PEEIs in focus

A summary for the retail trade turnover and volume of sales indices

2006 edition

eurostat

Methodologies and
Working papers

PEEIs in focus

A summary for the retail trade turnover and volume of sales indices

2006 edition

eurostat
EUROPEAN COMMISSION

This report has been prepared based on information kindly provided by the STS coordinators of each country.
The original draft of this report was written and produced by Simon Allen and Andrew Redpath of INFORMA s.à r.l.
The opinions expressed in this report are those of the individual authors alone and do not necessarily reflect the position of the European Commission.

For further information please contact:

Thomas Jaegers
Eurostat
Statistical Office of the European Union
e-mail: thomas.jaegers@ec.europa.eu

More information on the European Union is available on the Internet (http://europa.eu).

Cataloguing data can be found at the end of this publication.

Contents

Introduction

Important note: this report was compiled on the basis of information provided 2006; the methodology used by Member States may well have changed since then, in particular due to rebasing to 2005 and the introduction of NACE Rev. 2. Some countries provided updates in 2008.

What are PEEIs

Eurostat compiles European Union and euro area infra-annual economic statistics relevant for short-term economic analysis. Among these, a list of indicators, called Principal European Economic Indicators (PEEIs) has been identified by key users as being of prime importance for the conduct of monetary and economic policy of the euro area. These indicators are mainly released through Eurostat's website under the heading Euroindicators.

Eight PEEIs concern short-term statistics[1] (STS), of which six were included in the Council Regulation (EC) No 1165/98 of 19 May 1998 concerning short-term statistics (hereafter the STS Regulation) and the remaining two in the Regulation (EC) No 1158/2005 of the European Parliament and of the Council of 6 July 2005 amending Council Regulation (EC) No 1165/98 concerning short-term statistics.

PEEI in focus: reports and other methodological documentation

In the early 1990s Eurostat developed a database recording the methodology used for industrial and construction STS; in the second half of the 1990s this was extended to cover also the retail trade and services STS and was thereafter know as STS Sources. Since then the STS Sources database has been updated several times based on information provided by the EU Member States and the Acceding and Candidate countries, as well as Norway and Switzerland. The latest update was done during 2004/2005. The latest update was done in 2007.

In March 2004 it was decided to carry out a quality project for the PEEIs that would result in a yearly report. As noted above eight PEEIs concern STS, of which six could be considered as operational in early 2004. Four quality components were selected for this project and the quality indicators that should be included in the quality report were chosen. In June 2004 Eurostat presented further details of this quality project for the PEEIs to the participants of an STS working party.

At the same meeting in June 2004 Eurostat proposed to consider a detailed, focused analysis for one PEEI every year, with the chosen PEEI changing each year. The first indicator selected to be a "PEEI in focus" was the industrial production index, for which information was collected at the end of 2004 and into 2005. The retail volume of sales index was selected as the second indicator, with information being collected during 2006.

As for the industrial production index, Eurostat prepared a pre-filled template for a PEEI in focus report on the retail trade turnover and volume of sales indices during Autumn 2005. This was sent to the EU Member States as well as Bulgaria, Romania, Norway and Switzerland. The PEEI in focus report concerned information on five selected areas, including a specific focus on the seasonal and working day adjustment methods. All of the Member States except Ireland returned the reports having corrected and completed them. The information provided relates to the year 2005. In addition, reports were received from Bulgaria, Romania and Norway. Information included in the present report concerns only those countries that replied.

Purpose of this report

The present report aims to present in a simple manner the information collected in the PEEI in focus reports for these retail trade indices. Its purpose essentially is to allow countries to compare their methods with those in other countries, based on information presented in a structured, and as far as possible, coherent manner. Wherever possible the report presents information for each of the countries, as well as presenting summary information for all of the countries as a whole.

From 2008 this report in intended for public distribution. Some methods are presented with little introduction/explanation and for more detailed explanations please refer to the methodology manual on short-term business statistics available within the STS Interest Group on CIRCA.

---

[1] i) industrial production index ii) industrial output price index for domestic market iii) industrial new orders index iv) industrial import price index v) production in construction vi) turnover index for retail trade and repair vii) turnover index for other services viii) corporate output price index for services.

Part A: Data collection

1. Collection method and population coverage

1.1 Sources of the basic data

The retail trade turnover index is derived from statistical survey data in every country except Luxembourg, and a few countries use a combination of administrative and survey data – see Table 1.1.

Table 1.1: Main data sources

	Main sources			Main sources
BE	Survey		MT	Survey
CZ	Survey		NL	Survey
DK	Survey		AT	Administrative data (VAT); supplemented by survey for example when VAT data is not available or usable
DE	Survey		PL	Survey
EE	Survey		PT	Survey
EL	Survey		SI	Register data, administrative data (Annual final accounts, Tax returns), survey data
ES	Survey		SK	Survey
FR	Survey and administrative data (VAT)		FI	Survey and administrative data (VAT)
IT	Survey		SE	Survey
CY	Survey		UK	Survey
LV	Survey		BG	Survey
LT	Survey		RO	Survey
LU	Administrative data (VAT)		NO	Survey and administrative data (VAT)
HU	Survey (Groups 52.1 to 52.5) and administrative data (VAT) (Class 52.61)			

1.2 Nationally defined population

Table 1.2 shows the population that each country targets for its retail trade turnover index: this population is hereafter referred to as the nationally defined population. The information on the population is given in terms of the type of statistical unit, the activities covered, the size of units covered, and any other exclusions. For reference note that the STS Regulation requires an activity coverage of NACE Division 52, does not specifically mention size thresholds, and requires the enterprise to be used as the type of statistical unit. Note the exclusion of Northern Ireland from the survey for the United Kingdom - information given later in this report on the sample size and the sampling rate etc. are based on the survey for Great Britain. Estimates for Northern Ireland are included in the United Kingdom's turnover index.

Note that the systematic exclusion of part of the population (for example on grounds of their activity or size) leads to a bias in the resulting indicators when compared to the population required by the STS Regulation. For example, the evolution over time of the output of smaller units may be different from that of larger units. Note that the STS Regulation explicitly permits the exclusion of NACE Group 52.7 for those Member States whose value added in this Group is less than 5 % of the value added of the whole of Division 52.

Table 1.2: Nationally defined populations

	Unit	Activity coverage	Size coverage	Other exclusions (if any)
BE	Enterprise	Division 52	All size classes	
CZ	Enterprise	Division 52	All size classes	Non-profit and Government sectors
DK	Enterprise	Groups 52.1 to 52.6	>= DKK 2.5 million turnover	
DE	Enterprise	Groups 52.1 to 52.6	>= EUR 250 000 turnover	
EE	Enterprise	Division 52	All size classes	Sole proprietors with < 20 persons employed
EL	Enterprise	Groups 52.1 to 52.6	>= EUR 175 000 turnover	
ES	Enterprise	Groups 52.1 to 52.6	All size classes	
FR	Enterprise	Division 52	>= EUR 92 000 turnover	
IT	Enterprise	Groups 52.1 to 52.4 and Class 52.61	All size classes	
CY	Enterprise	Groups 52.1 to 52.6	All size classes	
LV	Enterprise	Groups 52.1 to 52.6	All size classes	Sole proprietorships
LT	Enterprise	Groups 52.1 to 52.6	All size classes	
LU	Enterprise	Division 52	All size classes	Enterprises without a time series for two complete years
HU	Local unit (Groups 52.1 to 52.5 and 52.7); enterprise (Class 52.61)	Groups 52.1 to 52.5, Class 52.61 and Group 52.7	All size classes	
MT	Enterprise	Division 52	All size classes	
NL	Enterprise	Division 52 excluding Class 52.31	All size classes	
AT	Enterprise	Division 52	All size classes	
PL	Enterprise	Groups 52.1 to 52.6	All size classes	
PT	Enterprise	Groups 52.1 to 52.4 and Class 52.61	All size classes	
SI	Enterprise	Groups 52.1 to 52.6	All size classes	
SK	Enterprise	Division 52	All size classes	
FI	Enterprise (KAU for 27 large enterprises)	Groups 52.1 to 52.6	>=EUR 8 500 turnover	
SE	Enterprise	Division 52	Threshold not specified, but believed to be very low	
UK	Enterprise	Division 52	All size classes	Northern Ireland is excluded from the survey, but included in the index through estimation
BG	Enterprise	Groups 52.1 to 52.6	>= BGN 10 000 turnover	
RO	Enterprise	Division 52	>= 4 employees	
NO	"Establishment"	Groups 52.1 to 52.6	All size classes	

Figure 1.2a lists the activities that countries indicated that they excluded from their nationally defined populations.

Figure 1.2a: Number of countries excluding specified activities (NACE)
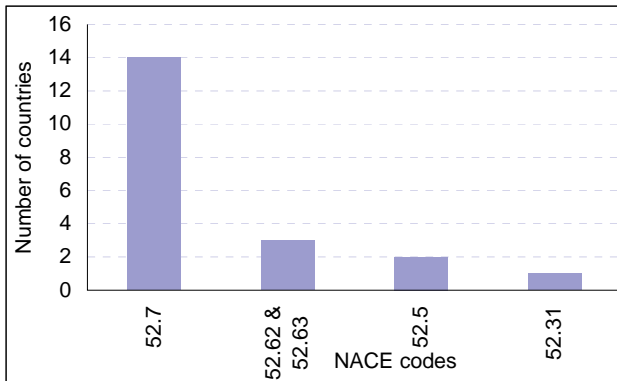
The various size thresholds that are used by countries to limit the nationally defined population are summarised in Figure 1.2b. Most countries do not explicitly use a threshold, although the register on which countries base their target population may have a threshold, albeit very low. Some countries indicated that they use a very low threshold, and this may in fact be the threshold for their business register rather than a threshold used to exclude part of the population from their survey.

Figure 1.2b: Presentation of thresholds to determine the coverage of the national sources: number of countries using specified threshold
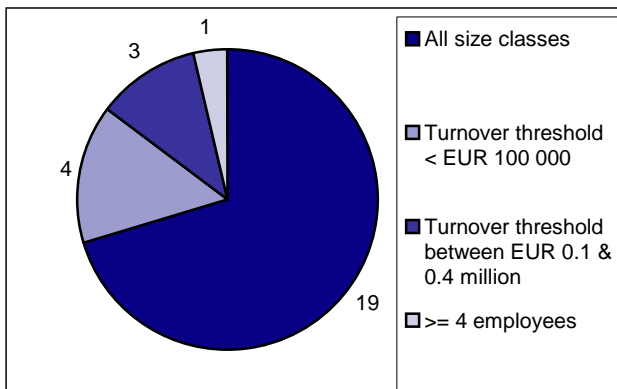
Figure 1.2c provides a summary of the types of statistical units that were reported by the countries.

One important detail that is not available from the PEEI in focus reports is the way that the statistical unit, the activity coverage and the definition of turnover are combined. For example, where the enterprise is used as the type of statistical unit, is only retail turnover included or is total turnover measured? If only retail turnover is measured, are enterprises with a secondary retail trade activity included in the population: if so, is this limited to enterprises whose principal activity is in another of the distributive trades or are all enterprises with a retail trade activity included?

Figure 1.2c: Number of countries using specified type of statistical unit
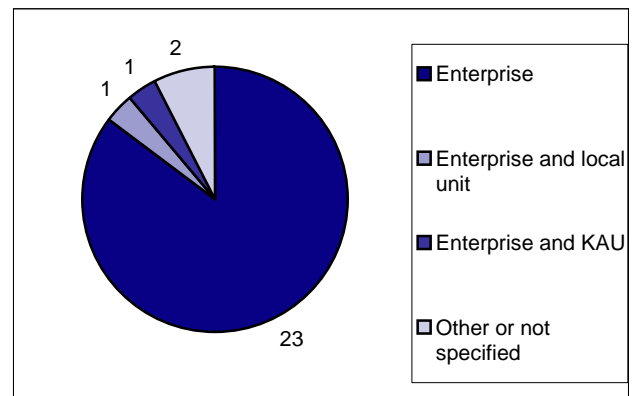
1.3 Coverage rate compared to full coverage

Table 1.3 shows the size of the nationally defined population (as determined by the activity and size coverage presented in Table 1.2) in terms of the number of units, and its distribution between food and non-food retail, and repair of household goods. Furthermore, it shows the proportion of total value added of Division 52 (and the same breakdown as above) that is covered by the nationally defined population. Note that this coverage rate should not be confused with the proportion of turnover

accounted for by units that actually received a questionnaire (in other words the sample) which is treated in point 2.

In a few cases the coverage rates are not consistent with information given elsewhere in the reports. Equally, the number of units in the nationally defined population as a whole is not always consistent with the sum of the nationally defined population for each of the activity breakdowns.

Table 1.3: Size and coverage rate of the nationally defined populations

	Number of units in the nationally defined population					Coverage rates (nationally defined population relative to full STS requirements) in terms of value-added (%)				
	Division 52	Class 52.11 + Group 52.2	Class 52.12 + Groups 52.3 to 52.6	Groups 52.1 to 52.6	Group 52.7	Division 52	Class 52.11 + Group 52.2	Class 52.12 + Groups 52.3 to 52.6	Groups 52.1 to 52.6	Group 52.7
BE	89 803	20 635	65 828	86 463	3 343	100	100	100	100	100
CZ (1)	270 806	111 220	156 416	267 636	3 170	100	100	100	100	100
DK (2)	8 400	2 740	5 500	8 400	0	91	94	90	91	0
DE	108 700	23 400	85 300	108 700	0	92	95	90	92	0
EE (1)	4 281	1 236	2 923	4 159	122	100	100	100	100	100
EL	27 742	8 028	19 714	27 742	0	:	:	:	:	:
ES	548 262	161 520	371 742	533 262	15 321	99	100	100	100	0
FR (3)	385 000	:	:	:	:	85	:	:	:	:
IT (3)	532 873	163 433	369 440	532 873	0	99	100	94	99	0
CY	12 165	3 353	8 359	11 712	0	100	100	100	100	0
LV (1, 4)	11 348	2 602	8 590	11 241	0	100	100	100	100	0
LT (3)	10 787	3 475	7 313	10 787	0	:	100	100	100	0
LU	1 077	192	872	1 064	13	38	38	70	56	67
HU (1)	154 245	47 711	102 961	150 672	3 573	100	100	100	100	100
MT	9 242	2 258	6 513	8 774	468	100	100	100	100	100
NL	106 357	15 255	86 541	101 796	4 561	95	100	92	95	100
AT	44 067	9 291	33 553	42 844	1 223	100	100	100	100	100
PL	683 757	166 868	516 889	683 757	0	100	100	100	100	0
PT	24 094	10 194	13 900	24 094	0	:	100	:	:	0
SI	4 838	1 377	3 461	4 838	0	100	100	100	100	0
SK	72 245	6 104	64 311	70 415	1 830	100	100	100	100	100
FI	29 267	5 561	23 705	29 267	0	100	100	100	100	0
SE	31 732	7 543	22 673	30 216	1 516	100	100	100	100	98
UK (5)	196 047	58 356	130 702	189 058	6 989	100	100	100	100	100
BG	49 578	20 134	29 444	49 578	0	:	96	96	96	0
RO (3)	42 991	22 510	19 885	42 395	596	92	89	94	92	82
NO	28 886	7 104	20 499	27 603	1 283	96	100	100	100	0

(1) The coverage rates are specified as 100 % despite the exclusion of some units.
(2) Population size figures are approximate.
(3) Coverage rates based on turnover, not value added.
(4) The totals for Division 52 and for Groups 52.1 to 52.6 do not equal the sum of their constituent parts as there are enterprises whose precise activity is unknown but are included in the population.
(5) Information concerns Great Britain only.

