

Economic Statistics Department

International trade in goods statistics 2015

HA0201

This document gives an overview of the administrative and legal aspects of the statistical survey. The objectives of the survey are described and an account of the historical background is given. The content, reliability and design of the statistical survey are then described. It is possible to click on a heading in the table of contents and be directly transferred to the relevant section in the document.

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A Background/General information

A.1 Subject Area

Subject Area/Field of study: International trade in goods and services

A.2 Statistical Field

Statistical Field: International trade

A.3 Official Statistics of Sweden classification

Part of Sweden's official statistics? Yes

This statistical survey forms a part of Sweden's official statistics. The statistical survey therefore complies with the rules for quality and availability set out by the Official Statistics Ordinance (2001:100).

A.4 Responsible for the statistical survey

Government agency: Statistics Sweden, Foreign trade in goods and industry indicators unit

Postal address: Box 24300, SE-104 51 Stockholm

Visiting address: Karlavägen 100

Contact person: Maria Adolfsson

Phone: +46 8 5069 4725

E-mail: firstname.lastname@scb.se

A.5 National Statistical Institute

Government agency: Statistics Sweden, Foreign trade in goods and industry indicators unit

Postal address: Box 24300, SE-104 51 Stockholm

Visiting address: Karlavägen 100

Contact person: Maria Adolfsson

Phone: +46 8 5069 4725

E-mail: firstname.lastname@scb.se

A.6 Duty to report statistics

The obligation to provide information is stipulated by the following laws, ordinances and regulations and concerns all the requested information:

- The Official Statistics Act (SFS 2001:99) and the Official Statistics Ordinance (2001:100)
- The guidelines and regulations of Statistics Sweden (SCB-FS 2015:3) on statistical information concerning Sweden's trade with EU Member States (Intrastat)
- The guidelines and regulations of Statistics Sweden (SCB-FS 2010:16) on statistical information concerning specific movements of goods
- The guidelines and regulations of Statistics Sweden (SCB-FS 2010:17) on statistical information concerning trade broken down by invoicing currency

A.7 Confidentiality, rules and regulations for processing sensitive information

The rules concerning confidentiality in the production of statistics by government agencies are set out by Chapter 24, Section 8 of the Public Access to Information and Secrecy Act (2009:400).

The statistics published do not disclose the identity of any company. In accordance with the ordinance (1984:692) on Statistics Sweden's business register, aggregated statistics on exports and imports in terms of value (broken down by size classes) as well as on country level (grouped in eight areas) are delivered to the business register on an annual basis.

The principle of passive confidentiality is applied in the publication of statistics on trade in goods. This implies that an enterprise needs to contact Statistics Sweden and request confidentiality. If confidentiality is granted, the data of the enterprise in question will not be published on detailed level (commodity/country level).

There are two criteria used in assessing whether or not confidentiality should be granted. Confidentiality is granted if an enterprise requests confidentiality and fulfills one of the criteria. The first criterion refers to the number of reporting enterprises in a given period. If there are only one or two enterprises reporting information during a certain period, confidentiality may be granted. The second criterion is based on dominance. An enterprise is considered to be dominant if it represents more than of 50 percent of the trade value in a given commodity group or country. In addition to these two criteria there is a specific rule for the combination commodity/code country. If confidentiality is to be granted on this detailed level, the enterprise needs to represent more than 70 percent of the trade.

Information on the contact person at the individual enterprise is available in the statistical register. This information is confidential for 70 years. As set out by law (Personuppgiftslagen) an individual of the general public can request information from the register on him or herself.

A.8 Regulations and rules regarding the archiving of information

Archiving regulations are currently being developed.

A.9 EU regulations

The statistics on international trade in goods is governed by the following EU regulations with amendments:

Intrastat (intra-EU trade)

- European Parliament and Council Regulation (EC) No.638/2004 of 31 March 2004 on Community statistics relating to the trading of goods between Member States and repealing Council Regulation (EEC) No 3330/91
- Regulation (EC) No 222/2009 of the European Parliament and of the Council of 11 March 2009 amending Regulation (EC) No 638/2004 on Community statistics relating to the trading of goods between Member States
- Commission Regulation (EC) No 1982/2004 on 18 November 2004 implementing Regulation (EC) 638/2004 of the European Parliament of the Council on Community statistics relating to the trading of goods between Member States and repealing Commission Regulation (EC) No 1901/2000 and (EEC) No 3590/92
- Commission regulation (EC) No 1915/2005 of 24 November 2005 amending Regulation (EC) No 1982/2004 with regard to the simplification of the recording of the quantity and specifications on particular movement of goods

