Survey on statistical value 2013

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Summary

Statistical value is reported to the EU and used for publication of Swedish statistics on imports and exports of commodities. Enterprises required providing data in the Swedish Intrastat system today, for reasons of simplicity, report monthly data on invoiced value, but not monthly data on statistical value. Instead Statistics Sweden (SCB) estimates statistical value based on a specific sample survey from which conversion factors are calculated. The conversion factors used today are not new, and harmonization and quality standards of Eurostat have been made more stringent. These facts together with the requirement for improvements to national economic statistics makes implementation of the survey on statistical value important.

This project deals mainly with a comprehensive survey of statistical value in Intrastat. Invoiced value refers to the amount invoiced inclusive of freight and insurance costs in cases where these are included in the invoice as set out in the terms of delivery. Statistical value is the value of a commodity inclusive of freight and insurance up to the Swedish border. For simplicity, only invoiced value is reported in the Intrastat system, whilst Eurostat requires delivery of statistical value. This survey aims at calculating the conversion factors (statistical value/invoiced value) which can then be used for estimating statistical value. Three surveys of this kind have been carried out earlier in Sweden and the survey was last carried out in 2007. The survey of 2013 covers compulsory enterprises with a threshold value corresponding to SEK 80 million (EUR 8.9 million) for arrivals and SEK 150 million (EUR 16.7) for dispatches. The threshold values should correspond to 70 percent of total arrivals and dispatches. This survey, however, has been supplemented by a selection of important enterprises with lower annual values than the threshold values, which should submit data on a voluntary basis. In this study Intrastat data for March 2013 was used as reference data for the survey, and was then supplemented by data on statistical value, mode of transport, and terms of delivery.

The unweighted response rate (in terms of PSI's) for compulsory data providers is 77 percent of the arrivals and 79 percent of the dispatches. In comparison with previous studies of the statistical value at Statistics Sweden, the 2013 study is based on responses received from the largest number of respondents (2,115). The weighted response rate (in terms of value) for the mandatory companies amounted to 82 percent of arrivals and 87 percent of dispatches. Almost 60 percent of the total trade value is collected within the study of 2013. The corresponding figure for 2007 years study is 66 percent. The smaller proportion of collected trade in the last study can be related to the possibility to report by the principle "Simplified reporting where only the largest transactions need to be reported".

About 82 percent of the possible country and commodity code combinations for arrivals will be estimated by the total conversion factor for arrivals, and 18 % of the combinations will be estimated at less aggregated levels. For dispatches, these values are 72 and 28 percent respectively. The proportions of codes that can be allocated by country level in the estimates (CN2 or CN8) now have increased to 10.5 percent of the codes. Earlier (according to the study in 2007) this share was 2.7 percent. This should mean that we now could have better reliability of the estimates at country level than before. The total ratio of the arrivals is larger than 1 and the total ratio of the dispatches is smaller than 1. LT, LV and LU show the largest ratios in the arrivals. In the dispatches CY, GR, IT and RO show the smallest ratios. CN2-codes 06, 07 and 08 seem to show the largest ratios of arrivals. In the dispatches the lowest ratios can be found in chapter 28, 39, 48 and 58.

As today we have access to voluntary reported invoice values on the import side of Extrastat. These data could be used to convert the statistical value in invoice value in Extrastat for the deliveries to the National Account department (NA). Moreover, we receive this data monthly from as many as 18,000 import companies, and the conversion factors could be based on much more data than the 2,100 Intrastat companies that we have today based on a study not very often made. In the same time our conversion factors here are based on Intrastat trade. After having studied our particular data and its quality in terms of reliability, we can suggest to utilize current Extrastat data monthly, instead of using fixed factors from Intrastat in the calculations of invoice value for the quarterly NA deliveries of the import figures.

1 Introduction

1.1 Background

Data in the Swedish Intrastat system are collected on invoiced value instead of on statistical value, for reasons of simplicity. The invoiced value collected is then converted to statistical value using special conversion factors. The conversion factors are calculated using a sample survey carried out by Statistics Sweden. This survey was last carried out during the spring of 2007. Member states that choose to carry out sample surveys instead of continuous monthly collection of statistical value, in order to remain up-to-date, should carry out the study at least every other year. The conversion factors currently used are old. It is therefore time to carry out the study again.

1.2 Objectives

The overall objective of this project is to improve the accuracy of the conversion factors and to update them to enable the calculation of accurate statistical values. Another objective is to develop estimations for the statistical value of the underlying commodity groups. There are a large number of chapters for which there is not sufficient information at the current time for estimations via chapter-based conversion factors. "Rough" estimates are done instead for some of the chapters, using total flow-specific conversion factors.

1.3 Human resources used

The project began in January 2013 and was completed in November 2013. The work was carried out by Frank Weideskog (project leader) along with Can Tongur from the Method unit Enterprises and Organisations, Jennie Bergman, Ebba Hartzell, Kevin He and Runo Samuelsson at the Foreign Trade and Industry Indicators unit, Marie George at the Collection unit and Tord Axelsson from the IT department.

1.4 Description of the operation

The project can be divided into two different stages. Stage 1 refers to the period January 2013 – June 2013 and stage 2 refers to August 2013 – November 2013. An introductory administrative briefing meeting was held, followed by 10 project group meetings. During the project control meetings were also held between the project leader and the customer (head of Foreign Trade and Industry Indicators unit at Statistics Sweden).

The following main tasks have been carried out in the project:

- ✓ Outline and evaluate the conversion factors, and criteria for these, that are currently used in the Swedish estimation system for Intrastat.

- ✓ Carry out a survey in which statistical values are collected from all larger respondents, combined with a sample of smaller enterprises.

- ✓ Develop a control system for checking the collected survey data.

✓ Investigate the possibility of using supplementary auxiliary information from the Customs for improving the deliveries to the Swedish National Account department

✓ Improve and assure the quality of the conversion factors.

✓ Improve the methods to provide the possibility of estimating the statistical value of more commodity groups at lower levels than those currently used.

✓ Implement new routines and follow-up procedures.

✓ Carry out the necessary changes to the national estimation system for Intrastat.

The project seeks to implement new and improved methods for estimating conversion factors and, thereby, the production of more accurate statistical values. Facilitate more reliable estimates at lower commodity group levels and indirectly contribute to making it possible to estimate the statistical value at company level.

2 The Swedish Intrastat system

2.1 General description

The Intrastat survey is a monthly collection of arrivals and dispatches of commodities within the European Union (EU). It takes the form of a 'cut-off' survey, in which 97 percent of the dispatches on goods and 95 percent of the arrivals on goods within the EU should be included and the rest should be estimated. From 2009, Sweden has threshold values of SEK 4.5 million (EUR 484,000) for both arrivals and dispatches. Coverage in the Swedish Intrastat system in 2012 (last figures) is 96.3 percent in the arrivals and 98.2 percent in the dispatches. The Intrastat threshold is defined as a continuous twelve-monthly value based on VAT data. An enterprise that is not required to report information can only be identified as such after delivery of VAT details from the Swedish National Tax Board. The enterprise will then be notified of its obligation to report and will receive information on what this involves.

The Intrastat data to be submitted are member state of arrivals/dispatches, nature of the transaction, statistical commodity code, supplementary unit, net mass and invoice value. It should be noted that supplementary unit and net mass are not required for some commodity codes.

