

# Methodology Guide for UN Comtrade User on UN Comtrade Upgrade 2019

## Contents

|   |           |
|---|-----------|
| <b>I. Background .....</b>  | <b>2</b>  |
| <b>Table 1: Overview of Major Improvements Resulting from UN Comtrade Processing System .....</b> | <b>2</b>  |
| <b>II. Integration of All Data Processing &amp; Dissemination .....</b>                           | <b>3</b>  |
| <b>III. New Data Items .....</b>  | <b>3</b>  |
| <b>A. Mode of transport .....</b>   | <b>3</b>  |
| <b>B. Customs procedure codes.....</b>  | <b>4</b>  |
| <b>C. Second partner .....</b>  | <b>5</b>  |
| <b>D. FOB Valuation for Imports.....</b>  | <b>6</b>  |
| <b>E. Expanded breakdown of types of trade flows.....</b>   | <b>6</b>  |
| <b>F. Alternative quantity units, in addition to net weight and WCO recommended units .....</b>   | <b>7</b>  |
| <b>G. Gross and net weight .....</b>  | <b>10</b> |
| <b>IV. Improved Quantity Estimation for Commodities .....</b>                                     | <b>10</b> |
| <b>V. Pre-aggregated data.....</b>  | <b>10</b> |
| <b>VI. Improved Conversions between Classifications .....</b>                                     | <b>11</b> |
| <b>A. Conversions for commodities .....</b>   | <b>11</b> |
| <b>B. Conversions for services .....</b>  | <b>11</b> |
| <b>Annex 1. Quantity Estimation .....</b>   | <b>13</b> |

## I. Background

Beginning in 2018, UN Comtrade has upgraded its trade data processing system, which will result in improved features and functionality of the UN Comtrade database. The new system, named UN Comtrade Processing System, allows for processing and disseminating several new data items as recommended in the [International Merchandise Trade Statistics: Concepts and Definitions 2010 \(IMTS2010\)](#); improves the quantity estimation for IMTS; expands the conversion of commodities at more detailed HS levels; and allows for the dissemination of statistics of trade in services (SITS) in both Extended Balance of Payments (EBOPS) 2002 and EBOPS2010 classifications. This User Guide is intended for users of Comtrade to better understand the changes and the new data items now available. Table 1 presents a summary of the major changes and the impact on Comtrade data, followed by more detailed technical notes.

**Table 1: Overview of Major Improvements Resulting from UN Comtrade Processing System**

| Previous System  | Upgrades made with new UN Comtrade Processing System  | Result for Comtrade Users  |
|--|---|--|
| Three separate processing systems for annual and monthly IMTS and SITS                     | <a href="#">One integrated processing system</a> for all trade data   | Improved consistency and timeliness of dissemination of trade data. Monthly IMTS will be disseminated the same way as annual IMTS data (e.g., will be converted to other classifications and missing quantities will be estimated) |
| Data items for IMTS included trade by commodity and by partner                             | In addition, <a href="#">new data items</a> now include (when reported): <ul style="list-style-type: none"> <li><a href="#">mode of transport</a></li> <li><a href="#">customs procedure codes</a></li> <li><a href="#">2<sup>nd</sup> partner</a></li> </ul> | More information on the nature of trade flows and partner country attribution, allowing for better analysis of bilateral trade asymmetries   |
| Single valuation for IMTS imports (at CIF) and exports (at FOB)                            | In addition, <a href="#">FOB valuation for imports</a> (when reported)  | Symmetrical valuation of imports and exports and more information on insurance and freight costs, allowing for better analysis of bilateral trade asymmetries  |
| Trade flows for IMTS consisted of Total Exports: Re-exports; Total Imports; and Re-Imports | <a href="#">Expanded breakdown of trade flows</a> for IMTS (when reported) including Domestic Exports, Export/Import of goods after/for inward processing; Export/Import of goods for/after outward processing; and Export/Import on intra-firm trade         | More information on the nature of trade flows, especially re-exports, re-imports, and goods for processing, and intra-firm trade   |
| IMTS quantity units standardised to 12 World Customs Organization (WCO) recommended units  | In addition, <a href="#">standardization to more quantity units</a> (43+ units of which twelve as WCO recommended units), when reported. These quantity units comply with trade SDMX code list.   | Additional measures of quantity  |
| Single weight (net weight in kg) for IMTS  | In addition, <a href="#">gross weight</a> (net weight plus the weight of the shipping or cargo container), when reported  | More information on weight and shipping  |
| Limited quantity estimations for IMTS (not all commodities estimated)                      | <a href="#">Estimation of quantity for all commodities</a> ; when applicable. However, some may not be shown for specific commodities   | More complete quantity data; especially for aggregated data  |
| Conversion for IMTS at 6-digit HS level  | <a href="#">Conversion at any HS level and improved conversion of residuals</a>   | More complete converted datasets   |
| Only EBOPS2002 data disseminated for SITS (EBOPS2010 data converted to EBOPS2002)          | <a href="#">SITS data also disseminated in EBOPS2010</a> (when reported in EBOPS2010)   | SITS data in both EBOPS2002 and EBOPS2010, when reported   |