Figure 1.3a: Share of food retail, non-food retail, and repair of household goods in the total number of units in the nationally defined population (sum of countries with complete available data)
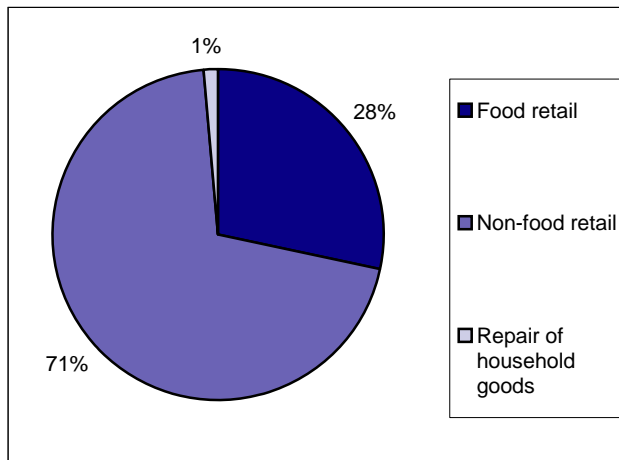
Figure 1.3a summarises the distribution of the population between food and non-food retail and the repair of household goods, using an aggregate for all countries with a full set of information available as presented in Table 1.3.

The coverage rate of the national defined population relative to a full coverage for NACE Division 52 (or Groups 52.1 to 52.6) is presented in Figure 1.3b.

Figure 1.3b: Coverage rates of the nationally defined population relative to the STS requirements.
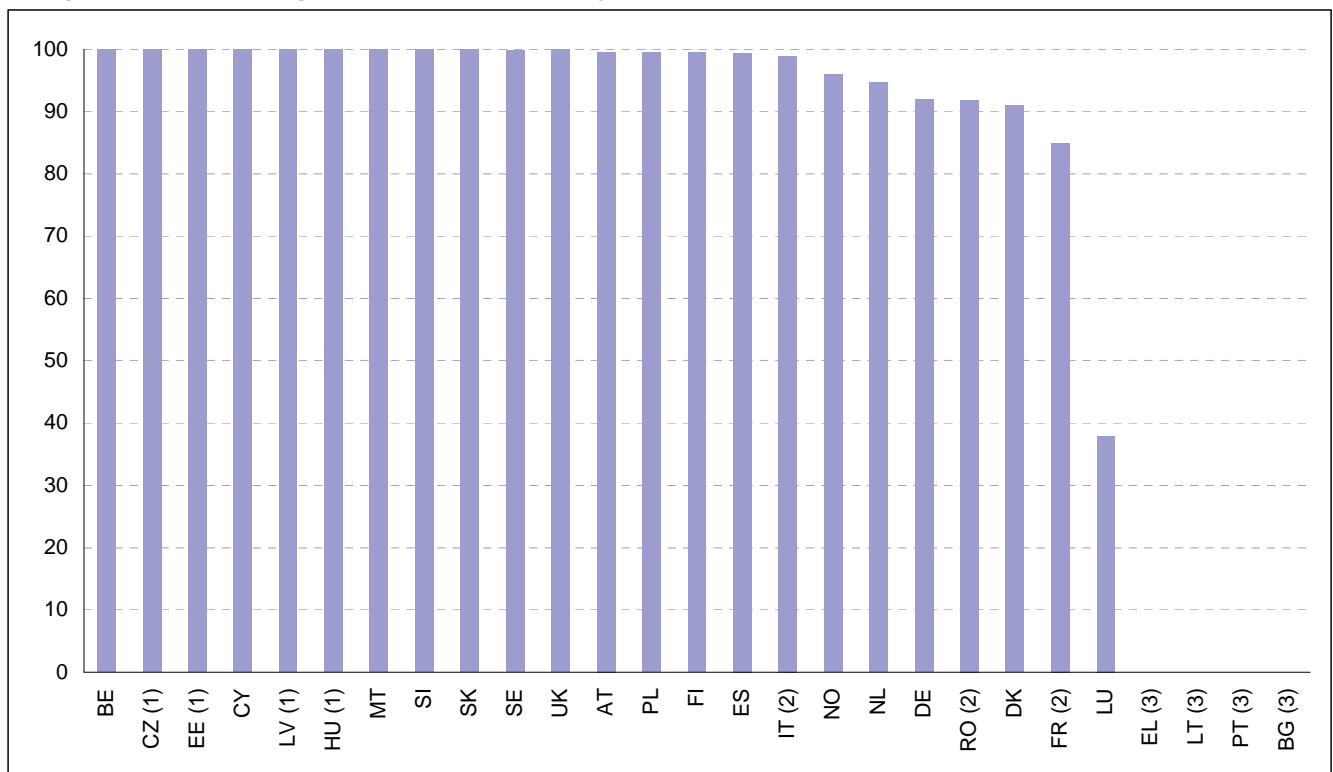
(1) The coverage rates are specified as 100 % despite the exclusion of some units.
(2) Coverage rates based on turnover, not value added.
(3) Not available.

2. Selection of units

2.1 Basic method of selection

This point looks at how units are selected from the nationally defined population in order for them to be the subject of the statistical survey. Units can be selected in a number of ways, essentially by taking all units, or a sample. If all units are taken it may be a case that only those above a certain size are in fact taken. If a sample is taken it may be a random sample, or a purposive/judicious sample. Table 2.1 shows the methods used in each country, with the countries regrouped according to the method used. As can be seen sampling is almost exclusively used, with Luxembourg taking all units (from an administrative source). Cyprus uses a cut-off survey, and Finland uses a particular type of selection, selecting large and volatile units.

Table 2.1: Use of sampling and cut-off criteria

	Method of selection	If sample, threshold (inclusive) for exhaustive strata; if cut-off, criteria used
LU	Exhaustive survey within the nationally defined population	
FI	Cut-off	Units whose share of turnover in Class 52.11 + Group 52.2 > 0.2 %; Units whose share of turnover in Class 52.12 + Groups 52.3 to 52.6 > 0.05 %; Units whose impact on the year-on-year change is > 0.05 percentage points; Units whose share of turnover in 19 sub-categories > 2 %.
BE	Sample survey	Not specified
CZ		50 employees
DK		DKK 20 million turnover
DE		Not specified
EE		20 employees
EL		EUR 40 million turnover
ES		50 persons employed
FR		Not specified
IT		None - Sampling rates from 1% to 37%
CY (1)		Enterprises with 20 or more persons employed
LV		Varies between activities: LVL 300 000 or LVL 500 000 turnover
LT		50 persons employed
HU		Enterprises having 50 and more persons employed (and having at least two retail trade shops) or having at least ten retail trade shops are observed by an exhaustive survey. The remainder of the shops are observed by a sample survey. The selection of the sample from the sampling frame occurs through random stratified sampling.
MT		Not specified
NL		50 persons employed
AT		None
PL		50 persons employed
PT		50 persons employed
SI		SIT 1.1 million turnover or 250 employees
SK		All enterprises (including sole proprietors) with SKK 100 million or more turnover; Enterprises (excluding sole proprietors) with 20 or more employees
SE		Varies by activity, but mainly around SEK 100-200 million turnover
UK		100 persons employed
BG		BGN 300 000 turnover
RO		Not specified
NO		Not specified

Note: in general it can be assumed that all samples are random samples - this was explicitly mentioned by several countries.
Note: in some countries the size threshold may be based on a different measure of employment than the one stated, as the number of (paid) employees and the total number of persons employed are often confused.
(1) Note that no units below the exhaustive threshold are surveyed, so this is in effect a cut-off survey.

2.2 Stratification criteria used and sample rates

In the case of the retail trade turnover index it is normal to use activities (NACE headings) as one of the criteria for drawing a sample, and size is commonly also used: nine countries use turnover as the size measure, eleven use employment, two use both employment and turnover, one uses sales area, and one uses no size measure – see Table 2.2a. A further criterion that is used is region.

Table 2.2a: Criteria used for sampling (among countries carrying out sampling)

	Criteria 1	Criteria 2	Criteria 3
BE	Activity (NACE 4-digit)	Turnover	
CZ	Activity	Employees	
DK	Activity	Turnover	
DE	Activity	Turnover	Region
EE	Activity	Employees	
EL	Activity (NACE 4-digit)	Turnover	
ES	Activity	Persons employed	Region
FR	Activity		
IT	Activity (NACE 4-digit)	Employment	Region
CY (1)	Activity	Employment	
LV	Activity	Turnover	
LT	Activity	Persons employed	
HU	Activity	Region	Sales area
MT	Activity	Employment	Turnover
NL	Activity	Persons employed	
AT	Activity	Turnover	
PL	Activity	Persons employed	
PT (2)	Activity	Persons employed	
SI	Activity	Turnover	
SK	Activity	Turnover	Employees
SE	Activity (5-digit)	Turnover (for enterprises with annual turnover > SEK 200 thousand) Gross wages (for enterprises with annual turnover < SEK 200 thousand)	
UK	Activity (27 headings)	Persons employed	
BG	Activity	Turnover	
RO	Activity	Employment	
NO	Activity	Employees	

(1) Activity and employment are indicated as criteria for sampling, but as the sample is 100% it is unclear for what these criteria are used, in particular the activity criteria.

(2) Activity is not mentioned as a stratification criterion, however it can be assumed that this is used.

Note: in some countries the size threshold may be based on a different measure of employment than the one stated, as the number of (paid) employees and the total number of persons employed are often confused.

2.3 Sample size and coverage

Table 2.3 shows the number of selected (surveyed) units, and their distribution between the different types of activity. Furthermore, it shows the proportion of turnover of the nationally defined population that is covered by the selected units. It should be noted that the number of units in the sample does not in all cases equal the sum of the sample sizes for the different types of activity.

Table 2.3: Sample size and coverage rate

	Number of units in sample					Coverage rates (share of turnover among selected units, relative to the nationally defined population) (%)				
	Division 52	Class 52.11 + Group 52.2	Class 52.12 + Groups 52.3 to 52.6	Groups 52.1 to 52.6	Group 52.7	Division 52	Class 52.11 + Group 52.2	Class 52.12 + Groups 52.3 to 52.6	Groups 52.1 to 52.6	Group 52.7
BE	3 063	1 250	1 685	2 933	130	53	75	36	53	20
CZ	2 344	532	1 732	2 264	80	54	75	38	54	13
DK	3 406	985	2 397	3 406	0	78	79	78	78	~
DE	19 621	3 772	15 849	19 621	0	94	:	:	:	~
EE	718	223	473	696	22	64	75	54	64	27
EL	2 117	686	1 431	2 117	0	43	57	30	43	~
ES	11 135	4 261	6 874	11 135	0	65	83	47	65	~
FR	17 447	:	:	:	:	70	:	:	:	:
IT	7 936	2 536	5 400	7 936	0	22	24	19	22	~
CY	309	53	256	309	0	40	26	48	40	~
LV (1)	1 935	526	1 404	1 932	0	80	85	75	80	~
LT	1 574	328	1 246	1 574	0	72	82	61	72	~
LU	1 077	192	872	1 064	13	100	100	100	100	100
HU	16 196	6 758	8 900	15 658	538	50	65	36	50	19
MT	193	52	140	192	1	61	70	54	61	78
NL	10 000	2 100	7 800	9 900	100	69	84	61	69	23
AT	2 500	340	2 160	2 500	0	67	77	60	67	0
PL (2)	9 204	2 143	7 061	9 204	0	80	87	72	80	~
PT	2 008	679	1 329	2 008	0	48	70	31	48	~
SI	960	222	738	960	0	87	93	83	87	~
SK	2 133	232	1 859	2 091	42	35	77	26	35	5
FI	327	63	264	237	0	57	63	53	57	~
SE	2 725	423	2 223	2 646	79	80	90	73	81	23
UK	5 013	973	3 949	4 922	91	74	84	67	74	44
BG	2 845	909	1 936	2 845	0	61	60	62	61	~
RO	754	312	406	718	36	17	15	19	17	20
NO	12 199	4 626	7 573	12 199	0	72	88	61	72	~

(1) The totals for Division 52 and for Groups 52.1 to 52.6 do not equal the sum of their constituent parts as there are enterprises whose precise activity is unknown but are included in the sample as a special stratum.

(2) Coverage rates for the whole population are not available; the rates shown reflect the coverage rates within the sub-population of enterprises with 10 or more persons employed.

Note: the number of units for Division 52 should equal the sum of the number of units for Groups 52.1 to 52.6 and 52.7, but this is not the case in all countries.

Figure 2.3a: Activity analysis of the total number of units in the sample (sum of countries with complete available data)

- Food retail: 29%
- Non-food retail: 70%
- Repair of household goods: 1%
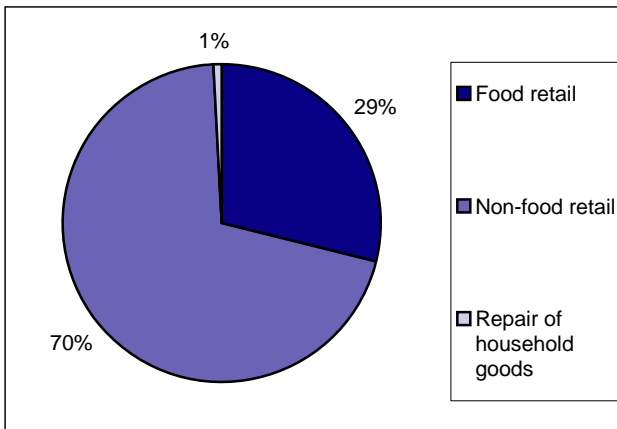
Figure 2.3a summarises the distribution of the sample between food and non-food retail and the repair of household goods for all countries with a full set of information available in Table 2.3. It can be compared with Figure 1.3 which showed a similar distribution for the nationally defined populations.

Figure 2.3b shows the distribution of the sample between the same activities for all countries. Note that 15 of the countries do not collect data for any units in Group 52.7.