Information can be submitted on a paper form, or via electronic media such as IDEP (Intrastat Data Entry Package). About 90 percent of the providers of statistical information (PSIs) currently report Intrastat electronically today. The last day for reporting is 10 working days after the end of the accounting period (month), in accordance with a specific timetable. Companies reporting via the electronic media have however one extra day to submit their information.

Intrastat data are expected from about 14,000 PSIs, or 12,000 individual companies, which are together responsible for more than 400,000 commodity items each month. Every year, about 72,000 VAT registered Swedish enterprises make some form of commodity transaction with another EU Member State, and 48,000 of these have regular EU trade every month. VAT data are supplied to Statistics Sweden from the National Tax Board once a week.

Aggregated Intrastat data are delivered to Eurostat about 27 days after the reporting month and detailed Intrastat data about 57 days after.

2.2   Description of the present Swedish statistical value

This section gives an overview of the present statistical value used in the Swedish Intrastat system. The statistical value is thus collected not on a monthly basis in the Swedish Intrastat system, but calculated from a sample survey based on earlier reported data for a given Intrastat month. The survey was last carried out in 2007.

2.2.1 Definitions

A. Definition of the requirement to submit data for the survey:

Intrastat is based on international regulations (Commission Regulation no. 1982/2004, Regulation (EC) No. 638/2004 of the European Parliament and of the Council, and Statistics Sweden's national regulations (SCB-FS 2004-23). According to the regulations, each member state shall report statistical value to Eurostat on a monthly basis. In order to simplify collection for data providers, since 1997 Sweden has collected invoice value on a monthly basis, and then a sample survey where the statistical values are collected. The requirement to submit this data is laid down in Section 3 of SCB's Code of Statutes (SCB-FS 2004:23):

"Those obliged to provide data under Section 1, with annual dispatches of SEK 150 million (EUR 16.7 million) and annual arrivals of at least SEK 80 million (Euro 8.9 million), shall when requested by Statistics Sweden provide additional information for an earlier reported month on statistical values for the reported commodities." The threshold values in Section 3 above follow the Eurostat User Guide that the survey should concern enterprises which in total make up 70 % of total arrivals and dispatches in Intrastat.

B. Definition of the supplementary collection variables:

The survey is based on a previously reported Intrastat period for which the information is to be supplemented with data on statistical value and variables such as terms of delivery and mode of transport.

Invoiced value and statistical value

Invoiced value refers to the amount invoiced inclusive of freight and insurance costs in cases where these are included in the invoice as set out in the terms of delivery. Statistics Sweden then converts, using special conversion factors, invoiced values into statistical values, which is the value of the commodity inclusive of freight and insurance up to the Swedish border. Concerning arrivals, statistical value = purchasing price + freight and insurance costs up to the Swedish border (i.e. CIF terms of delivery). For dispatches, statistical value = sales price + freight and insurance cost up to Swedish border (i.e. FOB terms of delivery). Statistical value includes freight and insurance costs, but only up to the Swedish border. Statistical value is calculated on the basis of the enterprise's terms of delivery.
In such cases where the reporting enterprise bears the whole of the freight and insurance cost as per the terms of delivery, the enterprise must deduct that part of the cost concerning transport after the commodity has arrived (arrivals) and left (dispatches) the Swedish border.

The following simple rules of thumb can be applied according to freight and insurance costs connected to the invoice value/statistical value:

- If freight and insurance are not included in the invoiced value:
  statistical value > invoiced value

- If freight and insurance are included in the invoiced value:
  statistical value < invoiced value

- If freight and insurance are included in the invoiced value, but only up to the Swedish border:
  statistical value = invoiced value.

Terms of delivery

The different terms of delivery used are specified in the Incoterm Rules according to the International Chamber of Commerce. The aim of Incoterms is to standardize the application of a number of international rules for the interpretation of the most common foreign trade terms, and terms of delivery in foreign trade. Uncertainty over the interpretations of such terms in different countries can thus be avoided or at least significantly reduced. It should be emphasized that the scope of Incoterms applies to the rights and obligations of the parties to a purchasing contract with respect to deliveries of sold commodities, which are physical products. The terms of delivery used are:

CFR, Cost and Freight
CIF, Cost, Insurance, Freight
CIP, Carriage and Insurance Paid To
CPT, Carriage Paid To
DAP, Delivered At Place
DAT, Delivered At Terminal
DDP, Delivered Duty Paid
EXW, Ex Works
FAS, Free Alongside Ship
FCA, Free Carrier
FOB, Free On Board

A more detailed description of the different terms of delivery is given in Appendix 1a.

Mode of transport

The mode of transport, being the active mode of transport over the Swedish border, is a variable which can provide useful information when calculating the statistical value. The codes are specified in Appendix 1b.

2.2.2 Earlier surveys of statistical value at Statistics Sweden

In order to simplify the process for data providers, and instead of continually collecting monthly data on statistical value, a sample survey was introduced in Sweden to calculate conversion factors between the statistical value and the invoice value. The threshold values applied to these providers required for reporting in this survey (see section 2.1.1) on statistical value in Sweden where in previous studies 60 million of SEK for arrivals (6.7 million EUR), and 100 million of SEK for dispatches (11.1 million EUR). In the study conducted in 2013 the thresholds have been increased to 80 million of SEK for arrivals (8.9 million EUR), and 150 million of SEK for dispatches (16.7 million EUR).
These thresholds should correspond to 70 percent of total arrivals and dispatches in the Swedish Intrastat

trade. This survey was carried out the first time in 1997 and last time in 2007. In the 2007 and 2013 surveys both mandatory PSI's and optional PSI's were included in the surveys.

Table 1:

Previous surveys of statistical value conducted by Statistics Sweden

Previous surveys	Reference month	Number of companies in the survey	Response rate (PSI's)
1997	August	1,189	36 %
2000	March	1,389	75 %
2007	March	3,304 (including optional PSI's)	78 % (mandatory)

2.2.3 Mapping and evaluation of the current conversion factors

At present the following estimation levels are used for the conversion factors for different flows (arrivals/dispatches):

- Total level
- Chapter level
- Commodity code level (CN8)

The chapters and CN8-codes can then be distributed by partner country.

In Table 2, it can be seen that 74 percent of the possible country and commodity code combinations for arrivals will be estimated by the total conversion factor for arrivals, and 26 % of the combinations will be estimated at less aggregated levels. For dispatches, these values are 72 and 28 percent respectively. In total almost 8 percent of all possible codes were estimated at the commodity code level or the combination, commodity code and country code.

Table 2

Distribution of estimation levels in the frame table

Level of estimation	Arrivals	Percent	Dispatches	Percent
CN8 & Country	1,826	0.7	2,421	0.9
Chapter & Country	107	0.0	3,238	1.1
CN8	17,957	6.5	19,967	7.3
Chapter	51,564	18.8	50,117	18.3
Total level	202,974	74.0	198,685	72.4
Sum of total	**274,428**	**100 %**	**274,428**	**100 %**

3 Project activities

This chapter describes the main activities of the project. The most widespread activity described in this project report is the survey on statistical value 2013. Improving internal deliveries from the Foreign Trade Unit to the Swedish National Accounts are also covered in this section.

3.1 Swedish survey on statistical value 2013

This section describes the survey on statistical values for 2013. The reference period for the survey is March 2013.

3.1.1 Procedure

In the first stage of the survey, a register was drawn up for those enterprises that initially was implemented in the frame regarding participation in the survey. Earlier, it was mentioned that the requirement to provide data for the survey applies, if the enterprise has annual trade exceeding EUR 16.7 million for dispatches, and/or EUR 8.9 million for arrivals. The sub-stages of the survey are shown in Table 3.