## **II. Integration of All Data Processing & Dissemination**

The new processing system, UN Comtrade Processing System, integrates the processing and dissemination of all trade data: annual IMTS, monthly IMTS and annual SITS. Previously, there were three separate processing and dissemination systems. The integration will allow for more consistent and timely processing and dissemination of trade data on UN Comtrade.

## **III. New Data Items**

UN Comtrade will now disseminate the following new data items for IMTS, when they are reported by the reporting country.

*Please note: The availability of data items can be consulted in metadata table.*

### **A. Mode of transport**

IMTS 2010 recommends that the mode of transport (MoT) should be recorded as the means of transport used when goods enter or leave the economic territory of a country. It further recommends that countries compile MoT at the most detailed commodity level. Not every country is reporting MoT to UN Comtrade.

For those countries that are reporting MoT, the standardised international classification used for dissemination on UN Comtrade is as presented in IMTS2010 (see IMTS, para. 7.2):

*All modes of transport*

- 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*
    - 4.1.1 Pipelines*
    - 4.1.2 Cables*
  - 4.2 Postal consignments, mail or courier shipments*
  - 4.3 Self-propelled goods*
  - 4.4 Other*

Depending on their national requirements countries may report mode of transport at the one-, two- or three-digit level or create even more detailed breakdowns. When necessary, UNSD aligns the national reported MoT to the standardised classification above, based on feedback from the reporting country as needed.

If no MoT data are reported for a particular record, the MoT value is marked as “not specified” (code 9000) in UN Comtrade, but that record will be included in the aggregated “All Modes of Transport”.

## B. Customs procedure codes

Customs authorities usually apply a system of codes that allows flows of goods to be identified for inclusion or exclusion under general or special trade and prevents double recording of the goods which have undergone several customs procedures. While there is a standardised code list of customs procedure codes, which is based on the Revised Kyoto Convention (RKC) of World Customs Organisation (see IMTS 2010, Annex B and IMTS, 2010 Chapter VII, para. 8.5), in practice, countries do not strictly follow the standards of the RKC. Some countries apply their own unique national customs procedure codes.

UNSD maps national customs procedure codes to the standard RKC codes for dissemination on UN Comtrade, based on the code description provided in the metadata and communication with the reporting country. It is worth noting that certain codes in the RKC code list are intended only for exports or imports, or to be excluded from IMTS, according to IMTS2010 recommendations. UNSD makes efforts to consult with reporting countries to ensure that UN Comtrade excludes records associated with customs procedure codes that are to be excluded from IMTS.

UN Comtrade's standard list of customs procedure codes and associated trade flows, based on the RKC, is presented in table 2 below.