- Commission Regulation (EU) No 91/2010 of 2 February 2010 amending Regulation (EC) No 1982/2004 implementing Regulation (EC) No 638/2004 of the European Parliament and of the Council on Community statistics relating to the trading of goods between Member States, as regards the list of goods excluded from statistics, the communication of information by the tax administration and quality assessment
- Commission Regulation (EU) No 96/2010 of 4 February 2010 amending Regulation (EC) No 1982/2004 implementing Regulation (EC) No 638/2004 of the European Parliament and of the Council on Community statistics relating to the trading of goods between Member States, as regards the simplification threshold, trade by business characteristics, specific goods and movements and nature of transaction codes
- Commission Regulation (EU) No 1093/2013 of 4 November 2013 amending Regulation (EC) No 638/2004 of the European Parliament and of the Council and Commission Regulation (EC) No 1982/2004 as regards the simplification within the Intrastat system and the collection of Intrastat information
- Regulation (EU) No 659/2014 of the European Parliament and of the Council of 15 May 2014 amending Regulation (EC) No 638/2004 on Community statistics relating to trading of goods between Member States and regards conferring delegated and implementing powers on the Commission for adoption of certain measures, the communication of information by the customs administration, the exchange of confidential data between Member States and the definition of statistical value

Extrastat (trade with countries outside the EU)

- Regulation (EC) No 471/2009 of the European Parliament and of the Council of 6 May 2009 on Community statistics relating to external trade with non-member countries and repealing Council Regulation (EC) No 1172/95
- Commission Regulation (EU) No 92/2010 of 2 February 2010 implementing Regulation (EC) No 471/2009 of the European Parliament and of the Council on Community statistics relating to external trade with non-member countries, as regards data exchange between customs authorities and national statistical authorities, compilation of statistics and quality assessment
- Commission regulation (EU) No 113/2010 of 9 February 2010 implementing Regulation (EC) No 471/2009 of the European Parliament and of the Council on Community statistics relating to external trade with non-member countries, as regards trade coverage, definition of the data, compilation of statistics on trade by business characteristics and invoicing currency, and specific goods or movements

Nomenclature, goods

- Council Regulation (EEC) No 2658/87 of 23 July 1987 on the tariff and statistical nomenclature and on the Common Customs Tariff
- Council Regulation (EU) No 1325/2013 of 9 December 2013 amending Annex I to Regulation (EEC) No 2658/97 on the tariff and statistical nomenclature and on the Common Customs Tariff
- Council Regulation (EU) No 1326/2013 of 9 December 2013 amending Annex I to Regulation (EEC) No 2658/97 on the tariff and statistical nomenclature and on the Common Customs Tariff
- Commission Communication – code of conduct for the management of the CN
- Commission Communication – explanatory notes to the CN

Nomenclature of countries and territories

- Commission Regulation (EU) No 1106/2012 of 27 November 2012 implementing Regulation (EC) No 471/2009 of the European Parliament and of the Council on Community statistics relating to external trade with non-member countries, as regards the update of the nomenclature of countries and territories.

A.10 Objectives and background

The aim of the statistics is to describe Sweden's foreign trade in goods. The data is collected using two statistical systems: Extrastat and Intrastat. Information on value, quantity, commodity and country are collected and published each month. In addition, values on exports and imports in constant prices (volume of exports and imports) are published on a quarterly basis.

Statistics on international trade in goods have been produced in Sweden since 1732. The National Board of Trade was responsible for the statistics until 1962 when Statistics Sweden became the prime producer of trade statistics.

Before Sweden's accession to the EU in 1995 all statistics on foreign trade in goods in Sweden were compiled using administrative data from the customs. Intrastat was introduced when Sweden became part of the common market. Intrastat was developed by the EU and is an EU-wide statistical survey mirroring the structure of a customs based survey. Statistics on Sweden's trade with countries outside the EU (Extrastat) are still based on customs declarations for exports and imports of goods. There are some differences in the definition and number of variables between the two collection systems.

In connection with Sweden's accession to the EU the definition of partner country was modified. Before 1994 the partner country of imports was defined as the country of origin. This definition of partner country is not used in Intrastat where the partner country is simply the country of consignment. This implies that Sweden's imports from the EU from 1995 onwards cannot be compiled using the country of origin. It is therefore not possible to determine whether the origin of a good is another EU country or a third country using the current statistical system. This has resulted in Statistics Sweden only publishing data on imports using the country of consignment as the partner country. The definition of exports remains unchanged and statistics on exports broken down by country are therefore published using the same definitions as before 1995.

A.11 Users of the statistics

There are many users of the statistics on international trade in goods. Users include the National Accounts department at Statistics Sweden and government agencies. Data on international trade in goods is used to calculate the balance of payments and is reported to public bodies such as Eurostat each month.

Statistics on imports and exports of goods broken down by commodity codes are often used by decision makers in private companies, organizations and government agencies.

According to the EU Council of Ministers information on trade between Member States is essential to illustrate the development of the Single Market. Statistics broken down by commodity codes are needed to highlight the role played by different industry sectors in the common market and the Member States.

The users of the statistics include the organizations listed below.

- The Ministry of Finance, The Ministry of Enterprise, Energy and Communication and the Central Bank (Riksbank) use the statistics to make assessments, forecasts and decisions on economic and industrial policy.
- The statistics are valuable input to The National Board of Trade, the Swedish Customs, the Swedish Board of Agriculture and the National Food Agency to investigate and negotiate trade policy.
- The National Institute of Economic Research, analysts at banks, financial institutes, and industrial organizations make assessments and forecasts of economic developments in society using the statistics.
- The Swedish Trade Council and foreign enterprises, trade representatives of embassies use the statistics for market analysis and market surveys.