Figure 2.3b: Activity analysis of the total number of units in the sample, by country
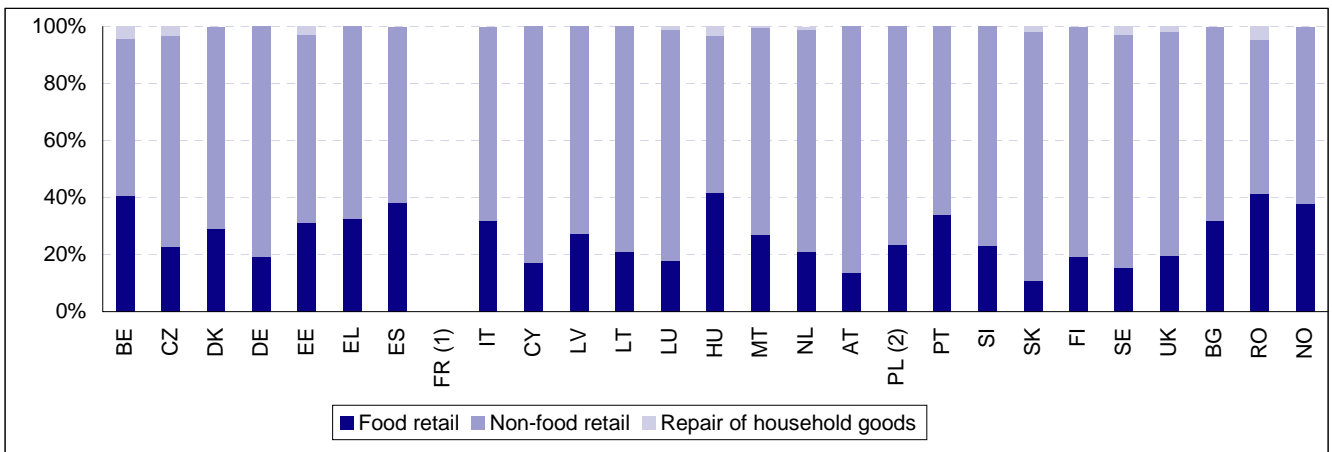
(1) Not available.
(2) Rates shown reflect the coverage rates of the sub-population of enterprises with 10 or more persons employed.

Figure 2.3c ranks the countries according to the absolute size of their sample. Relative to the size of their retail trade economies most of the countries that are EU Member States only since 2004 have quite large samples, in particular Hungary and Latvia – in this respect it

should be noted that many of these are quite small countries. Of the two acceding countries, Romania has a notably small sample. Among the EU-15 Member States the sample in Finland is also small.

Figure 2.3c: Sample size: number of units (thousands)

Country	Units
DE	19.6
FR	17.4
HU	16.2
NO	12.2
ES	11.1
NL	10.0
PL	9.2
IT	7.9
UK	5.0
DK	3.4
BE	3.1
BG	2.8
SE	2.7
AT	2.5
CZ	2.3
SK	2.1
EL	2.1
PT	2.0
LV	1.9
LT	1.6
LU	1.1
SI	1.0
RO	0.8
EE	0.7
FI	0.3
CY	0.3
MT	0.2
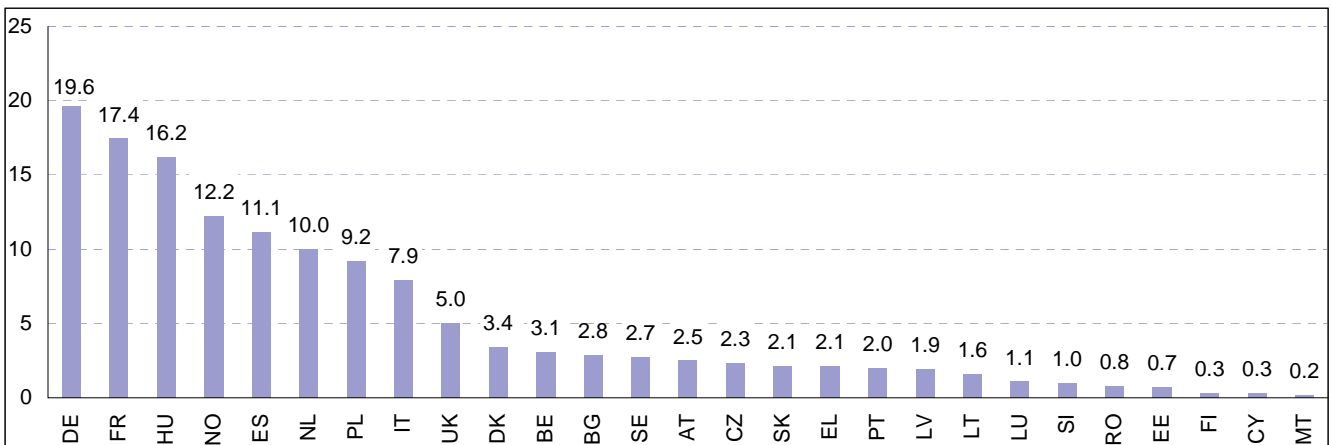
Figure 2.3d plots the size of the sample (x-axis) against the overall sample rate (in turnover terms) for each country.

Figure 2.3d: Sample size and coverage rate
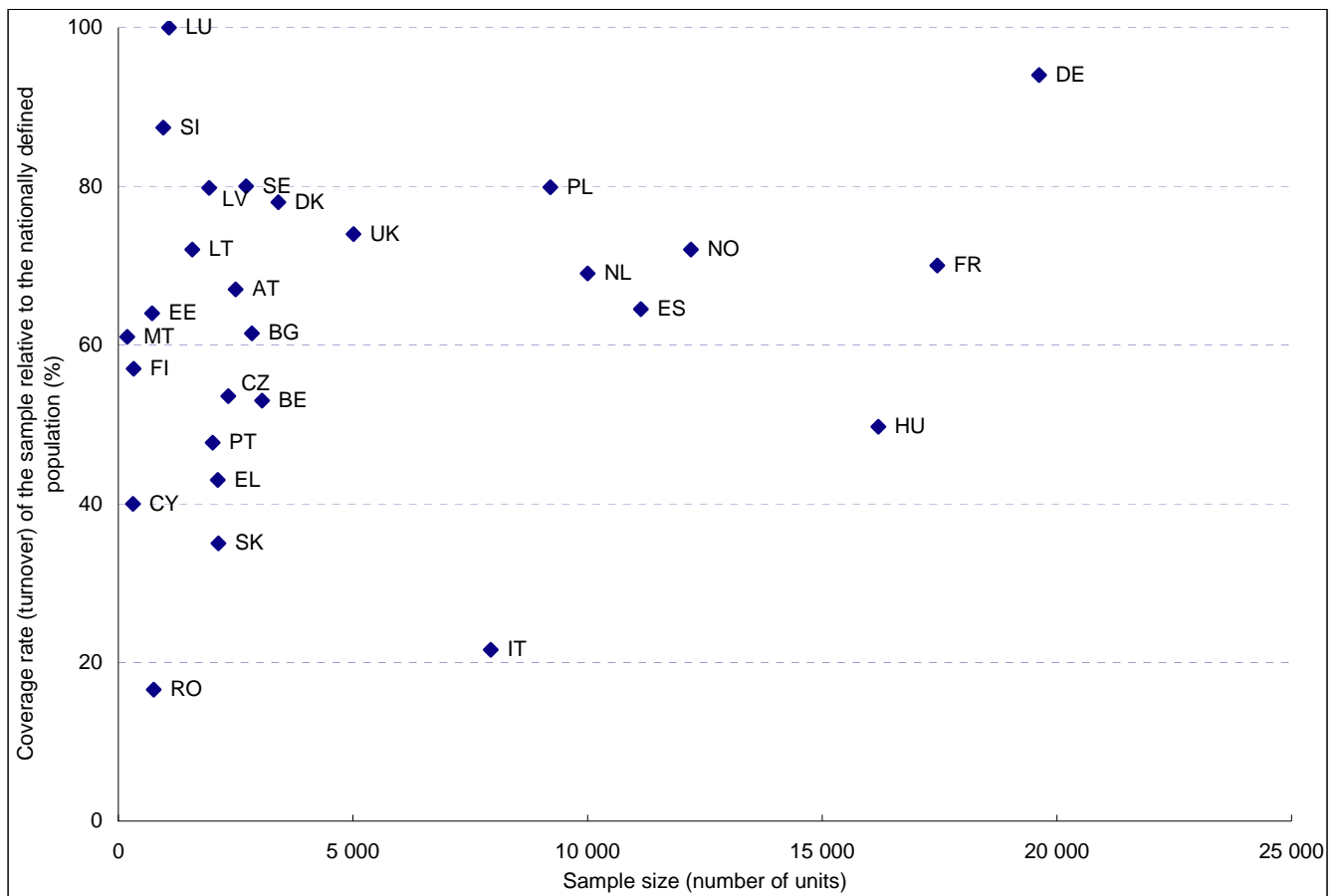
2.4 Frequency of updating of the sample

Nearly all of the countries update their sample at least every year: Greece, Cyprus, Malta and Austria do not.

Table 2.4: Frequency of updating the sample

	Sample		Sample
BE	Annual	MT	Irregular
CZ	Annual	NL	Annual
DK	Annual	AT	every 5 years, monthly update with newly born enterprises
DE	Annual	PL	Monthly (for exhaustive part) and annual
EE	Annual	PT	Frequently (for exhaustive part) and annual
EL	5 yearly	SI	Annual
ES	Annual	SK	Quarterly and annual depending on size and legal form
FR	Annual	FI	Annual
IT	Annual	SE	Annual
CY	5 yearly	UK	Annual
LV	Twice per year	BG	Annual
LT	Annual	RO	Annual
HU	Annual (and quarterly update)	NO	Twice per year (April and October), 4 yearly for small units

3. Definition of turnover

The key issue relating to the definition of turnover is the treatment of VAT. Table 3.1 summarises very briefly the definitions used in each country, while Figure 3.1 focuses on the treatment of VAT. 15 countries exclude VAT, four include VAT, and three collect or compile information both including and excluding VAT. Note that in the United Kingdom the index only covers retail turnover, not total turnover.

Figure 3.1a: Number of countries using specified treatment of VAT

Table 3.1: Summary definition of turnover

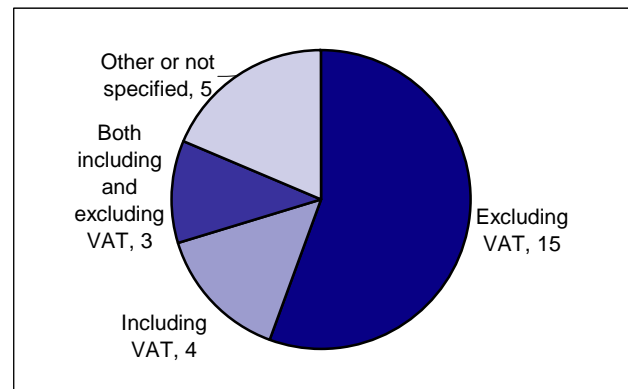|	Definition
BE	Turnover including VAT.
CZ	Turnover including VAT; turnover excluding VAT.
DK	Sales.
DE	Turnover excluding VAT.
EE	Revenue from sale of goods and services, excluding VAT and excise duties.
EL	Turnover including duties and taxes, except VAT and similar deductible taxes directly linked to turnover.
ES	Total invoiced during the reference month from products sold from principle & secondary activities, including all taxes and duties on products. Note that indices are compiled both including and excluding VAT.
FR	Turnover comprises invoiced values, transport, packaging and other costs charged separately, and discounts and other reductions.
IT	Turnover including VAT.
CY	Sales during calendar month excluding VAT.
LV	Turnover excluding VAT.
LT	Not specified.
LU	Turnover including duties and taxes, except VAT and similar deductible taxes directly linked to turnover.
HU	Sales of goods including VAT and excise duties.
MT	Turnover excluding VAT, VAT, turnover including VAT.
NL	Turnover of all activities including taxes related to products and excluding discounts, bonuses, packaging, and invoiced values of returns. VAT is then excluded to comply with the STS-R.
AT	Turnover excluding VAT.
PL	Turnover including duties and taxes, except VAT and similar deductible taxes directly linked to turnover.
PT	Turnover excluding VAT.
SI	Turnover including duties and taxes, except VAT and similar deductible taxes directly linked to turnover.
SK	Turnover excluding VAT and excise duties.
FI	Not specified.
SE	Total turnover including VAT, excluding exports.
UK	Total retail turnover.
BG	Market sales of goods and services including all duties and taxes (with the exception of VAT and other similar deductible taxes); excludes the sale of own fixed assets.
RO	Income generated by an enterprise coming from main and secondary activities. VAT is excluded as is income from the transfer of fixed assets.
NO	Dutiable and duty-free sales income from goods and service as well as rents, commission fees and royalties. Finance revenues, public subsidies and value-added taxes are not included.

Part B: Non response

4. Non-response rates

The issue of non-response can be evaluated from a number of perspectives, three of which are presented here. The first is a simple snapshot of the non-response rate, the second shows how this evolves over the course of one monthly round of data collection, and the third looks at differences in response rates for the 12 calendar months.

4.1 Snapshot of non-response

Table 4.1a: Non response rate (unweighted)

	Non-response (%)	Comments
BE	14	After 54 days
CZ	30.41	After 33 working days (first publication); December 2005 data
DK	2.6	
DE	30	
EE	3	
EL	13.6	
ES	5.93	After 90 days (June 2005)
FR	5-10	
IT	53.2	Excludes late responses
CY	2	
LV	7.8	
LT	4.1	
LU	Not relevant	Based on administrative data
HU	18.3	After 60 days
MT	22	
NL	11.7	
AT	4	Weighted (turnover)
PL	2.3	10 or more persons employed
	38.1	Less than 10 persons employed
PT	39.2	
SI	8.8	
SK	25.4	
FI	21	After 27 days
SE	16.5	
UK	36	
BG	9.37	
RO	5.17	
NO	3	

Table 4.1a provides a snapshot of the rate of non-response, country by country. As will be seen in the next point, the non-response rate develops over the course of a period of data collection, and so to be able to compare non-response rates it is important to take a snapshot at the same point in time, either after a fixed period of time such as 35 days from the end of the reference period, or at a benchmark moment such as the first date for publishing the index. Unfortunately, the benchmark point in time was not specified: a number of countries spontaneously indicated the reference time at which the non-response rate was measured and this is also indicated in Table 4.1a.

Similar information for various size class is provided in Table 4.1b for the countries that provided this information: note that in Table 4.1b the response rates are weighted unless footnoted otherwise.