**Table 2: UNSD Customs Procedure Codes**

|                             |    | Trade Flow                      |               |                 |               |               |   |
|-----------------------------|----|---------------------------------|---------------|-----------------|---------------|---------------|---|
|                             |    | General Exports                 |               | General Imports |               | Excluded Flow |   |
|                             |    | Domestic goods                  | Foreign goods | Domestic goods  | Foreign goods |               |   |
| RKC Customs Procedure Codes | 1  | Clearance for home use          |               |                 |               |               | X |
|                             | 2  | Reimportation in the same state |               |                 |               |               | X |
|                             | 3  | X                               | X             |                 |               |               |   |
|                             | 4  |                                 |               | X               | X             |               |   |
|                             | 5  |                                 |               | X               | X             |               |   |
|                             | 6  |                                 |               | X               | X             |               |   |
|                             | 7  | X                               | X             |                 |               |               |   |
|                             | 8  | X                               | X             |                 |               |               |   |
|                             | 9  |                                 |               | X               | X             |               |   |
|                             | 10 | X                               | X             | X               | X             | *             |   |
|                             | 11 | X                               | X             | X               | X             | *             |   |
|                             | 12 | X                               | X             | X               | X             | *             |   |
|                             | 13 | X                               | X             | X               | X             |               |   |
|                             | 14 | X                               | X             | X               | X             |               |   |
|                             | 15 | X                               | X             | X               | X             | *             |   |
|                             | 16 |                                 |               |                 |               | X             |   |
|                             | 17 |                                 |               |                 |               | X             |   |
|                             | 18 |                                 |               |                 |               | X             |   |
|                             | 19 |                                 |               |                 |               | X             |   |
|                             | 20 | CPC N.E.S.                      |               |                 |               |               | X |

*Note:* In certain cases where a nationally reported customs procedure code identifies a specific trade flow (notably flows to/from processing zones and/or identification of intra-firm trade) and the country did not make a symmetrical recording in its trade flow data (see section III.B.4 below), UNSD will adjust the trade flow to align with the flow indicated by the customs procedure code.

### C. Second partner

IMTS 2010 recommends for partner attribution that (a) in the case of imports, the country of origin<sup>1</sup> should be recorded; and (b) in the case of exports, the country of last known destination should be recorded.

IMTS2010 *also* recommends that country of consignment be recorded for imports as the second partner country attribution, alongside country of origin, and encourages that country of consignment be recorded for exports as the second partner country attribution.<sup>2</sup> Accordingly, a data field for “2<sup>nd</sup> partner” is now included on UN Comtrade.

The country of consignment in the case of imports is the country from which goods were dispatched to the importing country, without any commercial transactions or other operations that 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.<sup>3</sup> In the case of exports, the country of consignment is defined in a symmetrical way; i.e., it 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 that 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 or destination.<sup>4</sup>

This additional detail will aid in the analysis of bilateral trade asymmetries, as imports on the basis of country of consignment is a more symmetrical recording of the mirror exports. In other words, the bilateral comparison of country of origin at imports with country of final destination at exports is not a symmetrical recording of the same trade transactions by the exporting country and the importing country. To be more precise, the current identification of the trading partner (for imports) by country of origin may “skip” countries in which value added does not reach the level recognized as substantial transformation, while country of final destination would generally be the next country

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<sup>1</sup> Country of origin 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. Two basic criteria determine 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”.

<sup>2</sup> considering that, in the case of exports, countries often do not differentiate the country of last known destination and the country of consignment and that their separate recording could create a significant additional data-reporting and data-processing burden, the compilation of export statistics on the country of consignment basis is only encouraged, depending on a country’s needs and circumstances. It is recognized that the compilation of country of consignment for exports may be considered by some countries as a longer-term objective.

<sup>3</sup> Please note that, for imports, country of origin and country of consignment can be the same if no commercial transactions or other operations that change the legal status of the goods took place in any intermediate country.

<sup>4</sup> Please note that, for exports, country of last known destination and country of consignment can be the same if no commercial transactions or other operations that change the legal status of the goods took place in any intermediate country.

where some transformation takes place. This creates incomparability and detracts from the usefulness of such trade data for some types of economic analysis. Alternatively, compiling trade 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 more symmetrical data since goods recorded as imports by one country are to be recorded as exports by another.

#### Box 1. Implementation of two partner countries in UN Comtrade Data Interface

At the most basic data record, up two partner countries would be according to the following rules:

- a) When only one partner country is reported; then it would be allocated as “partner 1”. The partner attribution can be both origin/consignment for imports; and this information can be consulted in metadata table
- b) When two partner countries are reported; then “country of origin for imports” will be assigned as “partner 1” and “country of consignment for imports” as “partner2”. Whereas for exports “partner 1” would be “country of last known destination”. If additional exports partner is available, then it would be allocated as “partner 2”. Users can consult metadata for detailed information of partner attribution.

