchange (SDMX)[180]format for possible use in the exchange and sharing of their data.[181]**[… needs development; do we need an Annex on trade data in SDMX format?]**

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[180]The SDMX technical standards and content oriented guidelines can provide common formats and nomenclatures for exchange and sharing of statistical data and metadata using modern technology. The dissemination of national data and metadata using web technology and SDMX standards is encouraged as a means to reduce the international reporting burden and to increase the efficiency of the international data exchange. For additional information on SDMX, see: http://www.sdmx.org/.

[181]See recommendation by the United Nations Statistical Commission: Economic and Social Council Official Records 2008 Supplement No. 4 (E/CN.3/2008/34),para 39/112: Common open standards for the exchange and sharing of data and metadata.

B. Combined presentation of statistics on external trade in goods and services

26.32. *The need in combined presentation of trade data*. Users expect that trade statistics covers trade in both goods and services and are presented to them as a coherent data set. Such presentation of trade data is essential for enabling users to answer such questions as what kinds of goods and services are traded between country A and B, or what sectors of the economy are leading exporters of specific categories of goods or services or which ones are their importers.

26.33. To meet this user expectation it is a good practice that IMTS compilers, in addition to making the IMTS data available in their own right, closely cooperate with compilers of SITS in order to develop a policy of presenting (some) data on merchandise trade and trade in services alongside each other accompanied with appropriate explanation of their scope including conceptual overlaps and numerical assessments of such overlaps. It is good practice to provide guidance, including examples, on how data can (and cannot) be used. […]

26.34. *Trade data and BOP data.* Trade data on BOP basis is important for the presentation of an overall picture of trade flows on the same conceptual basis. However, such data does not provide the level of detail needed for an in depth analysis of international trade as it is lacking, for example, partner and product breakdown. Furthermore BOP data are not intended for showing trade by characteristics of traders.

Part VI   External trade indices and seasonally adjusted data

Chapter 27   External trade indices

Scope. The chapter should give a general overview of the main fundamentals of price measurement in external trade avoiding the traditional dualism between price and UV as opposed measure of the same variable in a macroeconomic context (i.e. that of price deflators for NA purposes) but as two complementary indicators useful also in a micro-economic frame (they can help to describe and understand firm's behaviour; here the possibilities offered by linking trade and business registers have a role). It should be made clear that the two indicators have a different scope and that they come from different data sources and have a different reference population. The CM should clarify that, according to the several factors (scope of the indicator, budget and human resources constraint etc.), there are several methodological options to produce meaningful price measures.

Structure. Main aspects to be covered by the chapter:
(i)   General overview *(for instance: Why it is important to calculate some measure of price changes in external trade, macro Vs. microeconomic approach etc.);*
(ii)   Possible measurement approaches *(price and UV according to the aim of the indicators, the budget constraint, the characteristics of available data sources etc.);*
(iii)   Criticalities in the approaches *(pro and cons of the two measures such as quality changes, coverage, adjustments etc.);*
(iv)   Methodological issues *(choice of formulas, methods for measurement errors and outlier treatment, quality changes etc.);*
(v)   Other issues*(new challenges opened by the link with other statistical sources, <u>use of foreign price indices</u>)*
(iv)   <u>*Best practices.*</u>

Chapter 27 External trade indices

A. General overview

27.1.   *Need for external trade indices*. Many users need more information than trade values by country or by commodity, and require information on prices and volumes as well. The information on the development of prices and volumes is generally presented in the form of indices. In IMTS 2010, it is recommended that all countries produce and publish, on a monthly, quarterly and annual basis, both volume (quantum) indices and either price or unit-value indices for their total imports and exports. Countries are also encouraged to calculate and publish such indices for commodity groups of particular importance to countries at least quarterly and annually. This chapters aims at providing guidance to compilers in assessing the main advantages and disadvantages of the various alternatives for the compilation of external trade indices, as well as their potential complementarities, both from the statistical point of view as well as in terms of their practical implementation.

27.2.   *Some important uses of external trade indices.* External trade indices are in general used to eliminate the effects of price changes and obtain trade volume estimates. National Accounts require a decomposition of measures of value into price and quantity for its real flows. Government departments and international agencies use price indices to define, evaluate and resolve trade policy issues. They constitute a key tool for tariff and quota negotiations, as they provide an indication of the inflation of imports and exports as well as the international competitiveness of various industries and sectors. Also, business analysts and economists use international trade indices for analysis and research about such questions as the causes and the real economy effects that price changes have on trade.

27.3.   *Levels of aggregation.* The level of detail required in the index numbers of imports and exports is not necessarily the same for all purposes for which they are used, and national statistical offices need to strike a balance between the various demands from different types of users. For some uses, no detailed information on the price changes of individual commodities is required; for other purposes, the usefulness of the price statistics depends entirely on the commodity breakdown that can be made available. For instance, tariff-policy decision making and the analysis of the effects of trade on employment and productivity by industry often need highly disaggregated prices. On the other hand, macroeconomic studies focused on a country's terms of trade and its balance of payments need aggregate measures of price and volume trends of exports and imports.

27.4.   *Macroeconomic uses.* From the perspective of national accounts, price and volume indices of external trade in goods play an essential role in the estimation of macroeconomic aggregates in constant prices. Exports and imports in Supply and Use Tables (SUTs) at current prices are deflated by foreign trade price and/or unit value indices at the product level in the process of obtaining SUTs in constant prices. Also, exports and imports in constant prices are a necessary input into general macro-economic forecasting and model-building, as well for analyses of balance of payments.