- The statistics are used in mass media to monitor markets and trace the development of Swedish trade in goods.
- The statistics are used in the educational sector by researchers and students.
- The statistics are requested by the European Central Bank, the United Nations and Eurostat (the statistical body of the EU).

A.12 Survey design and implementation

Intra-EU trade (Intrastat)

Intrastat is census survey with a cut-off. Data is currently collected from enterprises whose trade value to the rest of the EU exceeds 4.5 million SEK for arrivals and 9.0 million SEK for dispatches. Data is collected on a monthly basis and the survey population is determined using information on VAT declarations submitted to the Swedish Tax Agency.

In 2014 intra-EU trade constituted 58 percent of total export value from Sweden and 69 percent of total import value.

Sweden's trade with countries outside the EU (Extrastat)

Extrastat is based on administrative records from the Swedish customs delivered to Statistics Sweden on a monthly basis. The information delivered to Statistics Sweden is based on the customs declarations (both imports and exports) of enterprises importing or exporting goods from or to a country outside the EU. Extrastat can therefore be seen as a census.

In 2014 Extrastat constituted 42 percent of total export value from Sweden and 31 percent of the total value of imports.

Specific goods and movements (separate collection)

In addition to the information collected using Extrastat and Intrastat, international trade in goods statistics includes information on specific goods and movements. The information on specific goods and movements is collected using a separate survey that has been designed to collect information on goods that are difficult to capture using Extrastat and Intrastat. This is in line with EU regulations stipulating the use of a separate survey to collect information on these goods. In total, ten types of commodities are categorized as specific goods and movements: industrial plants, vessels and aircraft, goods delivered to vessels and aircraft, electricity and gas, sea products, goods to or from offshore installations, military goods, vehicle and aircraft parts, spacecraft and staggered consignments.

The separate survey covers the following goods: industrial plants, vessels and aircraft, goods delivered to vessels and aircraft, electricity and gas, sea products and goods to or from offshore installations. The information collected on these goods is continuously assigned to the

Intrastat and Extrastat systems. The four remaining product areas (military goods, vehicle and aircraft parts, spacecraft and staggered consignments) are collected using the Intrastat and Extrastat systems.

A.13 International reporting

The statistics are reported to various international organizations and bodies including Eurostat and the UN. Data is delivered at the end of each month for the month of reference and the period for which data has been revised. Updated data is delivered to the organizations following the revision of data for an entire year. Data is delivered to Eurostat using software provided by Eurostat (eDAMIS Web Application) and data to the UN is uploaded using a FTP-site hosted by the UN.

A.14 Planned modifications in future surveys

There is pressure to simplify the reporting requirements for smaller enterprises both at national and EU level.

A measure was recently taken to ease the administrative burden on enterprises with a low value of intra-EU trade. The threshold for arrivals was increased for companies reporting information from January 2015 onwards. The threshold value determines which companies are obliged to report data to Intrastat (intra-EU trade) and was raised from SEK 4.5 million to 9.0 million. This resulted in 2 500 companies reporting information on arrivals being freed from their duty to provide information. This simplification measure was carried out following a change in EU regulations lowering the coverage rate from 95 percent to 93 percent for arrivals.

B Quality declaration

B.0 Introduction

The statistics on international trade in goods consist of the two statistical systems: Extrastat and Intrastat.

- Trade with countries outside the EU (Extrastat).
 - A census based on registers and administrative records from the Swedish customs on import and export declarations.
- Intra-EU trade (Intrastat).
 - A census with a cut-off excluding enterprises below the threshold. Companies with a yearly trade over 4.5 million for deliveries to the EU (dispatches) and 9.0 million for deliveries from the EU (arrivals) are obliged to report information. The reporting obligation is based on information reported by the enterprise to the Swedish Tax Agency on EU trade.

B.1 Contents

A characteristic of foreign trade in goods statistics is the level of detail. The nomenclature used to describe the goods consists of approximately 9 000 commodity codes and 250 country codes. This results in the possibility of almost 2 million observations being reported each month.

1.1 Statistical parameters

Monthly imports of goods: Arrivals of goods from other countries

Monthly exports of goods: Dispatches of goods to other countries

1.1.1 Providers of statistical information (PSIs) and population

The PSIs are importing and exporting companies active in Sweden. The population of the statistical study consists of all active companies that import and/or export goods each month. Companies that trade temporarily are excluded from the population if the traded goods are not processed or taxed (for example transit goods).

Population exclusion criteria

Detailed statistics on commodity codes and countries are collected from companies trading above the thresholds (SEK 4.5 million annually for dispatches and SEK 9.0 million annually for arrivals) within the EU (Intrastat) each month. The thresholds are calculated in accordance with EU regulations stipulating that at least 93 percent of the value of arrivals and 97 percent of dispatches in Intrastat are covered by the statistical survey.

The reporting obligation of an enterprise is determined each month by calculating a value of trade for each company based on reported VAT values for the previous 12 months. This value is then compared to the thresholds to determine if the company is to be included in the statistical survey the given month.

There are no exclusion criteria for trade with countries outside the EU (Extrastat). All companies that have submitted an import and/or export declaration for a given month are included in the survey.