Table 3

Sub-stages in the survey on statistical value 2013

Sub-stages	Start month	Final month
1. Determining a register with mandatory companies	January	January
2. Consultation with NNR	January	January
3. Notification mail 1 (mandatory companies)	January	January
4. Determining the sample framework (mandatory and optional companies)	January	February
5. Notification mail 2 (mandatory and optional companies)	March	March
6. Establishment of a help desk	March	April (August)
7. Establishment of a web form and routines for non-valid values	March	May
8. Establishment of an IT environment for the survey	March	May
9. Survey mail out (including simplified reporting for some PSI's)	May	May
10. Mail reminder	June	June
11. Checkings and contact	June	September
12. Automatic imputation and outlier detection	September	September
13. Analysis and methods	September	October
14. Production of results	October	November

This survey has also been supplemented with smaller companies, where annual values are less than the thresholds according to mandatory obligation to report. These companies are not required to provide data other than on a voluntary basis. The following approaches were used for the two groups:

1) The largest enterprises in value terms (requirement to provide data):

Intrastat enterprises which have annual dispatches (invoiced value) of at least EUR 16.7 million, and/or EUR 8.9 million for arrivals based on trade in 2011, are required in accordance with Section 3 of Statistics Sweden's Code of Statutes (SCB-FS 2004:23) to provide data for a reported Intrastat month, as well as report data on statistical value. This threshold value is set to correspond to 70 percent of the total arrival and dispatch value in Intrastat. There were about 1,400 unique enterprises in this group.

2) Selected sample of enterprises not covered in 1) (voluntary)

Important Intrastat enterprises for some important commodity groups, but which do not belong to the group of the 70 percent of largest enterprises, and which are not covered by the requirement to provide data. About 2,000 unique enterprises were in this group.

For practical reasons, target groups in the survey are restricted only to Intrastat PSI's required to provide data.

Table 4 shows the distribution of the number of companies and the providers in Intrastat for March 2013, distributed by voluntary and compulsory companies/providers. The first version of the register on data providers was established in January 2013, and the first notification letter on a forthcoming survey was sent after consultation and approval had been given by NNR (Board of Swedish Industry and Commerce for Better Regulation).

Table 4
Distribution of voluntary and compulsory data providers in the survey in 2013

	Number of companies	Number of providers to contact
Mandatory	1 363	1 852
Optional	1 999	2 155
Number in total	**3 362**	**4 007**
Number of unique companies	**3 201**	

The data providers would thus supplement earlier reported Intrastat data for March 2013 with data on statistical value, mode of transport and terms of delivery at the commodity item level used for ordinary Intrastat data reporting. Around 4,000 data providers received a letter on the forthcoming survey. The letter contained information on the aim of the survey, and supplementary information on the survey (codes for mode of transport, terms of delivery etc.) was published on the Swedish Intrastat web site by a help desk created specifically for the survey with a group telephone number and an e-mail address.

In the beginning the idea was that the survey should be carried out entirely via the ordinary web system over the Internet . The number using this part of the web system with manually entering of data was limited specifically to those data providers with the lowest number of commodity items. It was decided that the maximum number of commodity items should be limited to fifty pieces. If an enterprise reporting more than fifty commodity items for any of the flows, it was decided that the it would not use the ordinary web, but instead use a sort of Internet Excel template built in the web for reporting the data to the system.

It should be emphasized that both reporting solutions were run under strict confidentiality, and data providers were allocated unique user IDs and passwords to access data they had provided earlier, and to report the supplementary variables.

It was possible to submit a request for an exemption to be followed by a decision from Statistics Sweden. The data providers, who requested exemption and who at the same time belonged to the category of voluntary data providers, were removed from the survey, but briefly interviewed and asked if they were prepared to answer a simplified questionnaire. The enterprises could also request for a respite and submit data after the deadline.

The PSI's had the possibility to choose among the following principles to simplify their reporting:

<u>1) Reporting via a simplified questionnaire on delivery terms</u>
The PSI should report their estimated proportion EU trade per terms of delivery for March 2013. About 10 PSI's used this reporting principle.

<u>2) Simplified reporting where only the largest transactions need to be reported</u>
In order to decrease the number of observations to report, a routine with a company related threshold applied to coverage of at least 90 percent of the arrivals and dispatches of the 2011 EU trade was established. The required coverage for using this principle should then correspond to individual thresholds for each company for each flow. The principle could only be used for companies having at least 500 commodity rows to report. In total about 15 large PSI's used this principle to report their figures.

<u>3) Reporting of another (nearby) reference period than 201303</u>
The principle was used by only one PSI.

After the deadline had passed, a reminder was sent out in the middle of June to those companies required to submit data, but which had not yet done so. Checking and imputation routines were developed during June-September, and a limited number of contacts were made with some of the data providers. During September and October the final stages of the work on analysis and methods were carried out and estimation levels decided on. The final phase of the survey was then carried out during October and November when final work on the project report was completed.

3.1.2 Data in the survey

In total the frame value in the survey of the actual collected in the ordinary Intrastat collection covers 82 percent of the arrivals and 83 percent of the dispatches. The proportion collected value in the survey related to actual collected Intrastat value for March 2013 at the time of first publication is 63 percent in the arrivals and 69 percent in the dispatches. In the same way for the same period, the percentage value collected in the survey related to the total Intrastat value (collected+ estimated trade) is 61 percent in the arrivals and 68 percent in the dispatches.

Tables 5 - 6 report the number of reported data providers and reported values in the survey, as well as their response rates, by media and type of data provider (mandatory/optional).

Table 5
Response rate in number and type of data providers by media

Media	Mandatory	Optional	Total
Web, arrivals	636 (77.2%)	392 (32.5 %)	**1,028 (50.6 %)**
Web, dispatches	258 (80.9 %)	205 (32.2 %)	**463 (48.5 %)**
Web, total	**894 (78.2 %)**	**597 (32.4 %)**	**1,491 (50.0 %)**
Web_Excel, arrivals	347 (77.6 %)	14 (16.3 %)	**361 (67.7 %)**
Web_Excel, dispatches	201 (76.7 %)	62 (27.3 %)	**263 (53.8 %)**
Web_Excel, total	**548 (77.3 %)**	**76 (24.3 %)**	**624 (61.1 %)**
Total, arrivals	**983 (77.3 %)**	**406 (31.4 %)**	**1,389 (54.2 %)**
Total, dispatches	**459 (79.0 %)**	**267 (30.9 %)**	**726 (50.3 %)**
Total, total	**1,442 (77.9 %)**	**673 (31.2 %)**	**2,115 (52.8 %)**

The response rate in the number of data providers in the survey amounted to a total of 53 percent, but what is perhaps most interesting to study is the response rate for compulsory data providers; for arrivals the

response rate was 77 percent and for dispatches 79 percent. The response rate amongst voluntary enterprises was not unexpectedly, very low (31 percent). In comparison with previous studies of the statistical value at Statistics Sweden, the 2013 study is based on responses received from the largest number of respondents (2,115).