#### D. FOB Valuation for Imports

IMTS2010 encourages countries to compile FOB-type value of imported goods as supplementary information, in addition to CIF value. UN Comtrade, therefore, now disseminates FOB valuation for imports, when reported by countries (*note*: not all countries are reporting imports on an FOB basis to UN Comtrade). This supplementary information, when available, will result in the symmetrical valuation of exports and imports, which may aid in the analysis of bilateral trade asymmetries.

#### Box 2. Implementation of CIF FOB Values in UN Comtrade Data Interface

At the most basic data record, up to three trade values could be presented according to following rules:

- a) CIF value for imports would be assigned to “CIF Value”
- b) When FOB value is reported for imports, it would be allocated to “FOB Value”
- c) FOB value for exports would be allocated to “FOB Value”

For users’ convenience, a third (“primary”) trade value is generated by applying IMTS 2010 recommendation on valuation: if available CIF otherwise FOB for imports; FOB for exports, respectively.

#### E. Expanded breakdown of types of trade flows

The new system allows for expanded recording of types of trade flows for IMTS. More specifically, Comtrade now supports dissemination of the full list of trade flows below:

- Import

- Export
- Domestic Exports
- Re-import
- Re-export
- Import of goods for inward processing
- Export of goods after inward processing
- Import of goods after outward processing
- Export of goods for outward processing
- Import on intra-firm trade
- Export on intra-firm trade

As noted in the section on customs procedure codes (see section III.B), some of these trade flows are associated with a certain customs procedure code. If a reporting country does not record a symmetrical trade flow for the customs procedure code and reported trade flow in a certain record, UNSD contacts the reporting country for confirmation as needed and/or adjusts the trade flow accordingly to match the customs procedure code which is more detailed.

**F. Alternative quantity units, in addition to net weight and WCO recommended units**

As part of the application of the HS, the World Customs Organisation (WCO) recommends the use of certain standard units of quantity for the six-digit HS level (see table 3 below). However, the recommended units of quantity (RU) are not always indicative of the quantity units used in industry practices which might be different across countries and in certain cases creates additional difficulties in the HS implementation and analytical use. For example, natural gas traders work in British thermal units (BTUs) rather than in cubic metres (m<sup>3</sup>).

Taking into account the need to capture quantity units for specific commodities which the recommended WCO unit is not in-line with industry practices, the new system introduces UNSD Standard “Alternative Quantity Units” – see table 4 below for the full list (as of June 2017).

The units were derived from various sources (i.e., commonly used national quantity units and the SDMX-IMTS Code List) and are included when they are widely used by countries, commonly used in specific industry, or part of international standard units. The list is intended to be flexible, with the possibility of extension, if needed. This information is disseminated under the field “Alternative Quantity” on Comtrade.

**Table 3. List of WCO Recommended Quantity Units (RUs)**

| <b>Code</b> | <b>Abbreviation</b> | <b>Description</b>                               |
|-------------|---------------------|--|
| 2           | m <sup>2</sup>      | Area in square meters                            |
| 3           | 1000 kWh            | Electrical energy in thousands of kilowatt-hours |
| 4           | m                   | Length in meters                                 |
| 5           | u                   | Number of items                                  |
| 6           | 2u                  | Number of pairs                                  |
| 7           | l                   | Volume in liters                                 |
| 8           | kg                  | Weight in kilograms                              |
| 9           | 1000u               | Thousand of items                                |
| 10          | U (jeu/pack)        | Number of packages                               |
| 11          | 12u                 | Dozen of items                                   |
| 12          | m <sup>3</sup>      | Volume in cubic meters                           |
| 13          | carat               | Weight in carats                                 |