	Size class	Division 52	Class 52.11 + Group 52.2	Class 52.12 + Groups 52.3 to 52.6	Groups 52.1 to 52.6	Group 52.7
CZ (number of employees); after 33 working days (first publication); December 2005 data	0	46.64	48.27	44.22	46.42	53.23
	1-19	23.23	28.2	19.62	23.12	26.86
	20-49	20.44	19.62	21.08	20.57	0
	50-99	15.26	1.86	20.91	15.36	0
	100 and more	0.92	0.19	2.42	0.92	:
EL (turnover, EUR thousand)	175-250	13.4	0	18.6	13.4	~
	250-500	12.8	0	18.1	12.8	~
	500-1500	13.1	0	18.5	13.1	~
	1500-40000	11.6	3.1	16.2	11.6	~
	>40000	6.5	11.8	0	6.5	~
ES (employees)	less than 3	6.57	6.37	7.67	6.57	:
	3-9	4.13	4.98	4.3	4.13	:
	10-49	4.3	4.11	5.16	4.3	:
	50 and more	3.37	3.17	3.49	3.37	:
LV (turnover, LVL thousand)	Unknown	15.4	26.9	14.4	15.4	~
	0-20	5.5	12.6	4.5	5.5	~
	20-50	7.4	5.3	8.3	7.4	~
	50-100	2.8	1.3	3.7	2.7	~
	100-200	1.9	1	2.1	1.8	~
	200-300	2.7	2.6	2.7	2.7	~
	300-400 (some activities, 300 and more)	0	0	0	0	~
	400-500	0	0	0	0	~
	500 and more	2.8	1.2	3.3	2.8	~
NL (persons employed)	1	37	31.4	38.7	37.5	23
	2-4	27	28.1	26.7	27	27.2
	5-9	26.4	25.5	26.5	26.3	39.3
	10-19	26.2	30.1	25.3	26.1	11.7
	20-49	17.2	14.6	17.7	17	53.9
	50-99	14.2	12.9	14.8	14.2	no units
	100-199	13.6	5.3	15.1	14	0
	200-499	9.7	7.3	10.4	9.7	no units
	500 and more	0	0	0	0	no units
PL (persons employed) (1)	Less than 10	2.3	1.6	3.3	2.3	~
	10 and more	38.1	35.3	38.5	38.1	~

(1) Unweighted.

4.2 Development of response rates during one data collection exercise

An analysis of response rates over the course of one monthly round of data collection can give an idea of when the response rate climbs steeply, and when it starts to tail off – see Table 4.2. The response rates/timing for Romania stand out from those for other countries, in that high rates are achieved astonishingly quickly, with a nearly complete response achieved within four days!

Table 4.2: Response rates during a data collection exercise

Country (reference period)	Stage of processing	Response rate (%)
BE (1)	After 30 days	71
	After 54 days	86
EL	After 60 days	75
	After 90 days	90
ES	After 30 days	89
	After 90 days	94
HU (1)	After 30 days	49
	After 60 days	82
	Final data (after 60 to 150 days)	88
NL (December 2005 data)	After 31 calendar days	84
	After 46 calendar days	93
	After 59 calendar days	95
	After 74 calendar days	96
	After 90 calendar days	96
	After 105 calendar days	96
SE (September 2005 data) (1)	After 5 days	29
	After 10 days	42
	After 15 days	55
	After 20 days	70
	After 25 days	74
	After 30 days	75
	After 35 days	78
	After 40 days	79
	After 45 days	83
	After 50 days	84
UK	After 1 week	45
	After 2 weeks	85
RO	Day 1	40
	Day 2	58
	Day 3	86
	Day 4	100

(1) Unweighted.

4.3 Development of response rates over the course of a year

An analysis of response rates for the 12 calendar months could show if there are seasonal factors influencing enterprises speed/willingness to respond, or statistical offices ability to follow-up non-respondents. Table 4.3 presents the information provided by several Member States, while Figure 4.3a presents the same information averaged across the countries for which complete information is available.

Table 4.3: Response rates (weighted) over the course of a year

	CZ	ES (1)	ES (2)	IT	LV	LT	HU (3, 4)	NL (5)	PT	SI	SK	FI (6)	SE (5)	UK (7)	BG	RO
Year		2005	2005					2005	2005	2005	2005	2005		2004/2005		
Jan	:	96.2	97.4	53.8	91.7	93.8	88.9	:	89.7	98.8	96.4	92.2	99.1	:	96.4	96.2
Feb	76.1	96.2	97.6	56.9	94.7	93.8	88.4	:	89.0	98.7	96.9	91.9	99.2	:	96.1	95.7
Mar	:	95.9	97.7	60.4	94.5	92.0	87.0	87.0	89.4	98.6	98.2	92.2	99.1	:	96.4	95.7
Apr	81.1	95.4	97.7	68.5	95.0	92.4	88.9	84.4	92.1	98.4	97.6	92.4	99.1	:	96.4	97.5
May	81.2	95.1	97.6	53.2	95.0	92.2	88.2	86.0	91.6	98.2	97.4	93.2	99.1	82	96.5	98.0
Jun	81.4	93.9	96.7	67.5	94.7	93.6	87.2	81.0	93.1	98.2	97.5	92.6	99.1	:	96.5	98.7
Jul	81.5	93.0	97.0	58.8	94.2	93.4	88.7	88.4	89.4	98.2	98.0	93.5	98.9	:	96.5	98.4
Aug	:	92.4	97.0	61.8	93.9	94.6	88.4	84.0	93.4	98.1	98.1	94.3	98.8	92	96.5	99.0
Sep	81.5	92.3	96.6	65.3	95.0	94.1	87.2	:	92.9	98.0	98.2	93.3	98.9	:	96.7	99.9
Oct	:	91.2	95.4	62.0	95.0	95.1	88.4	84.4	93.1	97.7	98.2	92.3	99.0	:	96.4	99.9
Nov	81.7	90.2	94.6	63.0	95.2	95.1	87.5	:	93.0	97.4	96.6	91.5	98.9	:	95.9	99.9
Dec	82.4	89.3	94.4	50.3	95.2	93.5	87.0	88.3	92.6	97.1	98.1	89.9	98.6	:	96.3	98.6

(1) After 90 days, for units with less than 3 employees.
(2) After 90 days, for units with more than 50 employees.
(3) Unweighted.
(4) Final (revised) data.
(5) After 45 days.
(6) After 27 days.
(7) Highest and lowest in the year to September 2005.

Figure 4.3a: Average response rates over the course of a year (simple average of response rates of selected countries) (1)
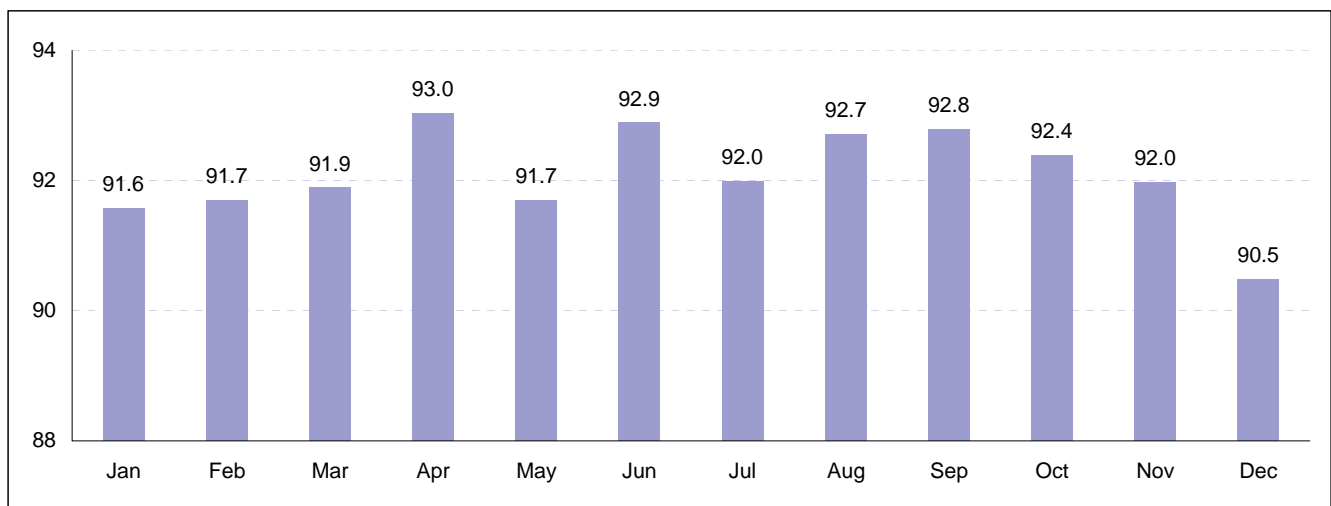
(1) Based on available information for ES (2005), IT, LT, HU (unweighted, final (revised) data), PT (2005), SI (2005), SK (2005), FI (2005), SE, BG, RO.

5. Treating non- response

5.1 Reducing non-response: present practice and plans

Table 5.1 shows the actions taken to follow-up non-respondents and encourage faster/more responses. These are spontaneous answers and it may be that some actions are more widely used than indicated.

Figure 5.1a shows that postal/telephone reminders are the most common form of non-response follow-up. It is likely that more countries are using electronic data collection or are working towards this.
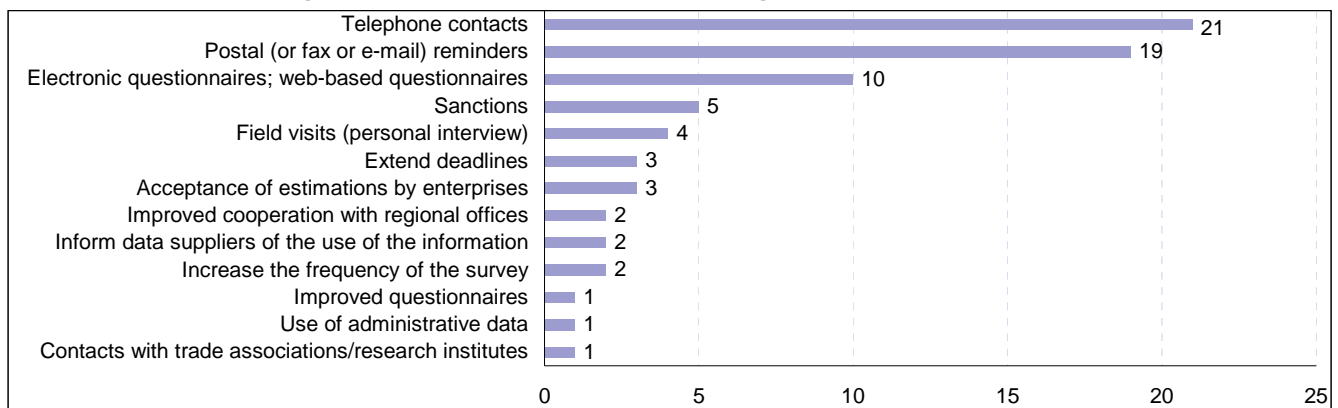
Table 5.1: Actions to reduce non-response rates, or designed to encourage/facilitate response

	Postal (or fax or e-mail) reminders	Telephone contacts	Field visits (personal interview)	Acceptance of estimations by enterprises	Contacts with trade associations/research institutes	Inform data suppliers of the use of the information	Electronic questionnaires; web-based questionnaires	Extend deadlines	Sanctions	Increase the frequency of the survey	Use of administrative data	Improved questionnaires	Improved cooperation with regional offices
BE	1	1											
CZ	1	1		1			1	1					
DK	1	1					1	1	1				
DE	1			1			1	1	1	1			
EE	1	1					1						
EL		1	1										
ES (1)		1					1		1	1			
FR (2)													
CY	1	1											
IT		1				1	1						
LV	1	1					1						
LT	1	1											
LU (2)													
HU	1	1											
MT	1	1											
NL					Not specified								
AT (2)	1	1											
PL	1	1											1
PT		1											
SI	1	1	1								1		
SK	1	1	1				1						
FI	1	1				1	1						
SE	1	1			1		1					1	
UK	1	1							1				
BG	1	1	1	1									
RO													1
NO (2)	1								1				

(1) Small units have the option to give weekly data. Some non-responses are replaced in yearly rotation samples.
(2) Source includes administrative data.

Figure 5.1a: Number of countries using specified actions (1)

Action	Number of countries
Telephone contacts	21
Postal (or fax or e-mail) reminders	19
Electronic questionnaires; web-based questionnaires	10
Sanctions	5
Field visits (personal interview)	4
Extend deadlines	3
Acceptance of estimations by enterprises	3
Improved cooperation with regional offices	2
Inform data suppliers of the use of the information	2
Increase the frequency of the survey	2
Improved questionnaires	1
Use of administrative data	1
Contacts with trade associations/research institutes	1

(1) 24 countries reported using at least one action; nearly all countries reported more than one action.

## 5.2. Treatment of non-response: imputation and reweighting

Table 5.2 shows the methods used to treat non-response. Many countries impute data for individual non-respondents, and the use of reweighting is also widespread.

Figure 5.2a summarises non-response treatments. The three main methods are to carry forward a value for the non-respondent (from the previous period, or the same period of the previous year), to adjust this using the rate of change of respondents that are considered to be similar, or to adjust the weights.

Table 5.2 Non-response treatment

	Imputation method used
BE	"Calibration"
CZ	Rate of change of similar responding units * value of the same month of the previous year of the non-respondent; reweighting for units with no response in any period.
DK	Turnover declared to the VAT authorities is used as an auxiliary variable. The estimation programme recalculates weights to reflect the weight of respondents in the total population.
DE	Relation of previous three months and the same month of the previous year.
EE	Rate of change of similar responding enterprises * value of the previous month of the non-respondent.
EL	Value from the previous period multiplied by the growth rate of the equivalent period of the previous year; in each stratum the weights are adjusted to take account of the response rate.
ES	Previous value multiplied by an annual rate (based on common units in the same strata activity*size); or previous value multiplied by the monthly rate; or value of two months before multiplied by the 2 months rate.
FR	Small non-respondents are excluded; imputation for large non-respondents is based on previous values for the same enterprise.
IT	Rate of change of similar responding enterprises * value of the same month of the previous year of the non-respondent.
CY	Micro estimates.
LV	Rate of change of a given activity * value of the previous month of the non-respondent. Small units are treated by reweighting.
LT	If data from previous time periods are available the latest available value is imputed instead of the missing one. If values of several recent months are known, the trend is taken into consideration. If not, the average value of the stratum is taken.
LU	Source is administrative data.
HU	Rate of change of similar responding enterprises * value of the previous month of the non-respondent. If data for the previous month are not available imputation based on the average of units belonging to the same activity (NACE 4-digit level). In the rare case of large non-respondents, imputation based on administrative data.
MT	Trend of non-respondent during previous months; rate of change of similar responding enterprises * previous month; rate of change of the same period of previous year; weights are also adjusted to take account of non-response.
NL	Rate of change of similar responding enterprises * value of the previous month of the non-respondent. If no recent response, average of responding units in the same stratum.
AT	Estimation of turnover of a missing enterprise for month (t) by month (t-1) multiplied by a strata-specific factor.
PL	Imputation is used for enterprises with 10 or more persons employed that submitted at least one questionnaire throughout the year. In case of the suspended and liquidated enterprises, data is carried over in the cumulative data base (increasing database). If the enterprise refused to return the questionnaire the previous month's value is used. Reweighting is used for enterprises with 10 or more persons employed if they have not submitted data (recently) and for enterprises with less than 10 persons employed.
PT	Rate of change between M-13 and M-1 of the non-respondent * value of the previous month.
SI	Based on trend or mean. Administrative sources are used, as well as information on the number of employees, and also the average turnover development.
SK	Data from previous periods is used as donors. Furthermore initial weights are modified with regard to the status of activity of the units in the frame.
FI	The time series for the non-respondent is analysed to evaluate the missing month. Note: estimates made only if the non-respondent's impact on the growth rate (for the food or non-food retail aggregates) >0.1 percentage point during the previous 4 months (on average) weight is more than 10 per cent at the 4-digit level of NACE.
SE	Values from the same month of the previous year. Values from the VAT declarations from the same month of the previous year. Values from the previous month. Turnover values from non-responding smaller enterprises are compensated by re-weighting. Re-weighting is performed for each size category.
UK	Exhaustive strata: manual imputation based on analysis of the time series, including sometimes forecasting models. Sampling strata: weighted combination of change from previous month and from same month of the previous year of similar responding enterprises * value of the non-respondent; the 10% highest and lowest changes of responding enterprises are excluded
BG	Exhaustive strata: i) value of the previous month(s) ii) rate of change of similar responding enterprises * value of the previous month of the non-respondent. Sampling strata: reweighting.
RO	Rate of change of similar responding enterprises * value of the previous month of the non-respondent.
NO	Previous value multiplied by the average strata change.