Table 6
Response rate in the survey of invoiced values (EUR, millions) by media and type of data provider

Media	Mandatory	Optional	Total
Web, arrivals	78,8 %	32,1 %	**74,8 %**
Web, dispatches	91,5 %	36,3 %	**87,7 %**
Web, total	**85,6** %	**34,1** %	**81,6 %**
Web_Excel, arrivals	84,4 %	18,4 %	**83,7 %**
Web_Excel, dispatches	81,1 %	34,2 %	**78,7 %**
Web_Excel, total	**82,9** %	**31,1** %	**81,4 %**
Total, arrivals	**81,8** %	**30,5** %	**79,4 %**
Total, dispatches	**86,6** %	**35,5** %	**83,6 %**
Total, total	**84,2** %	**33,3** %	**81,5 %**

The response rate by value for the mandatory companies amounted to 82 percent of arrivals, 87 percent of dispatches, and in total 84 percent.

Validation concerning statistical values, mode of transport, terms of delivery, commodity and country codes was carried out. Validation checking was done mainly on an automatic basis in SAS. An action check list containing large and deviating values was produced. The largest items in terms of value were chosen where the ratio between statistical value and invoiced value deviated by more than 25 percent.

Table 7 shows the distribution between the ratios of collected values. Outliers refer to commodity items where the ratio between the statistical value and the invoiced value deviates by at least 20 percent i.e. the factor lies outside the interval 0.8 – 1.2. The commodity items where the ratio between the statistical value and the invoiced value lies outside this interval were regarded as "outliers" and suspected to be incorrect.

These were then exempted. About 60 percent of the arrivals and 54 percent of the dispatches show ratios that are equal to 1 (statistical value = invoice value). About 5.4 percent of the observations lie outside the interval 0.8 – 1.2. These data are exempted and not included from any further analysis.

Table 7
Distribution of ratios for collected values

Ratio interval	Arrivals Frequency	%	Dispatches Frequency	%
<0.8	1,530	2.0	1,886	2.9
0.8 – 1	6,655	8.7	10,905	16.5
1	45,999	60.4	35,680	54.0
1 – 1,2	19,898	26.1	15,303	23.2
>1,2	2,036	2.7	2,238	3.4
Total	76,118	100.0	66,012	100.0

Appendix 2a-b show the share of incoming values on chapter level in the study, related to the total Intrastat trade in the reference month. Table 8 shows the most critical chapters in terms of low coverage (less than 25 percent of the trade), where the total value correspond to at least one million Euros.

Table 8
Critical larger chapters according to a lower coverage

Flow	CN2	Collected value in survey (1,000 EUR)	Total Intra value (1,000 EUR)	Coverage (%)
Arrivals	05	594	6,007	9.9
Arrivals	58	231	1,829	12.6
Arrivals	60	413	2 758	15.0
Arrivals	86	3,752	30,373	12.4
Arrivals	92	80	1,457	5.5
Dispatches	05	130	3,038	4.3
Dispatches	08	654	5,067	12.9
Dispatches	17	1,472	6,571	22.4
Dispatches	18	871	13,613	6.4
Dispatches	23	949	7,485	12.7
Dispatches	25	1,207	6,769	17.8
Dispatches	37	95	1,186	8.0
Dispatches	43	80	6,954	1.2
Dispatches	49	902	10,898	8.3
Dispatches	56	1,367	8,297	16.5
Dispatches	75	113	1,549	7.3
Dispatches	91	337	1,691	19.9

3.1.3 Estimating conversion factors for statistical value

This section covers the methodology applied to obtain the conversion factors for statistical value in the recent sample survey.

The conversion factor

The target parameter of interest for this survey is the ratio R_g between the surveyed statistical value S_g and the ordinarily collected invoiced value F_g.

The ratio, or conversion factor, can be determined on several levels, i.e. in different domains/groupings g,

$$R_g = \frac{S_g}{F_g},$$
(i)

where each grouping belongs to a specific level of aggregation used in the foreign trade of goods survey, $g \in G$. Since the survey of statistical value is sample based, the target parameter R_g must be estimated in most of the domains unless there is a complete enumeration in the sample of the corresponding grouping.

The goal of the survey of statistical value is to render conversion factors that may repeatedly, i.e. monthly, be used to convert the reported invoiced value to statistical value, hence the *target statistic* is the total monthly trade expressed in terms of statistical value.

Domains of study

It is desired to obtain conversion factors on most detailed level possible in each trade flow. The following five level ($G = 5$) grouping hierarchy, g=1, 2,..5, has been used, with level 5 being the finest grouping level and level 1 being the roughest grouping level of the information used for determining conversion factors. The hierarchy is stated as:

1) Flow
2) Flow, chapter (HS2)
3) Flow, CN8
4) Flow, chapter (HS2), country
5) Flow, CN8, country

Any combination of CN8 code and country code in any of the two trade flows (exports and imports) can be considered as a subdomain in the domain hierarchy listed above; $d(g) \in G$. As can be seen, grouping levels 3 and 4 could be interchanged; our choice is rather arbitrary but could be motivated by the intuitive claim that country, given a specific CN2 and in combination with terms of trade, may have a heavy impact on the target parameter statistical value, more than merely the CN8.

Bias in ratio estimation and sensitivity to large values

The ratio estimator (ii) is known to be adhered with bias, and especially in small samples the estimator is easily influenced by large values in either numerator or denominator. In terms of the foreign trade survey, a small sample impact can be found in subdomains, i.e. specific combinations of CN8 and country, in which there may be a varying trade value and/or a few high-valued transactions. In those subdomains, the impact of few or single observations can be substantial on the ratio estimate. If this is not a random circumstance, the impact should be considered as acceptable since this situation should be transferred to future conversions. However, if it is a random occurrence of a very high value, the subdomain estimate of the conversion factor will be biased and hence all future conversions will be biased. Thus, the potential bias of ratio estimation is acceptable for estimating the ratios in subdomains on level 5 since this is the most detailed level, whereas when constructing an estimator for the rougher levels, such biases risk accumulation

Sampling and estimation in a complex survey

The target parameter of this survey is the individual conversion ratios for each possible combination of CN8 and country, with the explicit requirement to cover as much of the total trade value as possible and also to cover exclusive/distinct commodity codes (CN8) as well as possible. This is a rather complex target parameter and the survey sampling has thus been adapted to embed these requirements.

The sampling procedure for the survey of statistical value is subjective but reminds closely of a one-step probability-proportional to size (πps) cluster sampling procedure in which the primary sampling units are PSI:s and the secondary sampling units are the trade transactions made by the PSI:s.

The sample selection has in practice been a take-all sampling approach for the largest traders, whereas smaller traders have been included similar to a stratified simple random sampling approach.

For a πps-design, inclusion probabilities are

$$\pi_i = nx_i / \sum_{i=1}^{N} x_i$$

where $n = E(n_s)$ is the expected sample size and x_i is the size variable available for each object in the frame (Särndal et al, 1992, p253). The ratio estimator is

$$\hat{R}_g = \sum_{i=1}^{n} \frac{y_i / \pi_i}{x_i / \pi_i} \qquad\qquad \text{(ii)}$$

based on the n_g sampled transactions belonging to a specific domain g, with y_i and x_i being the surveyed statistical value and the corresponding invoiced value, respectively, for the transactions included in the sample survey. The corresponding inclusion probabilities π_i are due to the sample design. Since the sample contains objects both with $\pi = 1$ and $\pi < 1$, the estimator can be restated as

$$\hat{R}_g = \sum_{i=1}^{n_g} \frac{y_i / \pi_i}{x_i / \pi_i} \qquad\qquad \text{(iii)}$$

for the n_j object that are sampled with certainty (i.e. the largest objects) and the n_i objects that are sampled with uncertainty.