**Table 4. List of UNSD Standard Quantity Units (as of 12 June 2017)**

| Code | Abbreviation        | Description                                      |
|------|---------------------|--|
|      | A                   | All  |
|      | m <sup>2</sup>      | Area in square meters                            |
|      | BBL                 | Barrels  |
|      | hive                | Beehive  |
| 11   | 12u                 | Dozen of items                                   |
|      | kWH                 | Electrical energy in kilowatt-hours              |
|      | 1000 kWh            | Electrical energy in thousands of kilowatt-hours |
|      | km                  | Length in kilometers                             |
|      | m                   | Length in meters                                 |
|      | -                   | No quantity                                      |
| 5    | u                   | Number of items                                  |
|      | U (jeu/pack)        | Number of packages                               |
|      | 2u                  | Number of pairs                                  |
|      | TJ                  | Terajoule (gross calorific value)                |
|      | 1000u               | Thousand of items                                |
| 12   | m <sup>3</sup>      | Volume in cubic meters                           |
| 7    | l                   | Volume in liters                                 |
|      | 1000 m <sup>3</sup> | Volume in thousand cubic meters                  |
|      | 1000 L              | Volume in thousands of liters                    |
|      | carat               | Weight in carats                                 |
|      | g                   | Weight in grams                                  |
| 8    | kg                  | Weight in kilograms                              |
|      | 1000 KG             | Weight in 1000 kilograms                         |
|      | l alc 100%          | Litre pure (100 %) alcohol - l alc. 100%         |
|      | head                | Head   |
|      | kg/net eda          | Kilogram drained net weight                      |
|      | kg<br>C5H14ClNO     | Kilogram of choline chloride                     |
|      | kg P2O5             | Kilogram of diphosphorus pentoxide               |
|      | kg H2O2             | Kilogram of hydrogen peroxide                    |
|      | kg met.am.          | Kilogram of methylamines                         |
|      | kg N                | Kilogram of nitrogen                             |
|      | kg KOH              | Kilogram of potassium hydroxide (caustic potash) |
|      | kg K2O              | Kilogram of potassium oxide                      |
|      | kg NaOH             | Kilogram of sodium hydroxide (caustic soda)      |
|      | kg 90% sdt          | Kilogram of substance 90 % dry                   |
|      | kg U                | Kilogram of uranium                              |
|      | ct/l                | Carrying capacity in tonnes                      |
|      | Bq                  | becquerels                                       |
|      | gi F/S              | Gram of fissile isotopes                         |
|      | GRT                 | Gross register ton                               |
|      | GT                  | Gross tonnage                                    |
|      | ce/el               | Number of cells/elements                         |

## G. Gross and net weight

When reported by countries, UN Comtrade will now also disseminate gross weight, in addition to net weight. Gross weight is equal to net weight plus the weight of the shipping or cargo container. Comtrade will also publish the gross quantity unit (e.g., kg).

## IV. Improved Quantity Estimation for Commodities

Missing quantities for all commodities will now be estimated at the most detailed reported level (i.e., tariff line) for both net weight and primary supplementary quantity information (but not for the new data item, alternate quantity). Estimated records are clearly identified by an estimation flag/code. See [Annex 1](#) for technical notes regarding the methods of estimation.

Estimated quantities of limited reliability due to lack of sufficient information will be suppressed in UN Comtrade, but would be included in higher aggregation when applicable. Countries may also request to suppress certain quantity information due to confidentiality, which may be included in higher aggregation when applicable. In the case of extreme quantities that are obvious outliers, UN Comtrade will contact countries for clarification and possible correction; in the absence of feedback, the quantity information will be suppressed. Any estimated quantity is clearly identified by an estimation flag.

## V. Pre-aggregated data

UN Comtrade has been providing pre-aggregated (standard) data such as higher level of commodity aggregation (i.e., HS 2 digit), partner World and total exports (when re-exports data is reported). This data is intended for two main reasons: a) managing data confidentiality (i.e., aggregated data may contain less confidential information) and b) users' convenience (i.e., better response time when querying aggregated data such as total exports/imports). With the addition of new data items, pre-aggregated data is also available for 2<sup>nd</sup> partner country, mode of transport, and customs procedure codes at the highest level. Furthermore, even though aggregation is applied on both value and quantity, but not all levels of quantity aggregation are made available (see table below).