Figure 5.2a: Number of countries using specified non-response treatment (1)
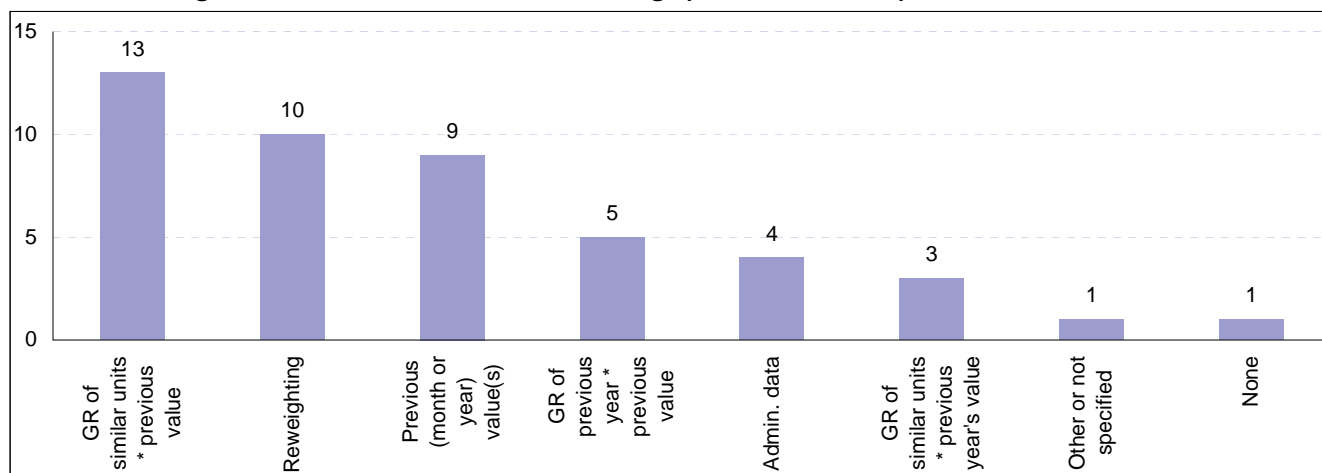
(1) GR = Growth rate; 26 countries reported using at least one method; many countries reported more than one method.

5.3. Measurement of non-response errors/bias

None of the countries compile measures of non-response bias from special surveys. Denmark and Slovakia indicated that bias due to non-response was insignificant. Germany, Estonia, Spain, France, Portugal, Finland, Sweden and Romania indicated that the bias is calculated based on the difference between early estimates of the index and revised indices after late responses have been received. Austria, Finland and Romania provided a quantitative indication of the bias. Italy, Hungary and Poland indicated that the bias is not measured.

Table 5.3: Measurement of non-response errors/bias

	Non-response errors/bias
DK	Information from VAT declarations is used to estimate for non-response, and so this bias is believed to be insignificant.
DE	A comparison is made of the preliminary results (30 days after the end of the reference period) and the final results.
EE	Based on late responses.
ES	Based on late responses. A comparison is made of the preliminary results (30 days after the end of the reference period) and the final results.
FR	Based on late responses.
IT	Bias is not measured.
HU	Imputation for non-respondents leads to bias, as seen in revised figures, but this is not measured.
AT	Analysis indicate that the real and measured turnover differ by approximately 1.5%.
PL	Bias is not measured.
PT	Based on late responses.
SK	None.
FI	In 2005 the revision for total retail trade for the flash estimates (after 27 days) was 0.6 percentage points and for the preliminary indicator 0.8 percentage points.
SE	A comparison is made of the preliminary results (28 days after the end of the reference period) and the final results (45 days).
UK	Revisions triangles for the headline monthly and three-monthly growth rates are published and are available on the ONS website.
RO	The difference between initial figures and revised figures represents about 0.82% of the initial figures for the month of September 2005.

Part C: Data processing

6. Data editing

Table 6 shows the data editing done by countries at a
micro (individual respondents) and activity/
aggregated/macro level.

Table 6: Data editing (part 1)

	Level	Details
BE	Not specified	Not specified.
CZ	Micro	Automated error checking: for example turnover is compared with the turnover of the same month of the previous year, with the turnover of the previous month and with administrative data. Respondents are contacted when data are not plausible or are doubted.
DK	Micro	Manual and automated editing. The formal content of questionnaire (such as changes in addresses, contact person, phone numbers, etc.) is checked when returned questionnaires are opened. The automated editing examines the data using logical and likelihood controls. The controls capture typing errors as well as errors in the data received. The controls include validity and consistency checks (in other words data validation ranges, consistency with other data provided by the respondent in the same survey). Compared with the previous month's data and the data of the same month of the previous year. In some cases, the data is additionally compared with the latest VAT data. Respondents are in most cases confronted with the results of the checks immediately.
DE	Micro	Comparison of turnover with previous months.
EE	Micro & activity	First micro editing and validation takes place where all the received data are processed and errors are marked and if necessary improved. Secondly editing and validation takes place after aggregation. If implausible data or very large changes compared to the previous month or same month one year before are discovered the micro data in certain activities are checked once more to find out the source of error. Logical relations between indicators are checked and if necessary micro data re-examined.
EL	Not specified	Not specified.
ES	Micro	Data are compared to the data of the previous month and the same month of the previous year.
FR	Activity	Automatic editing.
IT	Micro	Manual (on the paper questionnaires) and automatic checking according to fixed rules.
CY	Not specified	Not specified.
LV	Micro	Data editing is done at the time of data entry, and respondents are recontacted if necessary. A further round of data editing is done on the database as a whole.
LT	Micro	Analysis of the time series; comparison with variation of the value series; outlier treatment by calculating m/m-1 and m/m-12.
HU	Micro	Automatic editing, based on an office wide data entry and editing system. There are approximately 25 checks. Turnover should be within 30% and 300% of the previous month's value.
MT	Not specified	Not specified.
NL	Micro	The aim is to edit manually about 20% of the forms and edit automatically about 80%. Step 1: Automatic correction of errors (1000-error, negative values that should be positive, additions that are incorrect or missing). Step 2: plausibility check - for each form an index is calculated indicating the quality of the data. The data is compared to the data of similar enterprises and if it is plausible then it is given a high index otherwise a low index. Step 3a: manual editing - all forms with a low index are edited manually. Forms for which the index could not be calculated (due to missing reference data) are also edited manually. Step 3b: automatic editing - forms with a high index are edited automatically. The result of the editing process is forms with consistent (and in most cases complete) data. When manually editing the data is compared with the data from the same enterprise of the previous month and of the same month of the previous year. It is also possible to compare to the data before automatic correction and it is possible to view information on the enterprise. Only in exceptional cases is the enterprise contacted about the data.
AT	Micro & activity	Detecting and correcting of implausible data with 3 steps (staff, micro, macro) of plausibility checks
PL	Micro & activity	In the first stage Regional Statistical Offices verify, control and correct data on the level of individual respondents. In the second stage the National Statistical Office again aggregated data according to the levels required by the STS-R. The chosen editing method is manual and comprises the following procedures: a value range check for every variable; logical editing (based on logical relationships); comparisons with data from previous collections of the same statistics or from other sources. While data editing, the modules applied for error checking are very helpful - these modules are based on assumptions about the questionnaire. Moreover, the questionnaire contains a list of reasons for significant changes (compared with the previous month data) in surveyed categories.
PT	Not specified	Not specified.
SI	Micro	Limits on turnover and on turnover per person employed are applied according to the activities. Turnover is checked according to the previous month's turnover and the turnover of the same month of the previous year.
SK	Micro	Data are compared to the previous month; there is a protocol of errors.

	Level	Details
FI	Micro & activity	Data are checked at an aggregated (food and non-food retail) level for the flash indicator, and at a more detailed level for the preliminary and final indicators. Micro data are checked, and if necessary respondents are recontacted.
SE	Micro & activity	All micro data are checked when received either directly by the staff involved in the collecting of data or through the touch tone data entry system. The TDE-system runs checks against values from the previous year and the previous period. If the data appears to be unreasonable, the data provider is asked if the information is correct. The same procedure is followed when the data is manually registered. Macro editing is then carried out, firstly by checking that the data are not accumulated figures. Then the growth rate is verified for each activity to find values and confidence intervals that seem to be unnatural or divergent. In activities where the growth rate appears to be divergent in some way the micro data for that activity are studied. Micro data that deviate a lot compared to earlier months and/or the VAT declarations for the same period of the previous year are studied on a micro level and if necessary enterprises are recontacted.
UK	Micro	Credibility checks are made on micro data, comparing with previous month and previous year values, and also with administrative data.
BG	Micro & activity	Micro data is first edited in Regional Offices and then in the NSI at more aggregated (activity) level, and if necessary at enterprise level again. At regional level there are formal checks automatically carried out in the process of data entry and informal checks where the correctness of suspicious values or the incompleteness of data are controlled. Errors of this type are corrected through direct contact with enterprises by the staff of Regional Statistical Offices. Sometimes data entry errors occur and the identified errors are corrected by reference back to the paper forms or to the respondents. The editing process in NSI takes place at more than one stage. Editing is applied to the individual data and at the 3-digit level of NACE comparisons are made with the previous month, the same month of the previous year and also with regard to extreme values.
RO	Micro (enterprise & product) and activity	No details available.
NO	Micro	Prior to the statistical compilation arithmetic and logical operators check the responses for errors and lack of internal consistency. Results are sector wise and stratum wise compared with data of the previous reporting period and with the same period of the previous year. Last changes are rechecked, if necessary by consulting the respondents.

7. Deflation

Of the 27 countries presented, all except Malta compile a retail trade volume of sales index, and all do so by using some kind of price index to deflate turnover or the turnover index. In nearly all cases this is a consumer (or retail) price index (assumed to be based on the data collection for the HICP), although in a few cases the type of price index was not specified.

In nearly all countries the deflation takes place at least at the detailed level of activity headings foreseen in the STS Regulation, the only exception appears to be in Denmark where just three deflators are used (Food and other basic commodities, Clothing etc., Other consumption goods). Many countries deflate at the 4-digit level of NACE or more detailed levels of the national activity classification (France, the Netherlands, Austria, Sweden and the United Kingdom). Table 7 indicates the type of deflator used and the level at which deflation takes place.

Table 7: Level of detail of deflation

	Source of the deflator of sales (1)	Deflation at which level (2)
BE	HICP and SBS data	NACE 4-digit
CZ	HICP	Detailed level required by STS-R
DK	HICP	3 categories (food and other basic items; clothing etc.; other consumption goods)
DE	HICP	5-digit activity
EE	HICP	19 CPA headings
EL	HICP	NACE 4-digit and STS-R levels
ES	HICP	STS-R levels
FR	Price index of the products sold	NAF 700
IT	HICP	STS-R levels
CY	HICP	4-digit
LV	HICP adjusted to the main products	4-digit
LT	Price indices	4-digit
LU	HICP	4-digit
HU	HICP	4-digit
MT	No deflation	Not relevant
NL	HICP	50 activity headings, each made up of one or more 4 or 5 digit headings
AT	HICP	6-digit activity headings
PL	HICP	STS-R levels
PT	HICP	4-digit
SI	HICP	4-digit
SK	HICP	4-digit
FI	HICP	19 activity headings
SE	Industry price index	2, 3, 4 or 5-digit levels
UK	HICP	4-digit; Class 52.48 more detailed
BG	HICP	4-digit
RO	HICP	4-digit
NO	HICP	4-digit

(1) HICP is noted whenever countries reported consumer or retail prices.

(2) STS-R levels refer to the levels and special aggregations of NACE headings that are specified in the STS Regulation.

8. Index calculation/use of weights

8.1 Weights used and frequency of updating

As well as being used to gross/expand/inflate sample results to population figures, weights are used to aggregate indices, normally according to a product or activity classification. For the retail trade turnover index the weights are normally turnover weights. Several countries indicated that they do not use weights, and it is assumed that in these cases the aggregation by activity is done based on the value of turnover: then an index is compiled independently at each level or only data as absolute values are disseminated. Table 8.1 lists the frequency of updating the weights using for grossing sample results, as well as the type of weights used for index aggregation and the frequency with which these are updated. For those countries that provided information on the weights used for the deflator of sales this is also indicated.

Table 8.1: Sample and index weights

	Sample weights: frequency of update	Aggregation of indices: weights used	Aggregation of indices: frequency of weights update	Weights for the deflator
BE	Monthly	None	None	
CZ	Annual	Turnover (base year) from STS survey	5 yearly	
DK	Monthly	Turnover from VAT grossed-up for non-response	Monthly	
DE	5 yearly	Gross value added at factor costs	5 yearly	
EE	5 yearly	None	None	Weights for the deflator are turnover from SBS, for 19 CPA headings. Revised every 5 years.
EL (1)	Self-weighting for turnover	None	Not relevant	Updated every 5 years.
ES	Annual	Turnover	5 yearly	None
FR	5 yearly	Turnover (base year)	5 yearly (assumed)	
IT	5 yearly	Turnover (base year)	5 yearly	
CY	5 yearly	Turnover	5 yearly	
LV (1)	Monthly	Inverse of sampling rate	Monthly	
LT	Monthly	Gross output	Monthly	
LU	Not specified	Not specified	Not specified	
HU	Monthly	Turnover	Monthly	Retail trade turnover by product in 2000 (the base year).
MT	Not specified	Turnover	Irregular, approximately 5 yearly	
NL	5 yearly	Turnover (base year)	5 yearly	
AT	Monthly	Turnover	5 yearly	
PL	Not relevant	None	Not relevant	
PT	5 yearly	Turnover	5 yearly	Product data (CPA).
SI (1,2)	Monthly	Sampling weights	Monthly	
SK	Quarterly and annual depending on size and legal form	Turnover	Quarterly and annual depending on size and legal form	
FI	5 yearly	Turnover (base year)	5 yearly	The most typically sold commodities in the price index baskets of each sub-category are weighted by value of sales of the commodities relation to the total sales of the whole index basket.
SE	No weights	None	Not relevant	
UK	Not specified	Turnover (base year) from SBS	5 yearly	Total sales (base year) for each activity by commodity, from SBS.
BG	5 yearly	Turnover (base year)	5 yearly	
RO	No weights	None	Not relevant	
NO	Annual	None	Not relevant	

(1) The information given for weights for aggregating indices by activity may in fact refer to sampling weights.
(2) Sampling weights are adjusted for the ratio between enterprise births and deaths.