For rougher level groupings, i.e. aggregates of the finest-level groups, the conversion ratio can be presumed to vary more compared to *within* a specific combination of CN8 and country. In such a case, Särndal et al. (1992, p. 269) propose the *separate ratio* estimator

$$\hat{t}_{S,d(g)} = \sum_{g=1}^{d(g)} t_{F,g} \frac{\displaystyle\sum_{i=1}^{n_g} \frac{S_{i,g}}{\pi_{i,g}}}{\displaystyle\sum_{i=1}^{n_g} \frac{F_{i,g}}{\pi_{i,g}}}, \qquad\qquad \text{(iv)}$$

which implies a weighing of subdomains $d(g)$ belonging to same domain at any domain level $g \in G$.

For the subdomains on the rougher levels (1-4) in the hierarchy, a slight modification of the estimator (iv) is proposed, in effect being a weighted arithmetic mean value of observations on level 5 that aggregate to the target subdomain $d(g)$ on desired level. This is constructed as

$$\hat{r}_{d(g)} = \left[\sum_{m=1}^{M} I_m \left(\sum_{j=1}^{N_g} F_{i,m} \frac{\displaystyle\sum_{i=1}^{n_g} S_{i,m}}{\displaystyle\sum_{i=1}^{n_g} F_{i,m}} \right) \right] \times \left[\sum_{m=1}^{M} I_m \sum_{j=1}^{N_g} F_{i,m} \right]^{-1}, \qquad \text{(v)}$$

where I_m is an indicator function taking the value 1 if a level 5 subdomain m belongs to the target subdomain $d(g)$ of interest. This is a weighing of the conversion factor for all subdomains on level 5 that have reported statistical value and belong to the target subdomain, and the weight is the respective total trade observed on the specific level 5.

As an example, consider a specific CN2, denoted by $d(g)$. Trade transactions constitute combinations of CN8 and country, i.e. are a subdomain m on the finest level (=5) and at the same time, they belong to a specific CN2 due to the CN hierarchy. Each m is estimated as a ratio and is weighed with the subdomains' total trade on level 5. The subdomain may or may not have been covered completely in the sampling.

These weighted ratios are then normalized to an average ratio of the obtained sample by division with the sum of weights, which the total trade of all the contributing domains *m* for the observed commodities in the sample survey.

Quality requirements in estimations

Specific criteria have been set up to decide what level of estimation each reported item is sufficient for. Enterprises may have more than one commodity and a constant ratio, often one (=1) between statistical value and invoiced value. This may be due to terms of trade, or due to difficulties in separating the term of trade related cost for each item in their trade. These circumstances have been accounted for in estimations since such constant ratios may lack information for estimations on more detailed levels. On the lowest level 1, total arrivals or total dispatches, all observations are used for estimating the conversion.

With our methodological approach the estimation levels for 2013 are decided according to Table 9.

Table 9
Distribution of estimation levels in the frame

Level of estimation	Arrivals	Percent	Dispatches	Percent
CN8 & Country	2,193	0.9%	1,638	0.6%
Chapter & Country	2,447	1.0%	22,014	8.0%
CN8	14,704	5.8%	6,791	2.5%
Chapter	25,475	10.1%	47,535	17.3%
Total level	208,107	82.3%	196,971	71.6%
Sum of total	**252,926**	**100.0%**	**274,949**	**100.0%**

In Table 9, it can be derived that 82 percent of the possible country and commodity code combinations for arrivals will be estimated by the total conversion factor for arrivals, and 18 % of the combinations will be estimated at less aggregated levels. For dispatches, these values are 72 and 28 percent respectively. The proportions of codes that can be allocated by country level in the estimates (CN2 or CN8) now have increased to 10.5 percent of the codes. Earlier (according to the study in 2007) this share was 2.7 percent. This should mean that we now could have better reliability of the estimates at country level than before.

3.1.4 Results

This section presents some of the results of the study.

In Table 10 it can be seen that almost 60 percent of the total trade is collected within the study of 2013. The corresponding figure for 2007 study is 66 percent. The smaller proportion of collected trade in the last study can be related to the possibility to report by the principle "Simplified reporting where only the largest transactions need to be reported".

Table 10
Collected value, most aggregated domain of study

Flow of trade	Collected share (%)
Arrivals	57,8
Dispatches	61,6
Total	**59,7**

The estimated ratios (conversion factors) at flow level are very close to the calculated factors in 2007 years study 1.00958 in the arrivals and 0.99538 in the dispatches (see Table 11).

Table 11
Total ratios

Flow	Ratio 2013	Ratio 2007 (current used)
Arrivals	1.00958	1.01051
Dispatches	0.99538	0.99457

It is also interesting to determine the ratios for each term of delivery available in the sample to get a general view of the cost structure for enterprises. Estimating terms of delivery for the entire population and the non-response would be very difficult; population size for each term is unknown and the terms may vary both within and between commodities, countries and enterprises. If just sample ratios for each term of delivery were to be considered, ratios would be as follows in Table 12. In the table it can be seen that "FCA" shows the largest factor of arrival trade (1.025) and "DAP" seems to show the smallest factor of the dispatches (0.989).

Table 12
Sample ratio for terms of delivery

Terms of delivery	Ratio, arrivals	Ratio, dispatches
CFR	1.014	1.013
CIF	0.997	0.996
CIP	1.000	0.995
CPT	0.999	1.005
DAP	1.000	0.989
DAT	0.999	1.004
DDP	1.002	0.992
EXW	1.019	1.003
FAS	*)	*)
FCA	1.025	1.001
FOB	1.009	1.000

*) Too few observations to display

Analysis of Tables 11-12 should be undertaken with care; in many cases, not much more than a few enterprises reported a specific term of delivery/mode of transport. Also, when enterprises have several arrivals or dispatches within a specific item in their declaration, the information collected will be biased towards the dominating terms of delivery and true ratio since this is how collection was performed.

Table 13
Ratios for mode of transport

Mode of transport	Ratio, arrivals	Ratio, dispatches
1 = Sea transport	1.000	0.996
2 = Rail transport	1.004	0.989
3 = Road transport	1.007	0.996
4 = Air transport	1.008	0.999
5 = Postal consignment	1.001	1.000
7 = Fixed transport installations	1.026	1.000
8 = Inland waterway transport	1.000	n.a.
9 = Own propulsion	0.996	1.006

Table 13 shows ratios between statistical values and invoiced values with respect to mode of transport. The largest ratios in arrivals are for "Fixed transport installations" (1.026 %). For dispatches, "Rail transport" shows a ratio of 0.989.

It is also interesting to study the ratios for each trade partner in EU27 in the sample (Table 14), which will give a general view of the geographical costs if no account is taken of terms of delivery.

Table 14
Ratios per country code

Country code	Ratio, arrivals	Ratio, dispatches
AT	1.014	0.992
BE	1.009	1.000
BG	1.025	0.987
CY	1.030 *)	0.984
CZ	1.016	0.997
DE	1.009	0.996
DK	1.006	1.000
EE	1.023	0.994
ES	1.024	0.994
FI	1.004	0.999
FR	1.007	0.995
GB	1.000	0.990
GR	1.017	0.978
HU	1.016	0.995
IE	1.003	0.995
IT	1.020	0.985
LT	1.030	0.995
LU	1.035	0.995
LV	1.053	0.998
MT	1.000 *)	1.000
NL	1.012	0.996
PL	1.015	0.997
PT	1.004	0.997
RO	1.021	0.984
SI	1.020	0.988
SK	1.008	0.997

*) Based on fewer than 10 observations.