Table 5. Availability of Pre-Aggregated Data Based on Commodity Classification

|      | <b>Value</b>      | <b>Quantity</b>          |
|------|-------------------|--------------------------|
| HS   | Up to TOTAL level | Up to 4-digit level      |
| SITC | Up to TOTAL level | Up to 3-digit level      |
| BEC  | Up to TOTAL level | No quantity at any level |

## VI. Improved Conversions between Classifications

### A. Conversions for commodities

All commodity codes at highest level of detail are converted directly to other classifications in 1:1 relationships, based on conversion tables developed and made publicly available by UNSD.<sup>5</sup> Commodity classification conversions are usually applied from the latest classification to earlier classifications (called “backward conversion”). For consistency, datasets in converted classifications have the same totals as in the original classification, with the exception of SITC 1 (due to the exclusion of monetary and non-monetary gold).

Moreover, the new conversion methodology used in the UN Comtrade Processing System improves the conversion of residuals, or non-standard commodity codes. Previously, all residuals were converted into HS code 999999 (or SITC 9310 or BEC 7). In the new system, residuals are first individually mapped to an HS chapter, heading or sub-heading at the most detailed level possible and then converted to residual codes within the corresponding chapters in other classifications. This procedure reflects a major improvement, as it minimises loss of information in the converted classification.

When it is not possible to map a non-standard code to a specific chapter, heading or sub-heading, it is mapped to code 999999. It is worth noting that no residuals are disseminated on UN Comtrade, except for the special code 999999.

### B. Conversions for services

The conversion methodology between the two classifications for SITS, [EBOPS2002](#) and [EBOPS2010](#) (including [SDMX dimensions for EBOPS2010](#)) is based on the [IMF’s BPM5-to-BPM6 Conversion Matrix](#), as EBOPS 2010 aligns with the IMF’s BPM6 methodology and EBOPS2002 aligns with IMF’s BPM5 methodology. Some of the conversions for service categories are straightforward 1:1 relationships, while others are more complex formulas. UNSD has created a simplified EBOPS conversion table, which it has made publicly available.<sup>6</sup>

Similar to commodity conversion, backward conversion is applied – that is, from the latest classification (i.e., EBOPS2010) to the earlier classification (i.e., EBOPS2002). In the case of services, this is due to the fact that insufficient detail is available in EBOPS2002 datasets to convert to EBOPS2010 with any degree of reliability or accuracy. Several countries are still reporting data in the EBOPS2002 classification and therefore these data are only disseminated on UN Comtrade in EBOPS2002. For countries that report in data in the EBOPS2010 classification, the data are disseminated in both EBOPS2002 and EBOPS2010.<sup>7</sup>

Due to the changes in scope and methodology between EBOPS 2010 and EBOPS 2002, Total Services (code 200 or “S”) are different, mostly due to the fact that EBOPS2010 includes Manufacturing services on physical inputs owned by others; Maintenance and repair services n.i.e.; and Financial intermediation services indirectly measured (FISIM) – all of which were not part of EBOPS2002. Moreover, EBOPS2010 excludes net exports of goods under merchanting, which were previously included in EBOPS2002 under exports of Other Business Services.

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<sup>5</sup> The conversion tables and detailed conversion methodology are available on UNSD’s website at: <https://unstats.un.org/unsd/trade/classifications/correspondence-tables.asp>.

<sup>6</sup> <https://unstats.un.org/unsd/trade/classifications/correspondence-tables.asp>.

<sup>7</sup> This feature will be gradually accessible in 2019

Occasionally, certain conversions to EBOPS2002 cannot be completed due to lack of reported data. These instances are explained in the metadata.

## Annex 1. Quantity Estimation

Missing quantities for all commodities will now be estimated at the most detailed reported level (i.e., tariff line) for both net weight and primary supplementary quantity information (but not for the new data item, alternate quantity information). Estimated records are clearly identified by an estimation flag/code and are shown in italics on the results page on UN Comtrade, which can be downloaded as part of the data. That is, quantity items (WCO quantity units, alternate quantity units, net and gross weight)<sup>8</sup> are accompanied with an estimation flag.