8.2 Type of index

Table 8.2 lists the type of index compiled by each country, indicating whether it is a simple index (value relative) or a Laspeyres or Paasche index, and whether it is chained or not. Furthermore the table provides some information on the type of indices compiled for the deflator of sales and the retail trade volume of sales.

This information is summarised in Figure 8.2a which clearly shows that many countries compile a Laspeyres index, but that there are also a relatively large number of countries compiling a simple value index.

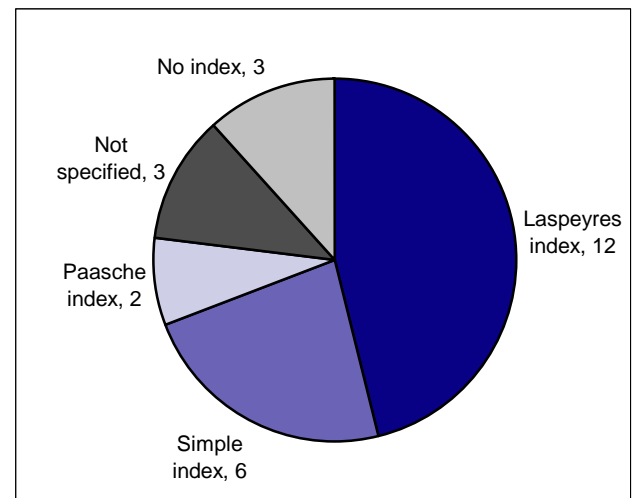*Figure 8.2a: Number of countries using specified type of index*

Table 8.2: Type of index

	Turnover index		Deflator of sales	Volume of sales
	Type of index	Chained		
BE	Simple index	Not specified	Simple index	Not specified
CZ	Laspeyres index	Yes	Chained index	Chained index
DK	Not specified	Yes	Chained index	Not specified
DE	Laspeyres index	Not specified	Paasche index	Not specified
EE	No index	Not relevant	Not specified	Chained index
EL	Simple index	Yes	Not specified	Not specified
ES	Laspeyres index	Yes	Not specified	Not specified
FR	Laspeyres index	No	Not specified	Not specified
IT	Laspeyres index	Not specified	Not specified	Not specified
CY	Laspeyres index	No	No index	Laspeyres index
LV	No index	Not relevant	Laspeyres index	Not relevant
LT	Not specified	Not specified	Not specified	Not specified
LU	Not specified	Yes	Not specified	Chained index
HU	Paasche index	Yes	Not specified	Chained Paasche index
MT	Laspeyres index	No	No index	No index
NL	Laspeyres index (assumed)	Not specified	Not specified	Not specified
AT	Laspeyres index	No	Laspeyres index	No
PL	Paasche index	Not specified	Not specified	Not specified
PT	Laspeyres index	Not specified	Laspeyres index	Not specified
SI	Simple index	Not specified	Not specified	Simple index
SK	No index	Not relevant	Not specified	Not relevant
FI	Laspeyres index (assumed)	Not specified	Not specified	Not specified
SE	Simple index	Not specified	Not specified	Not specified
UK	Laspeyres index	No	Not specified	Laspeyres index
BG	Simple index	Not specified	Not specified	Simple index
RO	Laspeyres index	Not specified	Not specified	Laspeyres index
NO	Laspeyres index	Yes	Not specified	Laspeyres chained index

9. Benchmarking

Many countries reported comparing the collected data or compiled indices with other sources (see point 13 later), however only a few reported aligning the monthly index on the results of other sources - see Table 9 and Figure 9a.

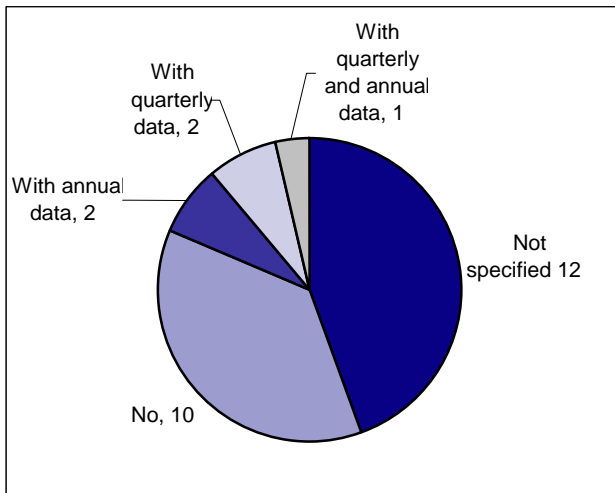*Figure 9a: Number of countries aligning their monthly retail trade turnover index with other data*

Table 9: Alignment with other data

	Monthly retail trade turnover index aligned with other data
BE	Not specified
CZ	No
DK	Not specified
DE	Not specified
EE	Aligned with quarterly survey
EL	Not specified
ES	Not specified
FR	No
IT	No
CY	Not specified
LV	Not specified
LT	Aligned with SBS data
LU	No
HU	No
MT	Not specified
NL	Not specified
AT	Aligned with SBS data
PL	No
PT	No
SI	Quarterly survey on trade, and annual accounts
SK	Quarterly data
FI	No
SE	Not specified
UK	No; however base year data is aligned with SBS data.
BG	Not specified
RO	Aligned with SBS data
NO	Not specified

10. Time series decomposition

10.1 Order of adjustment: choice of input series

Table 10.1: Input series used for WDA and SA (1)

	WDA	SA
BE	Not specified	Not specified
CZ	Gross	Gross
DK	Gross	WDA series
DE	Gross	WDA series
EE	Not specified	Not specified
EL	Gross	None
ES	Gross	None
FR	Gross	Gross
IT (2)	Gross (assumed)	WDA series
CY	Gross	None
LV (2)	Gross (assumed)	Gross (assumed)
LT	Gross	Gross
LU	Not specified	Not specified
HU	Gross	WDA series
MT	None	None
NL (2)	Gross (assumed)	None
AT	Gross	WDA series
PL (2)	Gross (assumed)	Gross (assumed)
PT	Gross	WDA series
SI	Gross	WDA series
SK (3)	None	None
FI	Gross	WDA series
SE	Gross	WDA series
UK (4)	None	Gross
BG	None	None
RO (2)	Gross (assumed)	Gross
NO	Gross	WDA series

(1) Note that several countries did not specify the relation between the SA and WDA series, and it may be that the SA and WDA are done together, and hence when the input is reported as gross for both series it may in fact be that within a combined procedure one is done first, and then the other.

(2) Input series were not precisely specified, but from the information provided it is assumed that they are gross.

(3) The length of series is too short.

(4) A reference period of a fixed number of weeks (4 or 5) is used. Quarters normally comprise two 4-week periods and one 5-week period. Each "year" is 52 weeks and the reporting periods slip back a day or two from one year to the next. Every six years an extra week is added to the January reporting period.

The information on time series decomposition is presented for working day adjustment (WDA) and for seasonal adjustment (SA). In practice some countries carry out these two adjustments in a combined/integrated manner, and these countries may have found it difficult to precisely give the information foreseen in the reports. Table 10.1 and Figure 10.1a indicate that three countries do not do any time series decomposition (neither WDA nor SA), four only do WDA but not SA, and one does SA but not WDA. The last case is the United Kingdom which treats differences in working days through the use of standardised months (fixed 4 or 5 week periods) rather than calendar months, combined with a pre-adjustment in the seasonal adjustment.

Of those countries doing WDA, all who specified the input series use gross series as the input series for this adjustment. Among the 20 countries doing SA 10 of them use WDA data as the input series, and six use gross data: some of the countries that reported using gross data as the input series for SA may be doing a combined WDA and SA and may therefore have found it difficult to distinguish separately the input series for SA.

Figure 10.1a: Number of countries using specified forms of data as input data for WDA and SA (1)
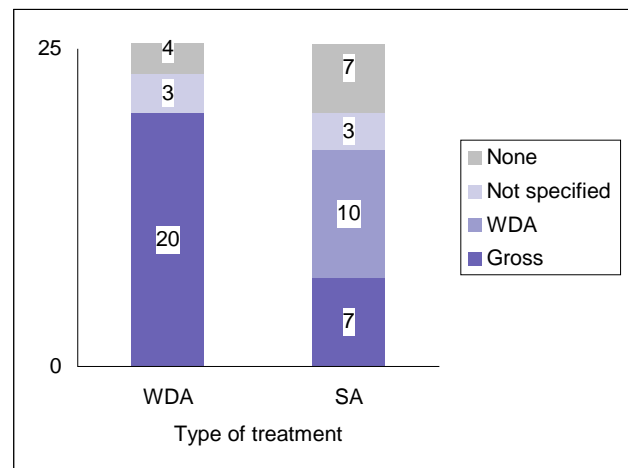
(1) Note that several countries did not specify the relation between the SA and WDA series, and it may be that the SA and WDA are done together, and hence when the input is reported as gross for both series it may in fact be within a combined procedure.

10.2 Software used

Table 10.2 and Figure 10.2a provide information on the software used for the time series decomposition. None of the countries use different software for WDA and SA. Of the four countries doing WDA but not SA one uses X12 ARIMA, two use TS (one with Demetra) and the other uses proportional methods with no specific software.

Figure 10.2a: Number of countries using specified software for WDA: countries performing WDA
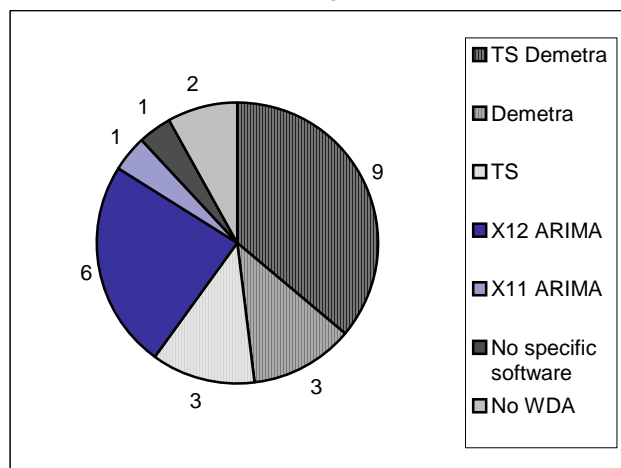

Table 10.2: Software used for decomposition

	WDA	SA
BE	Demetra	Demetra
CZ	TS Demetra	TS Demetra
DK	X12 ARIMA (Demetra)	X12 ARIMA (Demetra)
DE	X12 ARIMA	X12 ARIMA
EE	TS	Not specified
EL	No specific software (proportional method)	No SA
ES	TS	No SA
FR	TS Demetra	TS Demetra
IT	TS	TS
CY	TS Demetra	No SA
LV	Demetra	Demetra
LT	TS Demetra	TS Demetra
LU	TS Demetra	TS Demetra
HU	TS Demetra	TS Demetra
NL	X12 ARIMA	No SA
AT	X12 ARIMA	X12 ARIMA
PL	TS Demetra	TS Demetra
PT	X12 ARIMA	X12 ARIMA
SI	TS Demetra	TS Demetra
FI	TS Demetra	TS Demetra
SE	X11 ARIMA	X11 ARIMA
UK	Not relevant	X11 ARIMA
RO	Demetra	Demetra
NO	X12 ARIMA	X12 ARIMA

10.3 Methods for WDA

Concerning the method used for WDA a distinction can be made between proportional and regression methods. Table 10.31 lists the method used by each country, and Figure 10.31a indicates clearly that the vast majority use regression methods.

The treatment of outliers is addressed in Table 10.32 which indicates that nearly every country reported treating outliers.

Figure 10.31a: Type of working-day adjustment: countries performing working-day adjustment
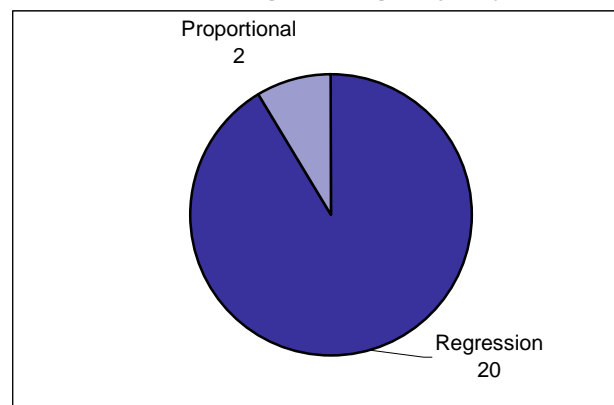

Table 10.31: Type of working-day adjustment

	Type of WDA
BE	Regression
CZ	Regression
DK	Regression
DE	Regression
EE	Regression
EL	Proportional
ES	Regression
FR	Regression
IT	Regression
CY	Regression
LV	Regression
LT	Regression
LU	Regression
HU	Regression
NL	Regression
AT	Regression
PL	Regression
PT	Regression
SI	Regression
FI	Regression
SE	Proportional
RO	Regression
NO	Regression

Table 10.32: Treatment of outliers

|	Outliers adjustment	Automatic threshold for outliers
BE	Yes	Yes
CZ	Yes	Mostly
DK	Yes	Yes
DE	Yes	No
EE	Yes	Yes
EL	No	Not relevant
ES	Yes	No
FR	Yes	No
IT	Yes	Yes
CY	Yes	Yes
LV	Yes	Mostly
LT	Yes	Mostly
LU	Yes	Yes
HU	Yes	Yes
NL	Yes	No
AT	Yes	Mostly
PL	Yes	Yes
PT	Yes	Yes
SI	Yes	Mostly
FI	Yes	Yes
SE	No	Not relevant
RO	Yes	Yes
NO	Yes	Yes

Table 10.33 lists the type of regressors used and Figure 10.33a provides a summary of the use of leap year and Easter regressors.