In Table 14 we can remark that LT, LV and LU show the largest ratios in the arrivals. In the dispatches CY, GR, IT and RO show the smallest ratios.

In Appendix 3 the ratios on CN2-level can be seen. CN2-codes 06, 07 and 08 seem to show the largest ratios of arrivals. In the dispatches the lowest ratios can be found in chapter 28, 39, 48 and 58.

3.2 Using supplementary auxiliary information from the Customs for the deliveries to the Swedish National Accounts department

This section investigates the possibility of using supplementary auxiliary information from the Customs for improving the deliveries to the Swedish National Account department (NA).

3.2.1 Deliveries of data to the Swedish National Accounts department

In connection with a major initiative in 2007 to improve quality of Swedish economic statistics, deliveries of invoice value for the Swedish National Accounts were introduced. Previously, this quarterly delivery was only based on statistical value. Another reason that NA would like to receive values even in the invoice values depend on the harmonization requests with other primary data sources for economic statistics at Statistics Sweden.

Data on invoiced value is today collected for Intrastat, and the statistical value is collected for Extrastat. For deliveries of invoiced value, statistical value is converted to invoice value for Extrastat trade using the same conversion factors used in Intrastat to convert invoiced value to statistical value.

The conversion is highly simplified as trade is given in current prices for statistical value divided by the conversion factor to obtain invoiced value. Commodity codes for the collection of "Specific goods and movements" on the other hand are not converted. The fixed price for the relevant year is calculated by using current price divided by 100 and multiplied by the price index.

Statistics Sweden receives each month deliveries of import and export data according to Extrastat from the Swedish Customs. The material is extensive and covers a large number of variables. However, the Customs collects certain variables which today are not included in the ordinary data deliveries from the Customs, but Statistics Sweden would need to have access to these in order to improve the deliveries to the National Accounts department. Since last survey on statistical value was made (2007) where the Customs supplied test data to Statistics Sweden in the form of import data, to enable Statistics Sweden to determine the adequacy of the data for a specific collection month, some additional variables is now added in the deliveries on the import side, and can now be further analyzed.

Variables which are of greater interest for Statistics Sweden for the quarterly deliveries to the National Account department are "Commodity price - invoiced value" and "Currency - invoiced value" in the import data. Both variables are included in the deliveries from the Customs today, but reported on a voluntary provision by the companies (imports only). According to the Customs declaration "commodity price - invoiced value" refers to the amount invoiced inclusive of possible additional costs (such as freight and insurance which are specified in the invoice for the commodity).

To be able to check those variables more carefully it is interesting to investigate if already collected information at the Customs not included in the data that Statistics Sweden receives from the Customs today, theoretically could be expanded to improve the figures in the deliveries to the National Accounts department. The voluntary provided variables "Terms of delivery", "Freight cost and "Insurance cost", "Currency code for freight costs" and "Exchange rate for freight costs" could be interesting in this context, but since there are no fields in the customs declaration, only general information source given in free text can (possibly) be obtained. Technically it could be possible to obtain the text information after reconstruction of systems at both the Customs and at Statistics Sweden. The Customs would not prioritize such a costly change. From a practical view, there may be very mixed information in the text fields. In the same time you should also be aware that many companies do not provide any text information at all in these text fields.

Even though the not included variables mentioned cannot be implemented in the deliveries from the Customs can the data be analyzed in a similar way as the collected data are analyzed in the survey of statistical value. In the future these factors could be used in the deliveries to NA concerning the import data of Extrastat.

Assumptions:

1) Only import data contains information on the invoiced value of our data from the Swedish Customs.

2) The invoiced value is specified in national currency and need to be converted in SEK.

3) Import information is provided on a voluntary basis and the data has to be checked.

Firstly the "Commodity price - invoiced value" has to be converged in SEK. This is made by downloading Eurostat's monthly currency rates given in euros and then converge the values in SEK. Like in the case of the collection of statistical value in Intrastat, all data that correspond to ratios less than 0.8 or larger than >1.2 is exempted from further analysis.

Table 15 shows the distribution of ratios (statistical value/invoice value). In the table it can be seen that 4.7 percent regard ratios outside the interval 0.8-1.2, and will be exempted. In the case of the survey of the statistical value this figure was 5.4 percent. It is also of great interest to compare the share of ratios that are equal to 1; 20.6 percent of the Extrastat data and 60.4 percent in the survey of the statistical value.

As it is today Statistics Sweden has access to the invoice value in Extrastat on the import side. These data could be used to convert the statistical value to invoiced value of import in Extrastat for the deliveries to the National Account department. Moreover, these data are reported on voluntary basis from nearly 18,000 companies each month. The factors could be based on much more data than the 2,100 Intrastat companies that we have today based on a study not very often conducted. In the same time the conversion factors are based on Intrastat trade. We can now theoretically utilize current Extrastat data monthly, instead of using fixed factors from Intrastat in the calculations of invoice value for the quarterly NA deliveries of the import figures.

Table 15
Distribution of ratios for collected import values in Extrastat 201303

Ratio interval	Frequency	Percent
<0.8	877	0.1
0.8 – 1	90,906	10.6
1	177,202	20.6
1 – 1,2	551,834	64.1
>1,2	39,640	4.6
Total	**860,459**	**100.0**

It would also be interesting to study the difference between the total conversion rate used today and the one that is supposed to be used from the publishing of 2014 (based on the 2013 survey), and a possible conversion factor based on actual data in Extrastat for March 2013. In Table 16 these factors are compared.

Table 16
Comparison of factors on total level for estimating the invoice value in the Extrastat trade

Flow	Current factor	New Factor 2014	Factor based on Extra (201303)
Imports	1.01051	1.00958	1.00266
Exports	0.99457	0.99538	n.a.

The difference between the various factors on the overall level is small in the imports (Table 16); the percentage reduction to get to the invoiced value is theoretically 1.05 percentages as today, and will be

0.96 percentages from 2014. If on the other hand Extrastat information is used in the deliveries, the reduction will instead be 0.27. But these differences do not "speak the whole truth"; it only gives an overview or indication of the difference.

Table 17 shows the number of CN8-codes of the arrivals in the survey of statistical value of Intrastat and the corresponding number of CN8-codes that can be used in the monthly Extrastat trade for estimating the trade by conversion factors at CN8 (or CN8*country), according to the condition that at least 50 percent of the collected trade is covered.

Table 17
Percentage of CN8-codes with at least 50 percent coverage of the collected trade

Source	Percent of CN8-codes (2013)
Survey on statistical value 2013	30,7
Monthly Extrastat trade	93,4

If we used Extrastat data to estimate the value of the invoice instead of the current factors based on the study on the statistical value of the Intrastat, would the share of CN8 codes with their own factors amount to about 93 percent, instead of about 31 percent that is the case of today.

After having calculated conversion factors on CN8 levels in Extrastat, we note that the quarterly difference between the results with current conversion factors from Intrastat and with potential new conversion factors from Extrastat exhibits an underestimation today with about 2,500,000 Euros for the first quarter of 2013. The largest differences on chapter-level using either the current ratios or factors calculated on the Extrastat trade can be obtained in Table 18.