27.5.   *Microeconomic uses.* Disaggregated measures of price change are especially relevant for uses which have to do with the transmission of inflation across national boundaries and within those boundaries, from one sector to another. Studies that serve tariff-policy discussions also require the availability of highly disaggregated prices to a point that could go well beyond the most detailed level of a purely statistical commodity classification. Also, there is increasing interest in understanding the relative importance of price-based competition against quality-based competition. The need for detailed answers to questions like these cannot be satisfied through traditional price and value indices at the macroeconomic level.

B. Measurement approaches

27.6.   *Divergent objectives of users of imports and exports indices.* Statistical agencies often face divergent demands for measures of price and volume changes in external trade, and it is not always clear how the different objectives of users should be ranked. In this complex situation, a statistical agency must choose among the various strategies open to it, strategies that have to do with both sources of data and methods of calculation. The choice of approach must also be pragmatic, taking into consideration resource constraints, data availability, and the practical feasibility of the selected methodology. The objective is to produce, subject to the usual budgetary constraints, the "best" measures possible for changes in the prices and volume levels of both imports and exports.

27.7.   *Price and unit value indices.* Two kinds of indices may be produced to reflect prices for imports and exports: unit-value indices that are based primarily on customs documents and export/import price indices that are based on survey data.[182]Both approaches have strengths and weaknesses. Although price indices are generally preferred on methodological grounds, in practice countries may not have the resources available to compile that information. Many countries compile only unit-value indices, while others compile and use both price and unit-value indices in a complementary manner.

27.8.   *Alternative data sources.* The main options available in terms of data sources are the use of customs records, the implementation of specific surveys of exporters and importers, and the taking advantage of other established domestic-price surveys. Additional alternatives include relying on other data providers such as commodity boards and associations of exporters and importers, or using price indices of partner countries as supplementary indicators.

27.9.   *Advantages of data from customs records.* Although the customs source often excludes transactions of very low value and/or volume, as well as special transactions (e.g., those that are kept confidential on the grounds of national security, etc.), they often provide an almost full coverage of the transactions on which the target population of a foreign trade index should be based on and are more frequently updated than most other data sources. Also, when the statistical agency has access to individual customs records, working with detailed data can support the compilation of trade indicators at the microeconomic level for various analytic purposes, especially when linked to other statistical sources through business registers.

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182 For detailed information on external trade price indices and unit values, see Export and Import Price Index Manual: Theory and Practice, International Monetary Fund, 2009, available electronically on the IMF website http://www.imf.org/external/np/sta/xipim/pdf/xipim.pdf.

27.10. *Advantages of data from direct price surveys of imports and exports*. There are various advantages often associated with the use of survey data for the estimation of foreign trade indices. One such advantage is the improved possibility to control ex-ante for potential biases and variability due to non-price factors, including changes in the mix of products in the market basket or changes to the quality of the items being priced. Also, by directly surveying exporting and importing firms, the risk of erroneous data (e.g., due to misclassification) can be mitigated, granted there are appropriate communication channels to provide guidelines and feedback to respondents. Moreover, depending on the details collected from survey respondents in terms of product specifications and attributes, survey data open the possibility to carry out quality adjustments using, for instance, hedonic methods. Further potential advantages of price surveys include improved timeliness, as in some countries price data from surveys are available earlier than unit values from customs records, and improved coherence with other price indices (such as producer, construction, wholesale/retail, and consumer price indices).

C. Criticalities in the approaches

27.11. *Heterogeneous product categories in detailed customs records data.* The main drawback in the use of custom records is that product codes even at the most disaggregated level for which "unit values" can be calculated often refer to heterogeneous sets of goods, while extensive direct enquiries to firms aimed at controlling for important price determining characteristics in each individual transaction are normally not feasible (e.g., terms of sale, timing of contract, and specific model attributes). This implies that an increase/decrease in unit values based on averaging values and quantities from customs records, may be due to unidentifiable non-price effects that impair the measurement of pure price changes. This is especially the case for complex products like electronic appliances (computers, cell phones, audio-visual equipment), large industrial machinery, etc., which may have heterogeneous units of quantity and price-determining characteristics even at the most detailed level of the commodity classification. Also, data from customs records are usually unsuitable for capturing average price changes of products that experience substantial technological change.

27.12. *Errors in filling customs declarations.* International experience has shown that large differences between the highest and lowest prices (unit value range) for single commodity codes often are due to errors in filling the customs declarations themselves. For instance, declarants may have difficulties in choosing the correct commodity code, filling in the correct partner country, or reporting the correct unit of quantity. To some extent, this can explain the fact that the distributions of unit values are often skewed even for very fine levels of detail (say, 8 HS digit level).[183]

27.13. *Elimination of customs declarations requirements in among some countries.* The compilation of unit value indices presupposes the existence of administrative and regulatory procedures whereby importers and exporters are required to provide enough details on their individual transactions through Customs records or other specific surveys (e.g., the Intrastat system). However, as national authorities move towards simplification or even elimination of

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[183]Note that large variance of unit values can suggest erroneous declarations as well as heterogeneity in the commodity composition of individual HS codes.

customs documents, the relevance of administrative records for statistical purposes may diminish in relative terms.