1.1.2 Variables

Statistics are published according to the most detailed level of the combined nomenclature (CN8), the trading partner (for exports the country of last known destination and the country of consignment for imports), the net weight, a supplementary unit for some commodity codes, the statistical value (free on board, FOB, for exports and cost, insurance and freight, CIF, for imports).

1.1.3 *Statistical measures*

The statistical measures in the survey consist of the net trade balance (exports – imports) for the reference period and the total values (in current prices) per commodity, country and flow for each reference month. Exports and imports in volume (constant prices) broken down by product areas are published on a quarterly basis.

1.1.4 *Classifications systems*

Trade statistics in Sweden are published according to the following classification systems:

- *Combined nomenclature (CN)*
 - The data is broken down into different levels of detail (2, 4, 6, 8) with CN8 being the most detailed level.
- *Standard International Trade Classification (SITC rev4)*
 - The data is broken down into different levels of detail (1, 2, 3, 4, 5) with SITC5 being the most detailed.
- *Swedish Standard Classifications of Products by Activity (SPIN 2007)*
 - The data is broken down into different levels of detail (1, 2, 3, 4, 5) with SPIN5 being the most detailed.

All data on trade in goods published in Statistics Sweden's statistical database is published on the basis of the country of consignment for imports and the country of last known destination for exports.

Information on the different classification systems is available in Swedish in the Classification Database under the heading 'Produktindelningar':

<https://www.h6.scb.se/metadata/classdb.aspx>

1.1.5 *Reference period*

The reference period for both the population and the variables is a given month. This implies that information is reported to Statistics Sweden on a monthly basis. The deadline for providing statistical information to Statistics Sweden is ten working days after the reference month.

1.2 **Comprehensiveness**

The variables collected for in the statistical survey on international trade in goods are stipulated by EU regulations. To ease the reporting burden of Intrastat, only the mandatory variables are collected by Statistics Sweden. This implies that the collected statistics do not meet the demands of all users. Variables currently not collected include the country of origin (for arrivals). Statistics on the nature of transaction are not published. These two variables are requested by some users.

Transaction types are one digit numbers collected to determine the type of transaction involved in the trade of goods. An overview of the nature of the transaction types is given below.

1. Transactions involving actual or intended transfer of ownership from residents to non-residents against financial or other compensation
2. Return and replacement of goods free of charge after registration of the original transaction
3. Transactions involving transfer of ownership without financial or in kind compensation (e.g. aid shipments)
4. Operations with a view to processing under contract (no transfer of ownership to the processor)
5. Operations following processing under contract (no transfer of ownership to the processor)
6. Particular transactions recorded for national purposes
7. Operations under joint defense projects or other joint intergovernmental production programs
8. Transactions involving the supply of building materials and technical equipment under a general construction or civil engineering contract for which no separate invoicing of the goods is required and an invoice for the total contract is issued
9. Other transactions which cannot be classified under other codes

B.2 Accuracy and reliability

2.1 Overall accuracy and reliability

Significant sources of uncertainty

Trade below the thresholds in Intrastat impacts the reliability and accuracy of the statistical survey. Systematic underestimation of the rapid estimate of trade (preliminary aggregated data) is a source of uncertainty. In addition, there is uncertainty associated with the coverage of the separate survey on specific goods and movements. This source of uncertainty is partly due to incomplete coverage of specific goods and movements.

A user of the statistics is primarily interested in understanding to what extent the statistics can be trusted in terms of the deviation by the estimated value from the target value. This section gives an overview of the impact of sources of uncertainty on the quality of the statistics.

Two different types of errors are used in assessing the impact of errors on the statistics: random errors and systematic errors. The random

errors cause random measurable uncertainty of the estimated results and systematic errors affect the results in a certain direction. The total error or the total uncertainty is the random error and systematic error combined.

Data specification

A specification error occurs when data specification is inadequate and inconsistent with respect to the objectives of the survey. A discrepancy therefore occurs between what the survey aims to measure and what is measured by the survey. In the context of the survey on international trade of goods a specification error occurs if there is a discrepancy between the statistical value and the invoiced value. The statistical value is measured according to EU legislation and invoiced value is partly captured by the survey.

International trade of goods publishes data according to the statistical value. This implies that costs for freight and insurance until the good reaches the Swedish border are included in the value. The data received from Swedish customs (Extrastat) are valued according to this principle. The data collected from the Intrastat survey are valued in invoiced value. Invoiced value implies that the value on the invoice is reported to Intrastat. The cost for freight and insurance are included in the value invoiced if these are included in the delivery terms stated on the invoice. To ensure consistency of the data collected by Extrastat and Intrastat, factors are used to convert the invoiced values into statistical values before publication.

The adjustment factors to calculate the statistical values are based on a survey carried out in accordance with EU recommendations every fifth year. This survey is only carried out in Member States where the statistical value is not collected each month. Calculating and not collecting the statistical value each month is a simplification measure to make it easier for companies to report information on international trade in goods.

A survey to estimate the adjustment factors was carried out in 2013. The survey was designed as a cut-off survey in which the companies representing 70 percent of the value were obliged to provide information. In addition, the medium sized and small enterprises were surveyed using a stratified sample and given the opportunity to provide information on a voluntary basis.