Table 10.33: Regressors used for WDA: countries performing WDA using regression methods

	Regressors	Definition of regressors	Leap year regressor	Easter regressor	Length Easter effect	Pre-adjustment of national holidays (1)
BE	7	Not specified	Not specified	Not specified	Not specified	Not specified
CZ	Maximum 7	Number of Mondays, Tuesday… minus number of Sundays; number of working days minus number of weekend days. National holidays are treated as Sundays.	Yes if significant	Yes if significant	6 days before	Yes (in the regressor for the number of working days)
DK	7	Number of Mondays, Tuesday… minus number of Sundays, and a leap year regressor	Yes	Yes if significant	6 days before	No
DE	Varies	Deviation from monthly average	Yes	Yes	Not specified	Yes
EE	(1 or 6) + 1 + others	Number of working days; Country specific holidays; Easter	No	Yes	Not specified	Yes
ES	3	Number of working days, Easter, leap year	Yes	Yes	5 days	Yes
FR	6	Deviation around the long-term average	Yes	Yes	Not specified	No
IT	6	Number of working days of the month	No	Only for 52.11+52.2	Not specified	No
CY	7	Trading days and leap year	Yes	No	No	Yes
LV	Varies	Length of month	Yes (automatic)	Yes (automatic)	Not specified	Yes
LT	2	Number of working days of the month	Yes	Yes	Not specified	Yes
LU	2	Absolute value	Yes	Yes	Not specified	Yes
HU	1+1+1	Number of workdays, and leap year if significant	Yes if significant	Yes if significant	6 days	Yes
NL	Maximum 3	Deviation around the average	Yes	Yes	Not specified	Yes
AT	1 + 1	Number of working days and Easter; deviation around the average	No	Yes	Not specified	Yes (in the number of working days)
PL	Maximum 2	Not specified	Yes	Yes	6 days	Yes
PT	Varies	Deviation around the average	Yes if significant	Yes	Not specified	No
SI	1, 2 or 6	For 1 or 2 regressors: (number of Mondays, Tuesdays, ..., Fridays) minus 5/2*(number of Saturdays, Sundays); For 6 regressors: (number of Mondays) minus (number of Sundays), (number of Tuesdays) minus (number of Sundays), ..., (number of Saturdays) minus (number of Sundays)	Yes if significant	Yes if significant	6 days	Yes if significant
FI	Maximum 7	Number of working days or number of trading days	Yes if significant	Yes if significant	Not specified	Yes
RO	2	Number of working days and number of weekend days	Yes	Yes	Not specified	No
NO	6	Number of Mondays, Tuesdays… Saturdays	No	Not specified	Not specified	No

(1) Sometimes treated in the regressors.

Figure 10.33a: Leap year and Easter regressors: countries performing WDA using regression (1)

Pie chart:
- Not specified, 2
- Leap year only, 1
- Easter only, 3
- Leap year and Easter regressor, 15
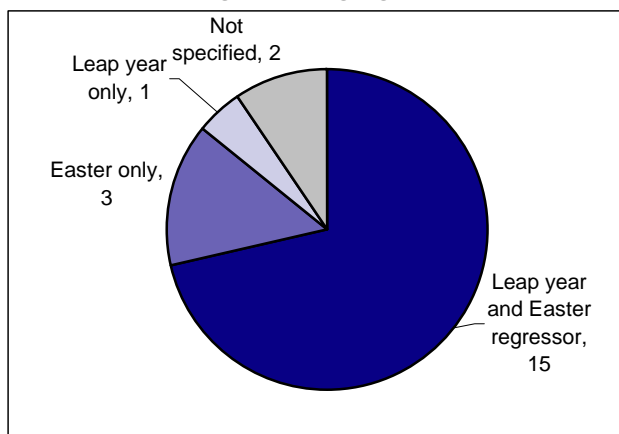
(1) Some countries may have replied no to one or other of these because they are treated within other regressors, such as for the length of the month, or the treatment of national holidays.

10.4 Methods for SA

For some counties the establishment of a WDA series (including treating for the Easter effect) is considered as a pre-treatment for SA, while for others it is not, and as such this has been excluded from Table 10.4 as far as possible. Concerning the last column of the table "same for all NACE" this point in the report may have been interpreted differently among the countries, with some regarding a common method with different models as the "same" (when thinking of the method) and others as "different" (when thinking of the models).

Table 10.4: Seasonal adjustment: countries performing SA

	Pre-adjustment (other than working day)	Model used	Same for all NACE
BE	Not specified	ARIMA	Yes
CZ	No	User selected	Yes, same method
DK	No	Airline model (011)(011) fixed	Not for Group 52.3
DE	Outlier detection	User selected	Yes
EE	Not specified	Not specified	Not specified
FR	Outlier detection	ARIMA	Yes
IT	Logarithmic transformation	ARIMA	Yes
LV	Yes	ARIMA	Yes
LT	Outlier detection	ARIMA	Yes
LU	Yes	TS (not specified)	Yes
HU	Outlier detection	ARIMA	Yes
AT	Yes	Automatic selection (ARIMA)	Yes
PL	Yes	Airline	Yes
PT	Yes	Automatic selection	Not specified
SI	Yes	ARIMA	Yes
FI	Outlier detection	Automatic, if not Airline model	Yes
SE	Not specified	Chosen by X11	Yes
UK	Yes (calendar adjustment)	Multiplicative (0,1,1)(0,1,1) except: Classes 52.44 to 52.46 multiplicative (0,1,1)(1,1,1); Classes 52.62, 52.63 and 52.70 additive (2,1,1)(0,1,1)	No
RO	No	ARIMA	Yes
NO	No	Automatic	Yes

10.5 Aggregation approach

Table 10.5 indicates whether series are aggregated by NACE and then SA performed independently at each level (referred to as the direct method), or whether SA is performed on lower level indices (for example at 3 or 4-digit level), and the resulting indices then aggregated by NACE (the indirect method). Figure 10.5a shows that the direct method is most commonly used.

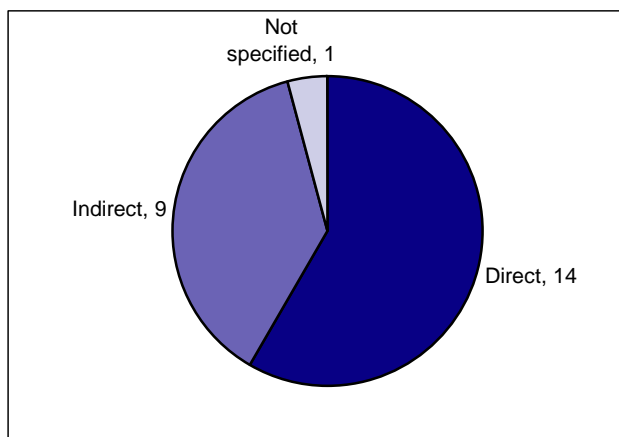*Figure 10.5a: Order of activity aggregation and adjustment: countries performing WDA and/or SA*

Table 10.5: Order of activity aggregation and adjustment: countries performing WDA and/or SA

	Activity aggregation
BE	Direct
CZ	Indirect
DK	Indirect
DE (1)	Indirect
EE	Direct
EL	Not specified
ES	Direct
FR	Indirect
IT	Indirect
LV	Direct
LT	Direct
LU	Direct
HU	Direct
NL	Direct
AT	Indirect
PL	Direct
PT	Indirect
SI	Direct
FI	Direct
SE	Direct
UK	Indirect
RO	Direct
NO	Direct

(1) Generally direct at 4-digit level, otherwise indirect.

10.6 Revision of models

Table 10.6 provides information on:
- the frequency with which SA models and parameters are adjusted: generally once a year;
- the frequency with which the span model is changed: generally annually or not at all;
- the length of SA time series revised each time the SA is performed: generally the whole series that is available.

Table 10.6: Frequency of changes to model: countries performing regression WDA and/or SA

	Model adjustment	Parameters re-estimation	Span model changed (ignoring extending the series) (1)	Length of revised series
BE	Annually, or if series is rejected	Annually, or if series is rejected	Not specified	Not specified
CZ	Annual	Monthly	Depends on automatic detection	From 1996 January
DK	Annual	Annual	2002 January	Up to 5 years
DE	Annual (exceptions possible)	Not specified	No	Whole series (1994 January onwards)
EE	Annual in February	Annual in February	No (planned annually)	One year
ES	5 yearly: last December 2005	Annual	With base year change	Since 1995 for series 5201 to 5206 Since 2001 for other series
FR	Monthly	Annual	No	1995 January onwards
IT	Annual in January	Monthly	Not specified	122 months
CY	Annual	Annual unless there are long revisions	Annually (when December data is not available)	Annual model changes: whole series
LV	Annual if necessary	Monthly if necessary	Not specified	Not specified
LT	Generally annual in January	Generally annual in January	Generally annual in January	1997 January onwards
LU	Annual in May	Annual in May	Monthly	January to December 2005
HU	Annual	Annual	Annually (when December data is available)	1998 January onwards
NL	Annual	Annual	Annual	No series published yet
AT	Annual	Monthly	Depends on model identification	2000 onwards
PL	Annual in February	Annual in February	Annually (when December data is available)	Annual model change: whole series Quarterly changes: one quarter revised
PT	When the base year changes	Annual in April	With re-estimation	For internal use, from 1995; for dissemination, from 2000
SI	Annual in January	Monthly	No	Whole series
FI	Annual in March	Monthly	No	Whole series
SE	Monthly	Monthly	Monthly	Whole series
UK	Annual review, change when improvement deemed significant (last in October 2003)	Annual in September	No; constant since 1986	As far back as the first significant revision.
RO	Annual in January	Annual in January	No	Since 2000
NO	Last in 2000	Continuously	Constant since 1979	Not specified

10.7 Base year of indices

Table 10.7 indicates which series are set to equal 100, namely whether it is the gross, WDA or SA series. It also indicates whether 100 is the value for the base year (currently 2000) or for another year. To help understanding; the first two columns of the table recall which countries do WDA and SA. Several countries reported that the base year average was set to 100 without indicating for which of the series this is done, and in these cases it is assumed that it is for the gross series.

Table 10.7: Identification of forms for which the index is set to an annual average of 100 (1)

	WDA	SA	Output of the series: turnover	Output of the series: volume of sales
BE	Yes	Yes	Gross (assumed) for 2000	Gross (assumed) for 2000
CZ (2)	Yes	Yes	Gross, WDA and SA for 2000	Gross, WDA and SA for 2000
DK	Yes	Yes	Gross (but not WDA or SA) for 2000	None
DE	Yes	Yes	Gross (assumed) for 2003	Gross (assumed) for 2000
EE (3)	Yes	Yes		Gross (assumed) for 2000
EL	Yes	No	Gross (assumed) for 2000	Gross (assumed) for 2000
ES	Yes	No	Gross (assumed) for 2005	Gross (assumed) for 2005
FR	Yes	Yes	Gross (assumed) for 2000	Gross (assumed) for 2000
IT	Yes	Yes	Gross (assumed) for 2000	Not specified
CY	Yes	No	Gross for 2000	Gross for 2000
LV	Yes	Yes	Gross (assumed) for 2000	Gross (assumed) for 2000
LT	Yes	Yes	Gross (assumed) for 2000	Not specified
LU	Yes	Yes	Gross (assumed) for 2000	Gross (assumed) for 2000
HU	Yes	Yes	Gross and WDA for 2000	Gross and WDA for 2000
MT	No	No	Gross for 2000	None
NL	Yes	No	Gross for 2000	Not specified
AT	Yes	Yes	Gross (assumed) for 2000	Gross (assumed) for 2000
PL	Yes	Yes	Gross (assumed) for 2000	Not specified
PT	Yes	Yes	Gross (assumed) for 2000	Not specified
SI	Yes	Yes	Gross (assumed) for 2000	Gross (assumed) for 2000
SK	No	No	Input data=values	Input data=values
FI	Yes	Yes	Gross for 2000	Gross for 2000
SE	Yes	Yes	Gross (assumed) for 2000	Gross (assumed) for 2000
UK	No	Yes	Gross (assumed) for 2000	Gross (assumed) for 2000
BG	No	No	Not specified	Not specified
RO	Yes	Yes	Gross (assumed) for 2000	Gross (assumed) for 2000
NO	Yes	Yes	Gross for 2000	Gross for 2000

(1) Several countries reported that 100 was the average for the base year, and this has been interpreted as being 2000.
(2) Since this report was initially drafted this has changed to Gross for 2000.
(3) WDA and SA for volume of sales only.

Part D: Error measurement

11 Non-sampling errors

Information was requested from countries on a number of aspects of non-sampling errors. In very few cases were countries able to provide any quantitative information.

Use of consistent definitions - reference period: the Czech Republic indicated that some respondents give cumulative figures since the beginning of the reference year rather than for the reference month itself; the Netherlands reported that reference periods have to be regularly converted; the United Kingdom reported that about 65 % of respondents use the "standardised" reporting periods (4 or 5-weeks) requested, 20 % use the calendar month, and the remainder use other periods; Norway noted that respondents do not always report for the calendar month.

Use of consistent definitions - variable definition: the Czech Republic reported that some units provide the turnover exempt from VAT rather than turnover excluding VAT; Germany reported that some retail agents report the value of the traded goods rather than just their commissions; Austria reported that there are measurement errors in the case of differences between fiscal turnover and turnover from company accounts - if such differences are recognised for important enterprises they are contacted by telephone.

Use of consistent definitions - statistical unit: Norway reported that units ("establishments") sometimes report about only part of their, or about the activity of the whole enterprise to which they belong.

Processing and measurement errors: several countries mentioned that they used controls to check/correct for measurement and processing errors; several countries mentioned misunderstandings by respondents; Estonia reported that in about 19 % of questionnaires the turnover was corrected in a particular month; Italy reported measurement errors in about 0.5 % of cases; Latvia reported that around 5 % of respondents are contacted to confirm large changes in turnover; Denmark provided the following table indicating the proportion of suspected and confirmed errors, by type of data collection.

Table 11: data validation, Denmark: all numbers and percentages are approximate

Number of questionnaires sent: 3 300	Returned forms	Telephone data entry system
Number of forms received	2 231	931
Share failing validation	8-13 %	30 %
Share contacted by phone	5 %	20 %
Share of confirmed errors after manual check	4-12 %	4-7 %

Coverage and classification: a number of countries mentioned that there were misclassifications - Lithuania noted that this was particularly an issue in January.

12 Sample errors

Another type of error concerns sampling errors. Table 12 provides information on sample errors for those countries that use sampling. One country said that these errors are not measured, one that the information is not available, and four did not provide any information. The remainder use a variety of software to calculate this information, some looking at the value data actually collected and others at the index itself. Most calculate the coefficient of variation.