27.14. *Incomplete coverage and small sample sizes of price surveys.* Survey-based external trade indices require having a sample of establishments from which to collect a set of well-defined commodities, whose overall price changes are representative of all transactions taking place. However, statistical business registries normally identify only businesses that engage in regular export and import operations, which is a source of concern in cases where a significant fraction of total trade is carried out by casual importers or exporters. Also, sample surveys are usually expensive, and consequently samples size is often limited by budget and burden constraints. Having a small sample size may in turn assign too relevant a role to the management of replacements and quality adjustments that, on their part, may generate a bias in the estimates if not adequately controlled within a well structured and coherent statistical design.

27.15. *Tradeoff between availability and comparability in specifications of price surveys.* Although in principle it is possible to define in a very detailed way the characteristics of the products to be priced through surveys, in practice there is a tradeoff between the level of detail in the specifications of items and the ability of survey respondents to consistently match these specifications over time. As in the case of elementary unit value indices based on data from Customs records, survey-based price indices may also suffer to some extent from not comparing like with like, especially if the specifications of the product varieties being priced are too loose and shifts in the relative share of different price-determining characteristics remain unknown. This difficulties are compounded by the fact that the total number of transactions per respondent per period of time may be relatively small, making it necessary to collect average prices over longer periods of time instead of prices for individual transactions in order to compute price relatives for consecutive periods of time.

D. Methodological issues

27.16. *Choice of formulas.*

a. Brief description of the most used formulas (such as direct Laspeyres, Paasche and Fisher) and their main characteristics (including their weighting structure), making reference to their "chained" version;

b. UVIs allow for the use of superlative index formulas that incorporate both base and current weights (such as Fisher or Tornqvist), while acquiring current period weights in a reasonable timeframe to produce monthly price indexes is in general not considered practical

27.17. *Focus on optimal use of trade data from administrative sources.* With this in mind, the methodology used in compiling unit value indices for imports and exports should provide for handling seemingly erratic behavior in customs data, so as to extract as much information as possible from the data available in custom records and other administrative sources. These may entail, among other things, the use of appropriate stratification variables to disentangle between genuine variations in price levels and shift effects in the quality or in the mix of goods reported under a given item specification.

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27.18. *Error detection and treatment of outliers*. The statistical properties of the data used in the compilation of foreign trade indices, either from administrative or survey sources, also need to be examined in detail to identify outliers and correct or eliminate outright erroneous observations.[184] In general, that the treatment of outliers from direct surveys is less complicated than for UVI's, due to the relatively smaller amount of information collected by products and by traders. However, in both instances compilers should try use to the maximum extent possible all the information they have available to determine whether particular data points should be considered outliers or not.

27.19. *Treatment of quality change.* Compilers of foreign trade indices based on price survey data can handle quality changes by asking survey respondents to provide an estimate of the value of the quality change whenever an item description has changed. An adjustment can be made to the price to separate out the value of the description change from any remaining price change. In some cases where the items being compared are too divergent, the original item needs to be replaced by the new one and the price series started over again from the current period.[185]The use of Hedonic regression models to estimate the value of the quality change for technology products like computers and some computer peripherals is also a good practice currently followed by some countries.

E. Other issues

27.20. *Need for integrated economic statistics*. In most countries, there is less than complete compatibility between the coverage, methods, classifications and adjustments of price index numbers in external trade and d^{o}mestic indexes. And yet, these indexes must be related if the mechanism of transmission of inflation across national boundaries and the way in which domestic prices are set are to be properly understood. It is therefore important to develop integrated economic statistics based on common statistical business registers that allow to link customs declarations data and with information gathered from surveys, tax records, and other direct and indirect sources of information.

27.21. *International comparability of external price indices.* Governments as well as the business community show considerable interest in monitoring the performance of their countries vis-à-vis commercial competitors in international markets. While changes in a country's competitive position may be gauged from an analysis of its market shares, one of the key explanatory variables of the change in such shares is the measure of the evolution of relative prices across countries. This highlights the need for countries to compile and make available (in terms of a common currency) mutually consistent measures of price changes for the traded commodities at matching levels of detail.

27.22. *Role of international economic classifications.* While the commodity classifications for the compilation of export and import indices normally follow external trade classifications (HS

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[184]Statistical analyses may include estimation of univariate densities and cluster analysis to help assess whether a certain strata or commodity classifications may composed by various sub-categoriesof products with heterogeneous price trajectories.
[185] This is, for instance, a practice currently followed by the United States Bureau of Labor Statistics.

or SITC), special emphasis should be directed to linking them to those of domestic-price indices, in particular CPC and related national classifications.

27.23. *Use of foreign price indices.* Foreign price indexes could also be used as a 'second best' measure in some special circumstances. For example, if a country's economy is very interrelated to that of another country, there may be specific commodity groups for which they can be considered to be one market, with purchasers in both countries facing approximately the same price movements. If this hypothesis is reasonable, the producer price index of a foreign, closely related economy can be used as a proxy for the price index of imports from that country. Nevertheless, it is important to emphasize that foreign price indices are only an 'indirect' second best way to measure variation of prices of internationally traded goods, and their linkage is generally imperfect and difficult to accomplish.

F. Best practices

1. The Norwegian experience

27.24. *Current practices.* The Department of Economic Statistics of Statistics Norway uses unit value data from customs records and combines them with survey-based price data to compute price and volume indices of external trade in commodities. Survey price data are used for some commodity codes for which customs data are not considered acceptable as a source of price statistics. When this is the case, priority is given to Norwegian data sources, and only if this is also not adequate, data from international sources (such as the US Bureau of Labor Statistics) are collected.