The National Accounts report data using invoiced values. This can lead to some deviations when the values from the international trade in goods survey are compared to the National Accounts. The deviation is estimated to be around 1.0 percent for the arrivals and -0.6 percent for the dispatches on aggregate level.

Accuracy and reliability on different levels of detail

The reliability and accuracy of the statistics varies across detailed commodity groups. The reliability and accuracy of the detailed statistics are highly dependent on the quality of the information provided by the enterprises. A difficulty encountered by many companies is finding the correct commodity code for a good. The system for the classifications of goods varies in difficulty across different commodity groups.

The statistics on more aggregate levels is more reliable and accurate than the detailed statistics. It is, however, difficult to discover systematic errors by large traders in terms of value. In addition, the separation between a good and a service is not always clear-cut. Software is an example of a good that contains both a service and a goods component.

The level of non-response varies across the product areas. Non-response is due to reporters not providing the requested information on time and trade below the thresholds. This is due to several reasons such as the characteristics of the companies reporting information within the product area (for example the size of the enterprises). The proportion of non-response and the estimated values therefore vary significantly between commodity codes and levels of detail.

There is uncertainty associated with the distribution of intra-EU trade by small traders (below the threshold) on goods and countries. This leads to reduced accuracy and reliability for information reported on product areas and countries with low values. Estimating trade on detailed level is difficult.

Revisions

Both preliminary and final data are published on international trade in goods statistics. Preliminary and rapid estimates (total of exports and imports, net balance of trade) are published 27 days after the reference month. Detailed data (good/country) are published approximately 57 days after the reference month. Exports and imports in volume (constant prices) broken down by product areas are published each quarter around 60 days after the reference period. More information on revisions is available in section 2.3 *Reporting of uncertainty measures* and 3.2 *Production time*.

The difference between the preliminary publication of detailed data and the last publication of data for 2013 was SEK-0.7 billion (-0.1 percent) for exports and SEK 6.1 billion (0.6 percent) for imports. It is worth mentioning that the data for 2013 may be revised again.

A project was carried out in 2011 to analyze revisions and revision policy. The study was titled *Improvement of the work on revisions in*

the Swedish external trade and the effect of estimates below the cut-off thresholds was examined in the study.

2.2 Sources of uncertainty

2.2.1 Sample selection

Sample selection bias is not applicable to international trade in goods statistics as the Intrastat survey is a census with a cut-off and the Extrastat survey is a census.

2.2.2 Frame coverage

Frame coverage bias in international trade in goods can occur due to the VAT register not being complete at the time of publication and organizational changes of individual enterprises. This affects the estimates below the cut-off threshold. An overview of the impact of the frame coverage bias on the accuracy and reliability of the statistics is given below.

The target population of the statistical survey is importing and/or exporting companies active in Sweden. The frame population for intra-EU trade (Intrastat) consists of enterprises reporting intra-EU acquisitions or intra-EU sales on the VAT declaration to the Swedish Tax Agency. The target population for trade in goods statistics for companies trading with countries outside the EU (Extrastat) consists of enterprises declaring trade with third countries to the Swedish customs.

The sample frame is flexible. This implies that enterprises are continuously included or excluded from the sample in according to certain conditions (for more information, see section 2.2.3 *Measurement*), which in turn may lead to some under-coverage or over-coverage for individual reporting months. Organizational changes at the level of individual enterprises (for example mergers) can contribute to under-coverage in the monthly publication. Information on addresses is retrieved from business register at Statistics Sweden.

At the time of the first publication, the information on the VAT declaration is not complete and statistical methods are needed to estimate the missing information. It is difficult obtain full accuracy concerning both the number of enterprises and the total trade value. The statistical methods used may lead to a slight underestimation of trade.

When data is first published, arrivals are underestimated by around 10-100 million SEK due to estimates below the cut-off. The corresponding figure for dispatches is 10-60 million SEK. As already mentioned the estimates are due to the VAT declarations not being

complete at the time of the first publication. The trade below the cut-off is estimated using reported values in VAT declarations and imputations of VAT.

Specific goods and movements

In addition to the information on imports and exports being collected through Intrastat and Extrastat, international trade in good statistics also includes information on some specific goods collected through a separate data collection. This data collection is used to capture goods that, due to their special nature, are not included in the other surveys. In accordance to current legislation these goods are collected in a separate survey. The separate survey covers the following goods: industrial plants, vessels and aircraft, goods delivered to vessels and aircraft, electricity and gas, sea products and goods to or from offshore installations. The information collected on these goods is continuously assigned to the Intrastat and Extrastat systems.

According to EU legislation ten product areas are classified as specific goods or movements. As mentioned above a special data collection system is used for six of these product areas. The four remaining product areas (military goods, vehicle and aircraft parts, spacecraft and staggered consignments) are collected using the Intrastat and Extrastat systems. Given that only six of the ten product areas are collected using a separate survey it appears reasonable to assume that there is some general under-coverage of specific goods and movements.

Information on the sample frame for vessels and aircraft is collected from the maritime and aviation register at the Swedish Transport Agency. The problem of under-coverage is relatively small for this product area. The degree of under-coverage in the product area deliveries to vessels and aircraft is unknown. No studies have been carried out to determine the size of the under-coverage of specific goods or movements.