Table 18
Percentage of CN8-codes with at least 50 percent coverage of the collected trade

CN2	Ratio Intrastat	Ratio Extrastat	Difference EUR	Difference Percent
03	1.01048	0.98677	136,046	2.41
27	1.00114	0.98995	276,388	1.13
94	1.01092	1.02951	-33,258	-1.81

4 Possible future development areas at Statistics Sweden

Within the scope of this project a number of future work areas have been identified. Presently no resources have been allocated for these activities, this need to be prioritized in relation to other needs for the statistics.

1. Follow up of some of the companies that reported their statistical value in the survey of the statistical value 2013 in order to ensure that some of the excluded data (outliers) really should be excluded, by conducting a smaller sample study, where companies are contacted. In the same way a sample of companies that were excluded in Extrastat data could be contacted, to ensure that the definition of outlier in our data is correct.

2. Investigate the possibility to make the data deliveries of invoice value to the Swedish National Accounts more reliable by including the variables "Commodity price - invoiced value" and "Currency - invoiced value" in the calculations of conversion factors for Extrastat import data, and implement these in the deliveries to NA. Today the statistical value in Extrastat data is converted to invoice value by using the same conversion factors as in Intrastat, but now it could be possible to use monthly Extrastat data rather than factors based on a not very often conducted survey in Intrastat.

3. To make the deliveries of foreign trade in goods to the National Accounts more reliable for trade in Extrastat it should be considered to extend the survey of statistical value to invoiced value for Extrastat data providers the next time the survey is performed.

Appendix 1a
Terms of delivery (Incoterms)

CFR, Cost and Freight

The seller must pay the costs and freight required in bringing the goods to the named port of destination. The risk of loss or damage is transferred from seller to buyer when the goods pass over the ship's rail in the port of shipment. The seller is required to clear the goods for export. This term should only be used for sea or inland waterway transport.

CIF, Cost, Insurance, Freight

The seller has the same obligations as under CFR however he is also required to provide insurance against the buyer's risk of loss or damage to the goods during transit. The seller is required to clear the goods for export. This term should only be used for sea or inland waterway transport.

CIP, Carriage and Insurance Paid To

The seller has the same obligations as under CPT but has the responsibility of obtaining insurance against the buyer's risk of loss or damage of goods during the carriage. The seller is required to clear the goods for export however is only required to obtain insurance on minimum coverage. This term requires the seller to clear the goods for export and can be used across all modes of transport.

CPT, Carriage Paid To

The seller pays the freight for the carriage of goods to the named destination. The risk of loss or damage to the goods occurring after the delivery has been made to the carrier is transferred from the seller to the buyer. This term requires the seller to clear the goods for export and can be used across all modes of transport.

DAP, Delivered At Place

Seller delivers the goods when they are placed at the disposal of the buyer on the arriving means of transport ready for unloading at the named place of destination. Parties are advised to specify as clearly as possible the point within the agreed place of destination, because risks transfer at this point from seller to buyer. If the seller is responsible for clearing the goods, paying duties etc., consideration should be given to using the DDP term.May be used for all transport modes.

DAT, Delivered At Terminal

Seller delivers when the goods, once unloaded from the arriving means of transport, are placed at the disposal of the buyer at a named terminal at the named port or place of destination. "Terminal" includes quay, warehouse, container yard or road, rail or air terminal. Both parties should agree the terminal and if possible a point within the terminal at which point the risks will transfer from the seller to the buyer of the goods. If it is intended that the seller is to bear all the costs and responsibilities from the terminal to another point, DAP or DDP may apply. May be used for all transport modes.

DDP, Delivered Duty Paid

The seller is responsible for delivering the goods to the named place in the country of importation, including all costs and risks in bringing the goods to import destination. This includes duties, taxes and customs formalities. This term may be used irrespective of the mode of transport.

EXW, Ex Works

The buyer bears all costs and risks involved in taking the goods from the seller's premises to the desired destination. The seller's obligation is to make the goods available at his premises (works, factory, warehouse). This term represents minimum obligation for the seller. This term can be used across all modes of transport.

FCA, Free Carrier

The seller's obligation is to hand over the goods, cleared for export, into the charge of the carrier named by the buyer at the named place or point. If no precise point is indicated by the buyer, the seller may choose within the place or range stipulated where the carrier shall take the goods into his charge. When the seller's assistance is required in making the contract with the carrier the seller may act at the buyers risk and expense. This term can be used across all modes of transport.

FAS, Free Alongside Ship

The seller has fulfilled his obligation when goods have been placed alongside the vessel at the port of shipment. The buyer is responsible for all costs and risks of loss or damage to the goods from that moment. The buyer is also required to clear the goods for export. This term should only be used for sea or inland waterway transport.

FOB, Free On Board

Once the goods have passed over the ship's rail at the port of export the buyer is responsible for all costs and risks of loss or damage to the goods from that point. The seller is required to clear the goods for export. This term should only be used for sea or inland waterway transport.

Appendix 1b

Mode of transport

The mode of transport should be provided in the form of a single-digit code stating for the commonly used method of transportation up to the **Swedish border**. Should the mode of transport remains unknown then the most likely form of transportation must be provided. The definitions of codes are outlined as follows:

Code   **Explanation**

1   Sea transport including cargo, vehicle or container on broad any vessels

2   Rail transport

3   Road transport

4   Air transport

5   Postal consignment

7   Fixed transport installations
For instance, fixed transport installation can be a pipeline which is used to transport oil and gas over the border.

8   Inland waterway transport

9   Own propulsion transport
With own propulsion, the object which can be either a vehicle or ship is transported to the border without the assistance of other machineries.

Appendix 2a

Coverage of collected trade in the survey of statistical value 2013 (percentage) by CN2 of arrivals (Intrastat)

CN2	Collected value in the survey (1000 EUR)	Total Intra value (1000 EUR)	Coverage (%)	CN2	Collected value in the survey (1000 EUR)	Total Intra value (1000 EUR)	Coverage (%)
01	557	749	74,4	48	41 467	85 112	48,7
02	46 632	84 950	54,9	49	7 573	23 581	32,1
03	10 207	18 862	54,1	50	9	19	47,0
04	40 714	63 813	63,8	51	501	1 584	31,6
05	594	6 007	9,9	52	1 323	2 930	45,1
06	9 465	21 926	43,2	53	41	454	9,1
07	34 398	53 974	63,7	54	998	3 358	29,7
08	28 612	51 652	55,4	55	1 512	4 664	32,4
09	6 129	11 038	55,5	56	4 444	11 044	40,2
10	8 112	10 288	78,8	57	2 560	8 002	32,0
11	2 914	5 745	50,7	58	231	1 829	12,6
12	10 524	18 281	57,6	59	4 832	8 181	59,1
13	514	1 811	28,4	60	413	2 758	15,0
14	16	118	13,9	61	22 639	50 327	45,0
15	17 282	30 295	57,0	62	26 738	61 692	43,3
16	20 026	32 914	60,8	63	5 716	16 031	35,7
17	12 909	20 661	62,5	64	28 145	44 478	63,3
18	9 832	23 377	42,1	65	1 022	2 829	36,1
19	26 806	37 973	70,6	66	112	313	35,7
20	26 336	38 419	68,6	67	16	198	8,2
21	25 904	42 366	61,1	68	8 661	21 093	41,1
22	36 832	65 308	56,4	69	10 702	20 409	52,4
23	10 161	17 535	57,9	70	20 773	35 663	58,2
24	7 728	11 923	64,8	71	6 597	12 541	52,6
25	8 315	15 284	54,4	72	169 264	226 058	74,9
26	21 262	22 061	96,4	73	63 988	145 217	44,1
27	548 836	637 897	86,0	74	57 290	70 434	81,3
28	27 470	45 196	60,8	75	12 196	16 279	74,9
29	96 898	109 532	88,5	76	19 049	44 633	42,7
30	132 308	217 718	60,8	78	908	1 453	62,5
31	8 850	11 305	78,3	79	1 689	3 119	54,1
32	20 021	43 071	46,5	80	30	394	7,5
33	19 212	42 808	44,9	81	3 284	4 262	77,0
34	26 310	40 878	64,4	82	13 824	30 136	45,9
35	5 933	17 136	34,6	83	13 205	34 767	38,0
36	2 592	3 158	82,1	84	539 702	995 234	54,2
37	1 867	5 065	36,9	85	441 606	692 685	63,8
38	54 091	94 486	57,2	86	3 752	30 373	12,4
39	134 345	268 807	50,0	87	514 125	731 901	70,2
40	68 828	101 676	67,7	90	73 737	182 908	40,3
41	1 702	3 081	55,2	91	542	1 964	27,6
42	5 835	12 931	45,1	92	80	1 457	5,5
43	39	162	24,1	93	1 257	3 076	40,9
44	47 716	89 355	53,4	94	67 694	120 388	56,2
45	22	385	5,8	95	11 820	26 976	43,8
46	19	143	13,6	96	14 701	23 425	62,8
47	10 629	11 761	90,4	97	14	810	1,8