27.25. *Use of foreign trade indices in National Accounts compilation.* Detailed data on exports and imports at the HS-8 level are aggregated to the national accounts product level (going from about 6,500 commodities to approximately 700 product categories). Values of exports and imports are used in balancing the National Accounts at current prices. Price information is applied to National Accounts at the detailed CPA level to derive exports and imports at constant prices, and to estimate price changes of components where no price observations exist (namely, intermediate consumption, gross fixed capital formation, and final consumption).

27.26. *Future developments.* It is expected that large importers and exporters will in the future be allowed to lodge consolidated customs declarations on a monthly basis. Although this will have a positive effect in terms of trade facilitation, statisticians will need to rely on fewer data records (due to the consolidation of single transactions into monthly totals) and thus error detection procedures may be further complicated. Also, the general trend towards removal of tariffs and duties, and the inherent customs' interest in simplifying and facilitating trade procedures, will mean that additional efforts have to be made in order to preserve the quality and coverage of data from administrative customs records. Currently, Statistics Norway's goal is to replace unit value indices with survey-based price indices for bothexports and imports.

2.   The Canadian experience

27.27. *Current practices*. Statistics Canada compiles an International Merchandise Trade Price Index (IMTPI), which is a composite price index designed to express, in a single index, price changes that involve a range of commodities. In order to accurately reflect the realities of the price movement a fixed basket of goods is chosen which are representative and correlated to the rest of the commodities in the trade universe. The index is based on a non-random sample of import and domestic export commodity classes. Data are extracted from administrative files and derived from other Statistics Canada surveys and/or other sources. International trade price and volume indexes are constructed on the basis of unit values derived from detailed custom base data and survey price indexes taken from Canadian and foreign sources. As a general rule, unit values are retained for relatively homogeneous commodities such as primary and semi-manufactured goods and proxies are used for heterogeneous commodities, particularly manufactured goods ready for final use. Several organizations provide the International Trade Division with proxies that are used as price relatives in the calculation of the Laspeyres and Paasche price indexes.[186] As the Canadian economy is very interrelated to that of the United States, the U.S. Bureau of Labour Statistics producer price index is used as a proxy for the price of some Canadian imports from the U.S.

3.   The Czech experience

27.28. *Current practices*. The export and import price index has been calculated for the Czech Republic since 1998. Prices are measured through a national monthly statistical questionnaire, with price relatives collected from both production enterprises and enterprises engaged in foreign trade only- about 580 of them engaged in exports and about 590 in imports. At present, the weight pattern includes approximately 2050 exported and 2100 imported products, raw materials and supplies, which take up a significant share in the value of external trade (both exports and imports). Foreign trade indices are calculated on the basis of invoiced prices (without duties, VAT and consumer tax) which are converted into national currency using the average monthly exchange rates declared by the Czech National Bank. While the price indices reflect thus changes in foreign exchange rates, the breakdown of export and import price index adjusted by exchange rate influences has been published monthly since January 2011. The index is compiled according to the Harmonized System and is converted to suit the breakdown by SITC Rev. 4 main groups. The Czech Classification of Product by Activities (CZ-CPA 2008) for the needs of national accounts and Eurostat. The first estimates are definitive – it means, ordinary revisions (revisions for the purpose of more precise previous estimates without methodical changes or modification of computation concept) are not accomplished.

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[186] Statistics Canada's Industrial Product Price Indexes (IPPI) and Automotive Price Index by Model, as well as data on exports of crude petroleum and natural gas (by pipeline) from its Manufacturing Construction and Energy Division. Price indicators from other organizations include the Bank of Japan's Export Price Index, price data on electricity from Canada's National Energy Board, Computer Price Index by Component from the Bureau of Economic Analysis (BEA).

4. The German experience

27.29. *Current practices*. In Germany unit value indices are currently calculated as Paasche-indices. However, an additional calculation is in preparation using the Fisher formula following the procedure of Eurostat. Alternatively, price indices (according to Laspeyres) are calculated on export and import side for more than 1,000 goods coming from a monthly enterprise sample survey. Even though price indices based on survey data are generally preferred, UVI's are calculated as well since they can be derived easily from already existing foreign trade figures and allow a breakdown by detailed commodities in combination with countries/country groups. In this way a methodically consistent set of nominal and real export and import figures is available which is based exclusively on foreign trade data. The calculation of unit value indices (in combination with Laspeyres volume indices) makes it possible to split up the nominal development of foreign trade into a quantity and value component.

Annex 27.1: The Norwegian experience

1. Unit values from customs records

A27.1. *Frequency and volume of data from customs records processed.* Statistics Norway receives twice a week administrative data from TAD, the Norwegian customs administration authority. The number of customs data records used by Statistics Norway in the creation of exports statistics has increased 56% in the last decade, and for imports this increase has been more than 100%. In 2006, Statistics Norway used about 1.4 million data records of exports and almost 9 million records of imports (representing 38.8% and 99.7% of Norway's total value of exports and imports, respectively).

A27.2. *Two-step process for unit value calculation.* The main body of data in the Norwegian external trade statistics is administrative data from customs declarations (Single Administrative Document, SAD). As the SAD document does not contain a price variable, unit values are derived from the variables value and quantity. This is done based on the total commodity value and quantity, after a two-step validation stage that involves stratification to identify commodity codes where the data may be utilised for price statistics.