A study titled *Evaluation of the collection system of the Swedish Specific Movements* was carried out in 2010.

2.2.3 *Measurement*

Known measurement errors

The largest known measurement error is due to inaccurate classification of goods according to the EU classification system on which the EU customs tariff is based (known as CN8 codes). Classification of goods at the most detailed level (8 digits) is time consuming making it difficult for companies to provide the requested information. This measurement error impacts the distribution of goods

in the statistics (the detailed statistics) but not the statistics on aggregate and country level.

The following less significant measurement errors are known to Statistics Sweden:

- Inaccurate reporting of triangular trade
- Trade of services being reported as trade of goods (and goods being reported as services)
- No trade being reported on the Intrastat declaration despite values for intra-EU sales acquisitions being reported on the VAT declaration
- Weight and/or supplementary unit being estimated instead of known by the enterprises
- Inaccurate reporting of the following:
 - Goods for processing
 - Financial or operational leasing
 - Inventory
 - Software

Statistics Sweden provides support to the reporters to make it easier to supply accurate information. Reporters find the level of detail (commodity code) to be the most difficult element to compile. The survey is regulated to a large extent by the EU making it difficult for Statistics Sweden to implement simplification measures that significantly reduce the response burden for the reporting enterprises.

Studies

The uncertainty due to measurement error in Intrastat and Extrastat has not been thoroughly investigated and is not highlighted by any previous studies. No studies have been carried out to examine this source of error. Studies in other areas have revealed some information about the measurement error due to inaccurate classification of goods.

A preliminary analysis of the size of the measurement error on aggregate level has been carried out in a record-check analysis. In this analysis the Intrastat declarations were compared to the information on intra-EU acquisitions and sales on the VAT declaration from the Tax Agency. The study showed a measurement error of -5 percent for arrivals and 2.5 percent for dispatches for a random month. The analysis was only carried out on data from one month making it difficult to draw conclusions about the size of the measurement errors. Suggestions have been made to further develop the work on measurement error in international trade in good statistics.

Data collection process

The survey collects information on companies trading with parties outside Sweden. Intrastat concerns intra-EU trade and the frame is based on information from the Tax Agency on intra-EU acquisitions and sales on the VAT declarations. As already mentioned Intrastat is a census with a cut-off in which information is collected from the largest companies (more information is available in section 2.2.1 *Sample selection*). Information on trade of Swedish companies with companies outside the EU, Extrastat, is based on information from the Swedish Customs and is a census.

All arrivals and dispatches of goods with a few exceptions should be reported by enterprises to Intrastat. Trade in services that do not consist of any good should not be reported to Intrastat.

Imports and Exports

Statistics on trade with countries outside the EU (Extrastat) are compiled using statistical processing of the administrative exports- and import declarations collected by the Swedish customs. The information on imports is of better quality than exports. This is due to the information on imports being prioritized by the Swedish customs to make sure that the correct duties are charged on imported goods.

Systematic and periodic errors in the reported information

In addition to the measurement errors mentioned above some systematic and periodic errors occur in the reporting. These errors are due to mistakes in interpreting the information supplied as well as limited resources at the enterprises. The errors are summarized in Figure 1.

Figure 1. Description of systematic and periodic errors in Intrastat and Extrastat and their effects

Description of systematic and periodic errors	Effect of the errors
Difference in aggregate value between publication of rapid statistics and the first publication of detailed statistics.	Systematic under-estimation by approximately 0.8 percent of Intrastat and around 0.3 percent of Extrastat.
Systematic over-estimation due to the trade of non-respondents being estimated based information in the VAT declaration. There are some difference in definitions between the VAT declaration and the invoiced value. The over-estimation is compensated by several methods being used leading to	Systematic over-estimation by approximately 0.1 percent.

better estimations.	
Systematic under-estimation of trade below the threshold at the first publication of the detailed statistics.	Systematic under-estimation by less than 0.1 percent.
Systematic under-estimation of Extrastat due to late respondents that can currently not be estimated at the first publication and the publication of the rapid estimate (net value of trade).	Systematic under-estimation of the rapid estimate by around 0.4 percent and by around 0.2 percent at the first publication.
Systematic under-estimation of the collected statistics at the first publication due to not all statistics being included by the enterprises in the first report. This trade is compensated by manual supplements but this is usually not enough.	Systematic under-estimation of approximately 0.3 percent.
Systematic errors in connection to the delivery of exports and imports in volume (constant prices) to the National Accounts. This issue is related to the preliminary statistics being underestimated at aggregate level as a result of the rapid estimate being used for the final month in the quarter of reference. In addition some systematic errors can occur as a result of inaccurate price indices. In connection to the delivery of invoiced values, the adjustment factors can result in systematic errors. This is related to the adjustment factors only being applicable at the level of goods and not countries.	It is difficult to estimate the impact of systematic errors on the detailed level. A good idea would be to create indices for international trade in goods and improve the adjustment factors for Extrastat using auxiliary information from the Swedish customs.