Table 12: Sample error measurement: countries using sampling

	Software	Indicator measured	Measure used	Month	Value
BE	Not specified				
CZ	Tailor made	Turnover index	Coefficient of variation	Sep 2005	0.66%
DK	SAS, CLAN	Turnover index	Coefficient of variation	Sep 2005	0.75%
DE	SAS (in future)				
EE	Tailor made (Fox pro)	Turnover	Coefficient of variation	Sep 2005	5.04%
EL	Not specified	Turnover index	Coefficient of variation	Sep 2005	4.32%
ES	Tailor made	Annual growth rate	Coefficient of variation	Sep 2005	0.93%
FR	Not specified	Turnover index	Coefficient of variation	Sep 2005	0.50%
IT	SAS	Turnover	Confidence interval	Sep 2005	+/-7.2%
CY	Not specified				
LV	SUDAAN; SPSS; Excel	Turnover	Coefficient of variation	Sep 2005	2.00%
LT	SAS, CLAN	Turnover index	Coefficient of variation	Sep 2005	1.30%
LU	Not specified				
HU	Tailor made	Not specified	Standard error	Sep 2005	4.00%
MT	Not specified				
NL	Not measured				
AT	Tailor made	Not specified	Sampling error	Sep 2005	2.00%
PL	SAS	Not specified	Coefficient of variation	Sep 2005	Not specified
PT	SAS	Not specified	Coefficient of variation	Sep 2005	1.50%
SI	SAS	Monthly growth rate	Coefficient of variation	Sep 2005	3.70%
SK	Not specified				
FI	Not available				
SE	CLAN	Turnover	Confidence interval (+/-)	Sep 2005	0.76%
UK	Ingres and Excel	Turnover	Coefficient of variation	Sep 2005	0.41%
BG	SPSS	Turnover	Coefficient of variation	Sep 2005	2.00%
RO	SAS	Not specified	Coefficient of variation	Sep 2005	8.14%
NO	Tailor made	Turnover	Coefficient of variation	Sep 2005	0.22%

13 Comparison among sources

As noted in point 9 above, very few countries adjust their monthly retail trade turnover indices by benchmarking them to the results of other sources, however many make comparisons at a micro or macro level with other data sources. Table 13 lists the comparisons that countries make.

Table 13: Comparisons with other data

	Comparisons of the index with other data
BE	Not specified.
CZ	Year on year change compared to SBS. There are differences between results due to more accurate figures in the units' end of year accounts.
DK	Monthly comparisons with VAT data, and with information on payments by credit card. Annual comparisons with national accounts data are also available.
DE	Year on year change compared to SBS.
EE	Monthly data are compared with a quarterly survey and in case of need the data are adjusted.
EL	Not specified.
ES	Comparisons with annual SBS and monthly VAT data.
FR	Comparisons with surveys by the French central bank and with INSEE surveys of super- and hyper-markets.
IT	Data on household consumption are considered in comparison to retail trade results; informal comparisons can be made with qualitative surveys on retail trade and other specialised surveys.
CY	Comparisons with annual SBS data
LV	Comparisons with quarterly survey of enterprise finances and with annual SBS.
LT	Comparisons with annual SBS.
LU	Not specified.
HU	Comparison with quarterly retail trade survey of products, and with VAT declarations.
MT	Not specified.
NL	Compared with annual data.
AT	Comparisons with SBS, administrative sources, and foreign trade statistics.
PL	Comparison with quarterly financial results.
PT	Not specified.
SI	Comparison with quarterly survey and annual final accounts.
SK	Comparison with quarterly data (data collected for GDP calculation) and with annual data (SBS).
FI	The index is not compared with other sources because of methodological differences.
SE	Comparisons with SBS and with VAT declarations.
UK	Comparison with results from other (not from the statistical office) surveys.
BG	Turnover index and volume of sales are compared with indexes calculated on the basis of the annual SBS survey. The SBS survey (from the base year, currently 2000) delivers the weights for STS indicators. There is no difference in methodology for compiling monthly (STS) and annual (SBS) indexes, although the SBS is an exhaustive survey.
RO	Not specified.
NO	Not specified.

14 Bias

Very few countries provided any information on the bias
in their results.

Table 14: Measurement of bias

	Bias
DK	There is a bias due to the imperfect population frame and current changes in the population. No specific data is available.
EL	None.
ES	Bias is indirectly measured by comparing provisional and final indexes.
FR	Bias is indirectly measured by comparing provisional and final indexes, and by comparing indices with and without an adjustment for demographic changes.
IT	Not calculated.
HU	None.
NL	When compared to annual data the short term turnover is usually too low. Adjustments are usually not higher than 1 percentage point for the year on year change.
UK	Patterns in revisions to headline growth rates were tested for bias and none was detected.

14 Bias

15 Dissemination of information about errors

Only four countries specifically mentioned that they disseminate information on errors, namely Germany, Austria, Slovenia and the United Kingdom. France, Italy and Hungary reported that they disseminate internally such information. Eight countries reported that they do not disseminate information on errors, while the remaining nine countries did not provide any information for this point.

It is likely that many countries do provide information when they disseminate their data, for example, information on response rates.

Annex

1. Definitions

Turnover

The definition of turnover for STS follows the definition of SBS and in this respect follows largely the ESA 95.

The definition of turnover is relatively straightforward. In case of doubts concerning the eventual inclusion or not of any item in turnover the definition specifies that "items may be included if they generate turnover in the principle field of operation of the observation unit".

Turnover comprises the totals invoiced by the observation unit during the reference period, and this corresponds to market sales of goods or services supplied to third parties. Turnover also includes all other charges (transport, packaging, etc.) passed on to the customer, even if these charges are listed separately in the invoice. Subsidies received from public authorities or the institution of European Union are also included. Turnover excludes VAT and other similar deductible taxes directly linked to turnover as well as all duties and taxes on the goods or services invoiced by the unit. Reductions in prices, rebates and discounts as well as the value of returned packing must be deducted. Price reductions, rebates and bonuses conceded later to clients, for example at the end of the year, are not taken into account.

According to this definition, the items generally included are:
- sales of manufactured products;
- sales of products manufactured by subcontractors;
- sales of goods purchased for resale in the same condition as received;
- invoiced services provided;
- sales of by-products;
- invoiced charges for packaging and transport;
- hours worked invoiced to third parties for labour only subcontracting;
- invoiced mounting, installations and repairs;
- invoiced instalments (stage payments);
- invoiced development of software and software licences;
- sales of supplied electric power, gas, heat, steam and water;
- sales of waste and scrap materials
- subsidies on products.

Subject to the treatment of income classified as "other operating income, financial income and extraordinary income" in company accounts, the items generally excluded are:
- commissions;
- leases and rentals;
- leases for own production units and machines if used by third parties;
- leases of company-owned dwellings;
- receipts for license-fees;
- receipts from staff facilities (for example from a factory canteen);
- the supply of products and services within the observation unit;
- sales of own land and fixed assets;
- sales or leases of own properties;
- sales of shares;
- interest receipts and dividends;
- other extraordinary income.

National statistical authorities should use this definition, but accounting rules in force in each country should be used as guiding principles of what to include and to exclude. The reality of each activity should be taken into account when measuring turnover, for example in some activities with large products with long production cycles turnover is likely to be more volatile.

VAT

The treatment of VAT in turnover is a controversial issue, some consider that VAT should be included in the definition of turnover. The definition adopted for STS excludes VAT that is consistent with the definition adopted for SBS. There are some reasons for not including VAT in the turnover definition:

– the aim of STS is to follow developments over time and VAT does not have any impact on the tendency unless the rate of the tax is changed. In fact, if there is a change in the tax of different products this could introduce an artificial element into the development of the turnover indicator;
– if VAT is included in the weights, it can distort the share of each activity; bearing in mind that the tax differs from product to product, the impact of VAT on these weights can have a negative impact on the quality of the index;
– the tax for domestic or non-domestic markets may differ;
– the tax differs between Member States.

Enterprise

The enterprise is the smallest combination of legal units that is an organisational unit producing goods or services, which benefits from a certain degree of autonomy in decision-making, especially for the allocation of its current resources. An enterprise carries out one or more activities at one or more locations. An enterprise may be a sole legal unit.

The enterprise thus defined is an economic entity that can therefore, under certain circumstances, correspond to a grouping of several legal units. Some legal units, in fact, perform activities exclusively for other legal units and their existence can only be explained by administrative factors (e.g. tax reasons), without them being of any economic significance.

A large proportion of the legal units with no persons employed also belong to this category. In many cases, the activities of these legal units should be seen as ancillary activities of the parent legal unit they serve, to which they belong and to which they must be attached to form an enterprise used for economic analysis.

Local unit

The local unit is an enterprise or part thereof (e.g. a workshop, factory, warehouse, office, mine or depot) situated in a geographically identified place. At or from this place economic activity is carried out for which - save for certain exceptions - one or more persons work (even if only part-time) for one and the same enterprise.

It should be noted that, unlike the enterprise, there must be some employment within a local unit for it to exist. The local unit is a unit and not just a geographical breakdown of an enterprise. As such it is possible for more than one local unit belonging to the same enterprise to exist in the same region. This has important consequences for the collection of regional data.

KAU

The kind-of-activity unit (KAU) groups all the parts of an enterprise contributing to the performance of an activity at class level (four digits) of NACE and corresponds to one or more operational sub-divisions of the enterprise. The enterprise's information system must be capable of indicating or calculating for each KAU at least the value of production, intermediate consumption, manpower costs, the operating surplus and employment and gross fixed capital formation.

The KAU was devised as an observation unit in order to improve the homogeneity of the results of statistical surveys by activity and hence the international comparability of these results, since at the level of the enterprise different types of horizontal and vertical integration can be observed at both national and international level. An entity that only carries out ancillary activities for the enterprise to which it belongs cannot be considered as a separate KAU. In fact, the KAU corresponds to the operational definition given in paragraph 96 of the introduction to ISIC Rev.3.

The KAUs falling within a particular heading in the NACE classification system can produce products outside the homogeneous group, on account of secondary activities connected with them which cannot be separately identified from available accounting documents. Conversely, the KAUs classified under a particular heading in the classification system on the basis of a principal activity do not produce the entire output of homogeneous groups of specific products because the same products can be produced in secondary activities of KAUs falling under some other classification heading.

The internal accounts of enterprises (e.g. profit or cost centres) have often been developed according to criteria that are close: the activity concept. They enable the supply of data at KAU level, so that these can be observed.

All the costs of ancillary activities of an enterprise must be allocated to the principal and secondary activities and thus to the KAUs observed within the enterprise.

2. Index compilation

Decomposition

The most common justification for the use of decomposition is that it makes it possible to determine sub-annual growth rates that make sense and it provides a means to establish long-term developments uninfluenced by seasonal and sub-annual factors.

The normal breakdown of a time series makes it possible to identify the trend, the cycle, the seasonal variation and the erratic fluctuations.

- The trend is a slow variation over several years, generally associated with the structural causes of the phenomenon involved.
- The cycle is an almost periodic fluctuation characterised by alternating periods of higher and lower rates of change (which may in fact be expansion and contraction); in the majority of cases, it is connected to the fluctuations of overall economic activity. As regards decomposition of the series, the trend and cycle are often associated (they are not differentiated);
- The seasonal variation represents the effect of the climatic and institutional events which recur more or less regularly each year (for example, summer holidays or Christmas sales);
- The erratic fluctuations represent unforeseeable movements linked to any type of events. In general, they are of an unpredictable, stable nature but can in certain cases present extreme values. These extreme or aberrant values can have various origins. They may be economic, such as strikes or the impact of a harsh winter on electricity production. These may be referred to as the irregular component of the series.

Working-day adjustment

The term 'working-day adjustment', as mentioned by the STS-Regulations, covers both calendar and working/trading day effect adjustments. The calendar effect is related to the fact that the economic activity varies around the special periods and dates in the year (Easter, moving holidays) while the working/trading day effect originates from the varying number of days of the week (Mondays, Tuesdays, Wednesdays, ..., Sundays) in each month. Working-day effects cause deviations from the month specific 'average' values disturbing the comparability between the equivalent months in consecutive years.

All methods have the common assumption that part of the indicator varies with or even proportional to the number of working days. However, in the proportional method, the factor is applied to the whole indicator whereas regression methods are usually only applied to the part of production that varies with the number of working days.

The concept of working or trading days is dependent on specific national characteristics, in particular where calendars and holidays differ from one Member State to another. The concept of working days also depends on the indicator under consideration. A month with five weekends is a priori a poor month in terms of working days for the production index. On the other hand, it is a good month in terms of trading days for the retail trade turnover index, given that Saturday is an important day for sales.

Seasonal adjustment

Seasonal adjustment, or the adjustment of seasonal variations, aims, after adjusting for calendar and working/trading day effects, to take account of the impact of the known seasonal factors that have been observed in the past. For example, in the case of the production index, annual summer holidays have a negative impact on industrial production.

The level of this impact depends on the countries and whether or not observation units close. It also depends on the area of activity concerned. In addition, the situation is complicated as these practices/habits/traditions change over time. This changing seasonal variation is particularly hard to manage because it is difficult to identify early on whether this involves a real change or an unusual event.

3. Classifications

NACE

NACE Rev. 1 was developed as a derivation of ISIC Rev.3, with sufficient detail added to reflect the more important activities of the Member States that were inadequately represented in ISIC. Both NACE Rev. 1 and ISIC Rev.3 have been updated, and replaced by NACE Rev. 1.1 and ISIC Rev.3.1 respectively.

A change of all major international classifications of activities and products is planned for 2008. These revisions are motivated by the need of adapting the classifications to the changes in the world economy, mainly due to the developments in information and communication technology (ICT). A prime use of ISIC is for internationally comparable reporting of economic statistics by activity or industry in many statistical domains: for this reason, the new ISIC also reflects the outcome of a convergence exercise between NACE and NAICS. The revised ISIC is expected to be adopted by the UN Statistical Commission in 2006. NACE is strictly dependent on ISIC, and is being modified accordingly. Eurostat, together with other countries, cooperates actively with the UN in the whole revision process. NACE and CPA are adopted in EU Member States through Council and Parliament Regulations; therefore, changes to these classifications require the adoption of new Regulations. The implementation date in the EU statistical framework have been discussed by the Statistical Programme Committee (SPC) in May 2005: it is proposed that for STS indicators the first reference year for NACE Rev. 2 will be 2009.

CPA

Product classifications are designed to categorise products (goods and services) that have common characteristics. They provide the basis for preparing statistics of the price, production, distribution, consumption, external trade and transport of such products.

The world-wide activity classification has its counterpart product classification in the Central Product Classification (CPC). For transportable goods, the building blocks of CPC are the elementary categories of the "Harmonised Commodity Description and Coding System" (HS). The European version of the CPC is the Classification of Products by Activity (CPA).

CPA is a product classification whose elements are related to activities as defined by NACE. Each product - whether it is a transportable or a non-transportable good or a service - is assigned to one and only one NACE activity. The linkage to activities as defined by NACE gives CPA a structure parallel to that of NACE at all levels distinguished by NACE.

However, the detailed linkage between products and activities could only be established to a certain degree. It should be noted that there are cases where products could be assigned to activities only at a higher level than the Class level (for example textile yarn and fabrics) and where the classification is based on certain conventions (for example waste and scrap).

In order that CPA may serve as a "central" product classification, all other product classifications designed for special survey purposes have to be related to CPA in strictly defined ways. This is, for example, already the case for the Prodcom list, CN and CC. In general, product classifications that are more aggregated than CPA consist of precise aggregations of CPA subcategories and classifications that are more detailed than CPA consist of subdivisions that are wholly contained within CPA subcategories. The same rules apply for national versions of CPA.

It is planned to update CPA shortly after the adoption of NACE Rev. 2.

Publications Office