A27.3. *Stratification below commodity code level.* In the first step, data in each commodity code are stratified below the HS-code level. The aim of the stratification is partly to arrive at more homogeneous strains within the code and, simultaneously, to reduce the overall variation observed on the code level. There are three stratification variables: Enterprise (VAT number), partner country (ISO code) and quantity groups (based on weight or supplementary unit). The choice of the best stratification variable for a commodity code in the reference year is done by means of automated analyses run on the data of the previous year (base year).

A27.4. *Outlier detection and data editing.* Before the estimation, the data are run through an editing procedure controlling for extreme prices. The data are subjected to a HB (Hidrioglou-Berthelot)-based procedure for identifying extremes, both on the stratum level and within the strata. Extremes are excluded from further calculations. For each stratum within an eight digit commodity, a set of control variables is calculated. The purpose of this step is to evaluate statistical properties of unit prices resulting from each method of stratification (enterprise, country and quantity group). The indicators are:

(a) Regularity of transactions (number of months in year T-1 with no transactions < 6)

(b) Price variation expressed by a coefficient of variation (standard deviation / average price) < 0,5)

(c) Value (> 1 per cent of the total value on commodity level)

(d) Quantity (> 1 per cent of the total quantity on commodity level)

A27.5. *Selection of customs data for the computation of unit value indices.* The ratio between arithmetic average and the quantity-weighted average of the monthly unit values, at the transaction level, is used as a background variable to evaluate the stratification of the data, and

choose which method to use for each HS code. Taken together, these indicators give information on stability, magnitude/concentration of the strata. A stratum is accepted if the values of all the indicators are within the required limits. If one or more of the limit values are exceeded for a stratum, the stratum is rejected and is not a part of the calculation of price indices.

2. Producer Price Indices (PPIs) for external trade

A27.6. *Integration of survey data from producer price indices*. For some important commodities, data from customs records are deemed too heterogeneous to yield acceptable price information. To compensate for such shortcomings survey-based price indices are used as indicators in the external trade statistics.In Statistics Norway, the survey which yields produce price indices (PPI)covers both the domestic market, export market, and import market. An important characteristic of the Norwegian system of price statistics is the fact that external trade considerations guide and influence the PPI production, particularly in determining which commodity codes are included in the sample.

A27.7. *Survey implementation*. Data collection is mainly made via questionnaire, whereby respondents also receive guidance in the form of an information brochure as well as semiannual messages from Statistics Norway. The statistics register employed by Statistics Norway includes all resident firms that produce or deal with the commodities in question and have 10 or more employees. The sample is based on a scheme of probability proportional to size. Prices are collected for selected, well-defined products over time, all of which are classified according to the HS nomenclature. In practical terms, this means that a survey questionnaire makes reference to a specific HS commodity classification, and the respondent has to provide price data for a product model that best suits this commodity description, and the price of this product is reported monthly.

A27.8. *Index formulas.* Elementary indices are calculated at the HS level, using a geometric mean. Indices at the HS level are then aggregated, using a weighted average, to form a CPA index, and from the CPA level, indices are aggregated to CPA 4 digit, 3 digit, etc. This is done for each of the three markets (domestic, export, and import).Indices above the elementary level are calculated using the Laspeyres formula

A27.9. *Imputation*. During the process of compilation of PPIs, missing HS data are imputed using higher levels of aggregation. Sequences of 13 consecutive months are used to calculate a short-term index, whereby the base is always December of the previous year.
Other data sources

A27.10. *Alternative sources of price data.* In addition to survey data and customs records, there are special data collection mechanisms in place, including the use of price information from international commodity exchanges and foreign statistical agencies. For internationally traded commodities (refined oil products, nickel etc) price data are collected from London Stock Exchange and London Metal Exchange.

A27.11. *Use of foreign indicators of price trends.* For other products (especially export and import of capital goods), international price indicators are in some cases considered to be

representative also for the price development of the same product group in the Norwegian trade. For instance, data from the US Bureau of Labor Statistics (BLS) are used for about 80 export products and 40 import products

3. Data validation and editing

A27.12. *Validation of customs data.* Data validation procedures are routinely put in place in order to detect errors in the statistical values reported in the customs declarations.

(a) Several early controls are applied within Customs Service's own information systems, including validity checks for commodity and country codes, price verifications based on upper and lower thresholds, quantity checks, and checks for implausible data by commodity/partner.

(b) Prior to loading customs data into Statistics Norway's database, some data editing is conducted. Only the transactions involving commodities above 1000 NOK and less than 1 year old are selected, and incomplete declarations are rejected. After loading, automatic corrections are carried out, and validity of codes is checked again. Also, with the aid of statistical tools, probable errors are identified, which may involve unusual prices, partners or commodities, as well as code combinations that seem suspect. All large declarations are subject to data quality control, whereby experience of staff members specialized in checking the data of specific groups of commodities plays a key role.

(c) In cases where Statistics Norway does not have sufficient information to correct obvious errors, a report is sent to Customs specifying the nature of the problem with each suspect transaction. This report is reviewed by Customs and sent back to Statistics Norway with a comment indicating whether any corrective action was taken.

A27.13. *Validation of price survey data.* Validation mechanisms are also applied to price survey data submitted to Statistics Norway. These mechanisms include detection of high and low outliers, control of CPA classification, and checks on aggregated data at different NACE levels. If errors are suspected and the data in the questionnaire is insufficient, Statistics Norway would establish direct contact with the respondent in order to obtain further clarification.