Estimated quantities also include footnotes with the methods of estimation used, which can also be downloaded. The following classic estimation/conversion approaches are still being used:

- a) Mathematical conversion (pounds to kg)
- b) FAO conversion factor for selected commodities (i.e., 1 l of heavy cream = 1.02 kg)
- c) Imputation using current reported unit value data
- d) Imputation using Standard World Unit Value

Estimated quantities with limited reliability due to lack of sufficient information will be suppressed in UN Comtrade. However, those records are clearly identified in UN Comtrade Processing System by implementing a quality flag/code for audit trail.

### **1. Best possible use of information provided**

Estimation of quantity and net weight is the last resort. The following steps are undertaken to make the best possible use of the information provided by countries:

- a) When the data provided by countries is uploaded to the UN Comtrade processing system, the quantity units reported by a country are converted into one of twelve WCO recommended quantity units (RU). During this process, which is called code normalization, country-specific conversion factors may be applied to the supplementary quantities reported by countries. Such conversion factors can be mathematical or empirical. Countries are requested to establish and provide a comprehensive list of such conversion factors.
- b) Net weight is copied where applicable into the supplementary quantity, and vice versa, in cases where only one of them is reported.
- c) In some cases, mathematical conversion factors are used for quantity conversions in order to obtain WCO RUs. For example, the quantity unit *number* is converted to/from quantity unit *thousands* and to/from *dozen*; Kg is converted to/from *carat* and *liter* to/from cubic meter.
- d) Quantity conversion using empirical conversion factors is undertaken when there is no deterministic relationship between the provided quantity unit and RU. Non-standard quantities are converted into WCO RU by using specific (empirical) conversion factors for a limited number of commodities. This form of data conversion can be considered as estimation and the data is footnoted as estimates.

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<sup>8</sup> As of February 2019, estimation of quantity is applicable only for WCO quantity units and net weight

## **2. Estimation of quantity and net weight using statistical estimation methods**

Estimation of quantity and net weight is performed in two cases: i) when data has not been provided; and ii) provided data is disregarded as “it is considered an outlier”, or it does not conform with, and cannot mathematically be converted into an WCO RU. The aim is to estimate all quantity information that is not available i.e. to provide value added to users and to facilitate aggregation; however, only estimated quantity that reaches certain level of reliability will be shown in UN Comtrade.

The quantity or net weight provided that are considered outliers are blanked out and their values are estimated.

### **a) Using (partially) reported quantity and/or net weight in the same commodity flow (Weighted Unit Value):**

In order to use the (partially) reported quantity and/or net weight information as a reliable basis for estimating non-reported quantity and/or net weight within the same commodity flow (6-digit imports and exports) of a country, the trade value share of the data with properly reported quantity and/or net weight must pass a certain threshold, which is 20% for OECD and 50% for non-OECD countries. Nevertheless, even if it does not pass the threshold, the available information will still be used for estimation. In both cases a weighted unit value derived from the value/quantity or value/weight ratio of the properly reported data is used to estimate the missing quantity and weight information. However, the estimated quantity from a low trade value share is considered as not-reliable, and the estimated quantity is **suppressed** at public dissemination.

Trade data is often reported at a more detailed level than the 6-digit level for which WCO RU are defined and at which quantity and weight information is maintained in UN Comtrade. Quantities are estimated at the most detailed level of reported data. There are numerous cases where countries apply different quantity units within the same 6-digit commodity heading. In this case, the estimation is attempted first at tariff line level using a weighted unit value, and then the units are converted into standard units for aggregation.

### **b) Using Standard Unit Value (SUV)**

The so-called Standard Unit Value (SUV) is used to estimate net weight and quantity whenever Weighted Unit Value cannot be used (i.e., when partially reported quantity and/or net weight data do not meet the thresholds described above or when no such data is reported or available). SUVs at sub-heading level are calculated at the end of the year for all commodity flows at tariff line level using the available data of the latest reporting year. The Standard Unit Value of a specific commodity flow is defined as the median unit value of all reporting countries from the prior year after the elimination of outliers. SUVs are used for quantity and/or net weight estimation and detection of outliers in the data of the subsequent reporting year.