When information is reported electronically some automatic validation controls are carried out to prevent certain types of reporting errors such as erroneous commodity codes or country codes and missing values or negative values. The uncertainty is assessed to be the greatest on the least aggregate levels (combination of CN8/country).

2.2.4 *Non-response*

Non-response consists of the information not received from companies obliged to provide information to Intrastat at the first publication (around 49 days after the reference period) and trade

below the cut-off in Intrastat (insufficient coverage of the companies below the cut-off).

Reporters that have not submitted their Intrastat declaration for a given month receives a reminder 20 days after the end of the month. To reduce the non-response a follow-up process including penalties is applied systematically in Intrastat.

Some evaluation studies have been carried to estimate the error due to non-response. One study was carried out in which two criteria on aggregate level were developed and assessed:

- The annual relative difference between the sum of the total reported values from late respondents and the sum of the estimated values should not exceed ± 5 percent
- The annual absolute difference between the sum of the reported values and the estimated values should not exceed 10 percent

The analysis revealed that the two criteria were not met. Some more work and analysis have been carried out to reduce the error but more studies are needed.

More information on the monitoring process for non-response is available in the report *Improvement of the Intrastat non-response monitoring in Sweden*.

2.2.5 *Data processing*

Data registration

The possibility to report information using a paper declaration was recently removed and from 2014 onwards only electronic reporting is available. Reporting information electronically minimizes the risk of validation errors as automatic controls are carried out during the reporting procedure enabling companies to correct the information provided.

Data editing

Following the automatic editing of the collected information, the data is edited at country level and commodity level (CN2 and CN4 level). The aim of this control is to find deviating values that affect the statistics on more aggregate levels.

Some automatic imputation is carried out in the current editing process on observations with low values. In Statistics Sweden's view this does not lead to greater uncertainty in the statistics.

Plans to reduce processing errors

Measures to reduce processing errors include performing automatic imputations to a greater extent than today. Manual resources should

focus more on monitoring the level of non-response and editing significant companies and goods in terms of value. In the longer run the possibility of implementing joint editing of Swedish data and the data of other countries and so carry out asymmetry studies will be investigated.

No study has been carried out to estimate the size of the processing error.

Studies

The following reports within the area of data processing are available:

- Increased Automation of the validation and correction processes in the Swedish Intrastat production (2005-8)
- A Selective Editing Method considering both Suspicion and Potential Impact, developed and applied (2006-3)
- Improving macro-editing in Intrastat (2012-02)

2.2.6 *Model assumptions*

Imputation methods

To compensate for unit non-response in Intrastat the imputation methods listed below are used. Method 12 is a partial imputation in which the imputed value is estimated using information provided by the reporting company. The most common method selected among the other methods is method 3 in which the reported VAT value is highly correlated to the Intrastat value.

List of imputation methods:

Method 1: Extrapolating without seasonal adjustment

Method 2: Extrapolating with seasonal adjustment

Method 3: Reported VAT value (intra-EU trade reported in the VAT declaration)

Method 4: Regression value

Method 5: Autoregression value

Method 6: Extrapolating according to ESM1

Method 7: Extrapolating according to ESM2

Method 8: Extrapolating according to ESM3

Method 9: Extrapolating according to ESM4

Method 10 Extrapolating according to ESM5

Method 11: Extrapolating according to ESM8

Method 12: Manual imputation (previously method 4)

Method 13: Average value imputation (previously method 5)

To estimate the trade below the thresholds one of the two imputation methods listed below are used.

- Estimates using VAT values (intra-EU trade reported on the VAT declaration)
- Average total enterprise values without a seasonal component

The total monthly trade of the company is first estimated. The estimates are then distributed on commodities and countries taking into account historical data of the company and the homogeneity in the structure of trade in goods.

More information on these methods is available in the report *Improvement of the Swedish rapid estimates in the foreign trade on commodities*.

The estimations of total values on enterprise level are carried out using sound information from the VAT declaration and historical data from the companies. There is, however, uncertainty associated with the distribution of trade of small enterprises (enterprises below the threshold) on commodities and countries. If historical data on the enterprise and information from the VAT declaration for a given period are missing a special method of imputation using mean values is applied. This method yields somewhat rough estimates and should be used restrictively.

Difficulties are encountered for companies that are not obliged to provide information and where historical data is missing. Estimations are then carried out using auxiliary information on the industry classification of the enterprise to according to the current Swedish Standard for Economic Activity, SNI 2007 (corresponding NACE Rev.2 2008). For small enterprises with diversified trade the estimations may be less accurate. This is due to the fact that a company can trade goods in other industries than the one they belong to according to the business register by Statistics Sweden.

The following reports on imputation methods are available:

- Survey on statistical value 2007 (2008:02)
- Evaluation of the estimation methods in the Swedish Intrastat System (2008:11)
- Improvement of the Swedish rapid estimates in the foreign trade on commodities (2008:12)
- Improvement of the estimation methods in the Swedish Intrastat system (2010:12)
- Improvement of the distribution keys for the estimated trade in the Swedish Intrastat system (2012:02)

2.3 Reporting of uncertainty measures

The first statistics published are the preliminary statistics (rapid statistics) and only consist of the aggregate values for imports and exports broken down by intra-EU trade and trade with countries outside the EU.