A27.14. *Most frequent kinds of errors.* Some of the most frequent kinds of errors detected are related to wrong currency and/or exchange rates, as well as errors in the quantities reported. Two specific examples illustrate some of the kinds of errors that have been dealt with in the past. The first one was the case of salmon exports to the European Union that were subject to a punitive duty. As firms filling the declarations were not able to report separately the duty, Statistics Norway had to put in a lot of work in order to correct the statistical value. Another example was the situation created by some companies using computer software to speed up the filling up of customs declarations, which automatically distributed total quantity (weight) of all declared goods according to their individual value shares. As a result, all commodities declared in a single document were implicitly given exactly the same unit value, rendering the information useless for unit value calculations.

4. Institutional framework

A27.15.   *Cooperation between Statistics Norway and the Norwegian Customs Administration.*
There is a good working relationship between Statistics Norway and the Norwegian Customs
Administration Authority (TAD) in terms of providing data for statistical purposes, as required
by the Statistics Act of 1989. Cooperation between TAD and Statistics Norway is regulated by a
formal agreement, which establishes responsibility for contacts between both parties, stipulates
that changes made to the existing administrative data systems should be communicated to
Statistics Norway, regulates data transmission between TAD and Statistics Norway, gives
Statistics Norway the responsibility of compiling a list of all statistical surveys being conducted,
and requires a yearly report on the cooperation. As cooperation with customs personnel is
essential during the data validation process, Statistics Norway provides regular training for
Customs employees, allowing for improvements at the data source.

Annex 27.2: The Canadian experience

A27.16. *Estimation formulas.* Fixed (Laspeyres) and current (Paasche) weighted price indexes are calculated monthly, quarterly and annually on a Customs as well as on a Balance of Payments basis both for all countries and for United States. International Trade Division also calculates Constant dollars on a Balance of Payments basis with the use of the Chain Fisher formula with a base reference year. They are available from 1981 to present on a monthly and quarterly basis.

A27.17. *Error detection and imputation.* Once the Laspeyres indexes and Paasche Indexes are calculated, a module uses a method described by Hidiroglou and Berthelot (1986) to identify outlying observations. Historical Trend Method is also adapted and used to identify transactions within an aggregation that are "abnormal" for a given period. The error detection process is only done at the first stage of aggregation in the construction of the International Merchandise Trade Price Index. If during the error detection process a unit value has been identified as an outlier, and if the price analyst with the help of the subject matter specialist also considers this unit value as an outlier, then the unit value will be manually imputed.

A27.18. *Quality evaluation.* The quality of this index is maintained through the expertise of the few trained analysts assigned to it. They develop a thorough knowledge of the domain. Much time and effort is devoted to detecting and following up unusual fluctuations over time in the pricing patterns of goods. Prior to dissemination, the price indexes are analyzed and historic trends reviewed.

A27.19. *Disclosure control.* Statistics Canada is prohibited by law from releasing any data which would divulge information obtained under the Statistics Act that relates to any identifiable person, business or organization without the prior knowledge or the consent in writing of that person, business or organization. Various confidentiality rules are applied to all data that are released or published to prevent the publication or disclosure of any information deemed confidential. If necessary, data are suppressed to prevent direct or residual disclosure of identifiable data.

A27.20. *Revisions and seasonal adjustment.* In general, merchandise trade data are revised on an ongoing basis for each month of the current year. Current year revisions are reflected in both the customs and BOP based data. The previous year's customs data are revised with the release of the January and February reference months as well as on a quarterly basis. The previous two years of customs based data are revised annually and are released in February with the December reference month. The previous year's BOP based data are revised with the release of the January, February and March reference months. Revisions to BOP based data for the previous three years are released annually in June with the April reference month.Factors influencing revisions include late receipt of import and export documentation, incorrect information on customs forms, replacement of estimates produced for the energy sector with actual figures, changes in classification of merchandise based on more current information, and changes to seasonal adjustment factors.

Part VI   External trade indices and seasonally adjusted data

Chapter 28   Seasonally adjusted data

*Scope.*The chapter is intended to explain to a trade data compiler the concept of seasonally adjusted data, explain its analytical importance and the key features of the main approaches (such as model-based and filter-based) without focusing too much on technical details which are available in the relevant more technical documentation (the necessary references will be provided).

*Structure.*The chapter might consist of several sections focusing on:
(i)   Basic concepts for application in the compilation of seasonally adjusted trade data and uses of seasonally adjusted trade data;
(ii)   General principles and key features of the main approaches;
(iii)   Selected issues specific to trade data.

Chapter 28   Seasonal Adjustment

A. Basic concepts and uses of seasonally adjusted trade data

28.1.   *Need for seasonally adjusted data.* Monthly and quarterly data on international merchandise trade statistics are an important tool for economic policymaking, business cycle analysis, modelling and forecasting. However, they are often characterized by seasonal fluctuations and other calendar or trading-day effects, which mask other characteristics of the data that are of interest to analysts. Seasonal adjustment is a process of estimating and removing seasonal or calendar influences from a time series in order to achieve a better knowledge of the underlying behaviour. **Countries are encouraged** to compile and publish, where appropriate, seasonally adjusted monthly and quarterly international merchandise trade data on a regular basis.