Appendix 2b

Coverage of collected trade in the survey of statistical value 2013 (percentage) by CN2 of dispatches (Intrastat)

CN2	Collected value in the survey (1000 EUR)	Total Intra value (1000 EUR)	Coverage (%)	CN2	Collected value in the survey (1000 EUR)	Total Intra value (1000 EUR)	Coverage (%)
01	547	655	83,5	48	321 846	456 400	70,5
02	2 382	6 957	34,2	49	902	10 898	8,3
03	166 429	209 034	79,6	50	4	11	33,9
04	15 424	18 146	85,0	51	440	665	66,1
05	130	3 038	4,3	52	597	954	62,6
06	5	173	2,8	53	50	101	49,4
07	1 600	3 362	47,6	54	36	954	3,8
08	654	5 067	12,9	55	567	1 059	53,5
09	3 592	7 622	47,1	56	1 367	8 297	16,5
10	11 751	13 929	84,4	57	2 646	3 251	81,4
11	1 345	2 607	51,6	58	299	1 150	26,0
12	2 236	3 544	63,1	59	3 542	6 929	51,1
13	3	158	1,8	60	2 120	2 422	87,5
14	0	109	0,1	61	18 497	38 284	48,3
15	16 827	18 946	88,8	62	21 824	50 324	43,4
16	6 787	12 095	56,1	63	3 365	10 741	31,3
17	1 472	6 571	22,4	64	6 514	13 197	49,4
18	871	13 613	6,4	65	858	3 231	26,6
19	15 256	26 716	57,1	66	110	215	51,4
20	3 759	6 609	56,9	67	173	509	34,0
21	13 468	29 764	45,2	68	1 579	5 885	26,8
22	17 030	38 155	44,6	69	1 966	6 051	32,5
23	949	7 485	12,7	70	9 732	17 763	54,8
24	86	484	17,7	71	31 519	41 733	75,5
25	1 207	6 769	17,8	72	240 791	259 278	92,9
26	126 281	130 985	96,4	73	59 970	109 145	54,9
27	510 804	638 311	80,0	74	79 251	86 417	91,7
28	13 925	18 232	76,4	75	113	1 549	7,3
29	82 869	87 576	94,6	76	44 228	81 108	54,5
30	195 289	223 233	87,5	78	9 314	9 787	95,2
31	2 498	2 728	91,6	79	682	1 191	57,3
32	16 499	43 448	38,0	80	0	3	2,2
33	8 587	16 938	50,7	81	384	1 327	29,0
34	15 546	20 573	75,6	82	45 265	56 527	80,1
35	10 445	13 904	75,1	83	7 642	18 795	40,7
36	2 669	4 171	64,0	84	590 871	898 626	65,8
37	95	1 186	8,0	85	201 991	403 047	50,1
38	20 278	50 016	40,5	86	5 041	7 235	69,7
39	96 673	208 254	46,4	87	492 355	633 297	77,7
40	21 593	37 792	57,1	90	84 860	152 396	55,7
41	2 730	5 274	51,8	91	337	1 691	19,9
42	3 817	8 793	43,4	92	262	1 032	25,4
43	80	6 954	1,2	93	2 280	2 957	77,1
44	64 354	135 475	47,5	94	48 684	97 465	50,0
45	2	36	4,8	95	5 554	13 372	41,5
46	131	234	56,0	96	18 464	29 831	61,9
47	89 649	113 590	78,9	97	0	254	0,1

Appendix 3

Ratios between the statistical value and the invoice value by CN2 (Intrastat 201303)

CN2	Ratio, arrivals	Ratio, dispatches	CN2	Ratio, arrivals	Ratio, dispatches
01	1.000	1.000 *)	48	1.010	0.962
02	1.004	1.015	49	1.020	1.004
03	1.013	1.000	50	1.028 *)	1.000 *)
04	1.016	0.993	51	1.000	1.022
05	0.994	0.991	52	1.013	1.002
06	1.061	1.000 *)	53	1.004	1.011
07	1.053	1.002	54	1.000	1.014
08	1.051	1.017	55	1.001	1.019
09	1.034	1.000	56	1.006	1.007
10	1.012	1.018	57	1.026	1.013
11	1.012	0.978	58	1.005	0.966
12	1.012	1.000	59	1.020	0.981
13	1.000	0.975 *)	60	0.998	0.995
14	1.033 *)	1.000 *)	61	1.024	0.989
15	1.004	1.003	62	1.021	0.993
16	1.016	0.999	63	1.041	1.012
17	1.010	1.001	64	1.000	0.997
18	1.021	1.011	65	1.013	1.004
19	1.024	0.993	66	1.009	1.001
20	1.045	1.004	67	1.043	1.042
21	1.003	0.999	68	0.998	1.018
22	1.019	1.002	69	1.042	1.038
23	1.035	1.002	70	1.007	1.031
24	1.000	1.000 *)	71	1.005	1.001
25	1.002	1.008	72	1.018	1.004
26	1.000	1.003	73	1.012	1.002
27	0.997	0.999	74	1.000	1.002
28	1.005	0.959	75	1.001	0.987
29	1.003	1.014	76	1.006	0.998
30	1.000	1.000	78	1.007	1.007
31	1.007	0.983	79	0.996	1.000
32	1.004	1.001	80	1.012 *)	1.000 *)
33	1.004	1.000	81	1.000	0.999
34	1.013	0.998	82	1.015	0.994
35	0.998	0.989	83	1.017	1.003
36	1.022	0.989	84	1.009	0.999
37	1.002	0.991	85	1.006	0.999
38	1.006	0.992	86	0.999	1.006
39	1.000	0.968	87	1.009	1.002
40	1.014	1.013	90	1.006	1.003
41	1.005	1.001	91	1.004	1.005
42	1.006	0.999	92	1.008	1.005
43	1.005	1.057	93	1.001	1.000
44	1.033	0.927	94	1.043	1.024
45	1.048	1.001	95	1.019	1.001
46	1.000	1.028	96	1.006	1.000
47	1.031	0.992	97	1.005 *)	1.000 *)

*) Based on fewer than 10 observations