The rapid statistics of intra-EU trade consists of estimations based on reported information for a large proportion of companies trading within the EU. A measure has been developed to determine the uncertainty. The measure is the following: the largest proportion (95 percent) of the deviation between the rapid estimate and the actual estimate (the detailed statistics published a month later) should lie in the interval -2 billion/+1 billion for both imports and exports.

B.3 Timeliness and punctuality

3.1 Frequency

The reference period for the information collected is a calendar month. The information is collected and the statistics are produced on a monthly basis.

3.2 Production time

Preliminary rapid estimates (total exports, imports and the net balance of trade) are published 27 days after the reference month. The first publication of detailed information (good/country) is 57 days after the reference month. Exports and imports in volume (constant prices) broken down by product areas are published around 57 days after the reference quarter.

At the same time as the statistics for a month are published, previous months are revised. The period for which the statistics is revised varies but the most common is 3 months. In connection to the publication of the data for December in February the entire previous year is revised. In October all months of the given year and the previous year are revised. This results in final statistics of the previous year being published in October the subsequent year. However, revisions may be carried out for a period further back in time when needed.

3.3 Punctuality

The publications in 2014 followed the time table for the official statistics of Sweden. The publishing calendar for 2015 can be found on the website of Statistics Sweden using the following link:

http://www.scb.se/en_/Finding-statistics/Publishing-calendar/

B.4 Comparability and coherence

4.1 Comparability over time

Since 1995 there have been significant changes in the production of the statistics. It is therefore difficult to compare the statistics before 1995 with more recent statistics. From 1998 onwards enterprises report using invoiced values instead of statistical values. In recent years new Member States have joined the EU and therefore started collecting statistics using Intrastat. In May 2004 ten new Member States joined the EU and in January 2007 two countries joined the union. The union was further widened following the accession of Croatia in July 2013.

The classification systems of goods are reviewed from time to time leading to new versions of the nomenclatures. Each review leads to codes being removed, new ones being added and the content of codes being changed. The revisions occur at the same time as trade patterns change making it difficult to obtain long time series. Changes in definitions make the comparability between different time periods difficult. An example of this is the statistics on imports being based on country of origin until 1995 and on country of consignment from 1995 onwards.

4.2 Comparability between groups

The statistics comply with the standards of the UN and the EU. The statistical system Intrastat is applied in all EU countries.

4.3 Coherence with other statistics

The VAT declarations on EU-trade are used to estimate the values of non-respondents in Intrastat and to compare declared values in Intrastat.

The statistics on the production of manufactured goods (PRODCOM) is broken down by the same nomenclature (CN) as international trade in goods. This makes it possible to compare the statistics of exports, imports and production on good level.

B.5 Accessibility and clarity

5.1 Distribution channels

Statistical news, publications, the statistical database of Statistics Sweden, the Internet and Eurostats statistical database Comext that contains statistics on the trade of all EU countries.

5.2 Presentation

Statistical Reports:

HA22 Foreign trade. Exports and imports broken down by goods and countries (quarterly)

HA23 Foreign trade, Volume index (quarterly)

Sweden's Statistical Database (SSD):

Foreign trade, total including quick statistics (monthly)

Foreign trade, commodity groups according to CN broken down by countries (monthly)

Foreign trade, commodity groups according to SITC broken down by countries (monthly)

Foreign trade, commodity groups according to SPIN (quarterly)

Foreign trade, volume index according to SITC (quarterly)

Internet:

Statistics Sweden's website

Press releases (monthly and quarterly)

Statistical Reports (quarterly)

Tables and graphs

Exports, imports and net trade balance (monthly)

Exports and imports broken down by parts of the world (monthly)

Exports and imports of goods broken down by countries (monthly)

Exports and imports for important commodity groups according to SITC (monthly)

Exports and imports for important trading partners (monthly)

Exports and imports for important commodity groups according to SPIN (monthly)

5.3 Documentation

The documentation of the statistical register and the statistics produced are described in the document *Framtagning av statistiken (SCBDOK)* available in Swedish. The quality of the statistics is described in this document (*Description of the statistics*). Detailed information on micro-data is accounted for in the document *Statistikens detaljerade innehåll (MetaPlus)*. All documentation is available on the website of Statistics Sweden, www.scb.se/HA0201

References

Some documents that might be of interest are listed below.

Eurostat

- User guide on European statistics on international trade in goods
- Quality report on European statistics on international trade in goods

UN, International Merchandise Trade Statistics

- International Merchandise Trade Statistics: Concepts and Definitions (IMTS 2010)

5.4 Accessibility to micro-data

The primary material (micro-data) is stored in a PC environment. Processing of the primary material can be carried out to meet the request of the users. Micro-data without ID can be distributed for the purpose of research or policy if an application is made to Statistics Sweden and certain conditions are met.

5.5 Information services

General information and information on commissioned services is available. Please contact: Statistics Service (+46 85069 4801 or utrikeshandel@scb.se).

An on-call service for question on Intrastat reporting is available. Please contact Intrastat helpdesk (+46 85069 4400 or intrastat@scb.se).

Information on the Intrastat system (including information on the combined nomenclature) is available using the following link www.scb.se/intrastat