28.2.   *Seasonal adjustment method.* Because national circumstances vary from one country to another, no preferred seasonal adjustment method is recommended. If seasonally adjusted data is published, **it is recommended** that information on the adjustment methods, data quality, and so forth, be provided by countries in their metadata

28.3.   *Concept of seasonal adjustment.* Seasonal adjustment is the process of estimating and removing effects in a sub-annual time series that occur at about the same time and magnitude each year, as well as calendar-related systematic effects that are not stable in annual timing, which are often large enough to mask other data characteristics. Removing the seasonal component allows for an easier comparison of long- and short-term movements across sectors and countries and further contributes to understanding the non-seasonal behaviour that is often of interest for economic policymaking, business cycle analysis, modelling, and forecasting.

28.4.   *Components of time series.* A time series is generally considered to consist of trend, cycle, seasonal, and irregular components. The trend, cycle and irregular components together reflect long-term movements lasting many years, fluctuations relating to the business cycle, and unforeseeable movements of all kinds. The seasonal component of a time series represents the movement within the year, and includes the effect of climatic and institutional events that are repeated regularly throughout the year, as well as calendar-related systematic effects that are not stable in annual timing, such as trading-day and moving holiday effects. Seasonal adjustment is the process of completely eliminating the seasonal component from the original time series.

28.5.   *Tools used for seasonal adjustment.* Seasonal adjustment is typically accomplished with the assistance of free and publicly available software packages, the most widespread of which are TRAMO-SEATS (supported by the Bank of Spain) and X-12-ARIMA (supported by the U.S. Census Bureau)[187]. As the seasonal component is not precisely defined, seasonal adjustment often depends on the a priori hypotheses underlying the model chosen and upon the software and specifications chosen.

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[187] It was suggested to change references to X-12-ARIMA to X-13ARIMA-SEATS, which will be released later this year.

B. Preliminary treatment of data prior to seasonal adjustment

28.6.   Seasonal adjustment begins with a preliminary process of identifying and removing outliers, adjusting for those calendar effects that are not stable in annual timing, and identifying an appropriate decomposition type.

28.7.   *Graphical analysis.* Preliminary treatment of the data should begin with a graphical analysis of the series in order to identify potential problems with the data, select appropriate parameters, and determine how to perform the seasonal adjustment. Relevant preliminary analysis should examine the length of the series, the presence of strange values, the structure of the series, the presence of possible breaks in seasonality, and the decompositions scheme, as well as more sophisticated graphs, including spectrum or autocorrelograms.

28.8.   *Outliers.* Since most seasonal adjustment methods use procedures and filters that are sensitive to outliers, these should be identified and removed before estimating the seasonal components. Outliers clearly due to errors in the data should be discarded. However, since outliers not due to error typically contain information about key events, these should be re-introduced to the data after seasonal adjustment.

28.9.   *Calendar effects.* Calendar effects are regular effects that do not necessarily occur in the same month or quarter each year but that can be identified and removed from the series. These effects include holidays whose exact timings shift systematically each calendar year and the variation in the number of times each day of the week occurs in a given month or quarter. These effects must be corrected for using standard seasonal adjustment tools to avoid misspecification of the model or compromising the overall quality of seasonal adjustment. The decision to correct for other effects, such as temperature, school holidays, or bridge holidays, should be made on a case by case basis.

28.10.   *Decomposition.* The decomposition scheme specifies how the trend-cycle, seasonal, and irregular components combine to form the original series. Additive decomposition assumes that the components of the time series behave independently of each other. In particular, the size of the seasonal oscillations is independent of the level of the series. Multiplicative decomposition, often chosen by default in seasonal adjustment software packages, assumes that the components of the series are interdependent and thus that the seasonal variation's size increases and decreases with the level of the series.

C. Seasonal adjustment

28.11.   *Choice of seasonal adjustment approach.* TRAMO-SEATS and X-12-ARIMA are currently the most commonly used seasonal adjustment approaches. TRAMO-SEATS is based on a parametric approach (where the model structure is specified a priori), while X-12-ARIMA is based on a non-parametric approach (where the model structure is determined from the data). A third possible approach is the use of structural time series models, provided they allow for a complete calendar and outlier treatment and include an adequate set of diagnostics. The

consistent use of a common set of seasonal adjustment packages will improve transparency and comparability of seasonally adjusted time series across countries.

28.12. *Seasonal adjustment and consistency with annual data.* Annual trade totals based on seasonal adjustment will not automatically (or conceptually) be equal to the corresponding annual trade totals based on unadjusted data. Specifically, the annual totals of the unadjusted series and the seasonally adjusted series will be equal only when the series is adjusted additively, the seasonal pattern is fixed from one year to the next, and there are no trading day adjustments. The impact of working days, moving holidays and other calendar effects change from one year to the next. Moving seasonality also implies that the impact of the seasonal effect will vary across years. Nonetheless, the process of ensuring that seasonally-adjusted values sum to their unadjusted annual values, known as benchmarking, can be done using seasonal adjustment software.

28.13. *Direct versus indirect seasonal adjustment.* Direct seasonal adjustment is performed if all time-series, including aggregates, are seasonally adjusted on an individual basis. Indirect seasonal adjustment is performed if the seasonally-adjusted estimate for a time series is derived by combining the estimates for two or more directly adjusted series. Indirect seasonal adjustment should be preferred when the component series that makes up the aggregate series have both distinctively dissimilar seasonal patterns and adjustments of good quality. Direct seasonal adjustment should be preferred when the corresponding series have similar seasonal patterns and summing the series may reduce the amount of unexplained variation.

D. Revision policies

28.14. *Reasons for revisions to seasonally adjusted data.* Revisions of seasonally-adjusted data take place for two main reasons. First, seasonally-adjusted data may be revised due to a revision of the unadjusted data, which may be the result of an improved information set. Secondly, revisions of seasonally-adjusted data can also take place because of a better estimate of the seasonal pattern due to new information provided by new unadjusted data and due to the characteristics of the filters and procedures removing seasonal and calendar components. The challenge is to find a balance between the precision of seasonally-adjusted data and their stability over time. Revisions of seasonally-adjusted data ought to take place in accordance with a coherent, transparent and officially-published revision policy, and these revisions should not be more frequent than the revisions to the raw data.

28.15. *Trade-off between frequency and accuracy.* The way in which seasonal adjustment is carried out has implications for the revision policies. At one extreme, so-called current adjustment minimises the frequency of revisions and concentrates the revisions mainly within a pre-defined review period. At the other extreme, so-called concurrent adjustment maximises the accuracy of the adjusted data at any given point, but will lead to more revisions, often from the beginning of a series, with many small and in opposing directions. In practice, other alternatives are followed, based on a combination of these two extremes.

28.16. The extent to which a changed time series should be published in its entirety is influenced by several factors. On the one hand, there is a methodological incentive to treat all values

identically to keep calculations easy to understand and replicate. However, it is nevertheless questionable whether a newly added figure actually contains relevant information for significant revisions to the estimation of the usual seasonal fluctuations in previous decades. As a way of balancing the information gain and the revision horizon, the revision period for the seasonally adjusted data is often limited to between three and four years longer than the revision period for the unadjusted data.

E. Quality of seasonal adjustment

28.17. *Absence of residual seasonality.* The most fundamental requirement of seasonal adjustment is that there is no estimable seasonal effect, known as residual seasonality, still present in the seasonally adjusted series. To detect residual seasonality and trading-day effects, validation should be performed using spectral diagnostics as well as other tools included in the seasonal adjustment packages, perhaps complemented with graphical diagnostics and statistical tests from external statistical packages. Both TRAMO-SEATS and X-12-ARIMA provide a wide range of quality measures and diagnostics for this purpose.

28.18. *Stability and lack of bias.* Other important requirements for a good seasonal adjustment are a lack of bias in the level of the series and stability of the estimates. A lack of bias implies that the level of the seasonally adjusted series should be similar to the level of the original series. Stability of the estimates implies that the inclusion of new data into the estimation procedures will not result in large changes the estimates. Large revisions can indicate that the estimates are misleading or even meaningless.

F. Specific issues

28.19. *Length of series.* A series that is under three years in length cannot be accurately seasonally adjusted with either TRAMO-SEATS or X-12-ARIMA. For these series, it is possible to adjust them using alternative, less standard, procedures. For series that are long enough to run X-12-ARIMA or TRAMO-SEATS but remain quite short (3-7 years), some instability problems can appear. Several empirical comparisons have been done to investigate the relative performance of X-12-ARIMA and TRAMO-SEATS on short time series.[188]

28.20. As a general rule when the series are shorter than seven years, the specification of the parameters used for pre-treatment and seasonal adjustment has to be checked more often (e.g. twice a year in order to deal with the higher degree of instability of such series).

28.21. *Series requiring non-standard seasonal adjustment.* Some series can be characterised by very specific features which preclude the application of standard seasonal adjustment methods. Such features include high non-linearity[189], absence of a clear signal due to a dominant irregular component, unstable seasonality, a high number of outliers, or heteroskedasticity [190]. In such cases, ad hoc treatment should be carried out.

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[188] It was suggested to treat the issue of appropriate series length separately for monthly and quarterly series—expert input is required in this.

[189] Non-linearity refers to a model whose variables are not written as a linear difference equation.

[190] Heteroskedasticity occurs in a linear model with error terms that do not have constant variance.

G. Data presentation

28.22. Data can typically be presented either in raw, seasonally adjusted, calendar-adjusted only or trend-cycle form. The raw data contain all characteristics of the time series. As the seasonally adjusted data contain the trend-cycle and the irregular components, they contain the "news" of the series. Much of the discussion on trend-cycle analysis focuses on the so-called end-point problem. Since the trend cycle values at the end of the series are usually estimated by extrapolation, the estimated trend-cycle for the most recent data is very uncertain and can suffer of phase-shift[191] problems. Particular care is required at turning points, where it often takes months until the new correct direction of development appears.

28.23. In all cases, the information contained within the press release should adhere to the principles of ensuring transparency and assisting users in making informed decisions.

H. Specific issues related to trade data

28.24. *Italy.* In Italy, monthly trade time series are seasonally adjusted by means of TRAMO SEATS (Windows version). In particular, intra-EU and extra-EU series (at import and at export) are adjusted directly and separately, while the series referred to Total trade (intraEU+Extra.EU) at import or at export are obtained indirectly as sums of the corresponding seasonally-adjusted series due to the well-known aggregation problem.

28.25. The models selected by TRAMOSEATS are revised at the beginning of any new year, but the estimated SA coefficients are monthly revised as soon as a new observation is added to the series. This obviously implies some revisions for the nearest time lags but gives more consistent overall year information when compared to raw data.

28.26. The selected models are available to researcher or users on request.

28.27. [**Country Examples are requested**.]

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[191] A phase shift is the amount of horizontal change of a wave pattern from an original state.