Standard Report
on
Methods and Quality
for
Annual Services Inquiry

This documentation applies to the reporting period:

<**2007**>

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1 Overview

The Annual Services Inquiry (ASI) has been conducted on an annual basis since 1991. The purpose of the survey is to provide grossed estimates of the principal trading aggregates for all enterprises in the retail, wholesale, real estate, renting, business and selected personal services sectors.

2 General Information

2.1 Statistical Category

ASI is primarily a statistical survey based on the enterprises' responses to the survey questionnaire. Administrative data sources are occasionally used for imputation.

2.2 Area of Activity

The purpose of the survey is to estimate economic activity in the Services sector.

2.3 Organisational Unit Responsible, Persons to Contact

Services Division – Annual Services section

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2.4 Objectives and Purpose; History

The purpose of the survey is to estimate economic activity in the Services sector, both country wide and separately in the 'South and East' and 'Border, Midland and West' regions.

The principal variables collected are Turnover, Stocks, Capital Assets, Personnel Costs, Purchases, Employment, Location of Ownership, Exports, Imports, data on E-Commerce etc.

The Annual Services Inquiry has been conducted as an annual survey of both distributive and non-distributive services since 1991.

2.5 Periodicity

Annual

2.6 Client

Irish Government and Eurostat

2.7 Users

Primary users of the survey results are National Accounts, Eurostat, Irish Government, Economists, Researchers and industry representative bodies.

2.8 Legal basis

Annual Services Inquiry is a compulsory survey conducted under the Statistics Act, 1993 (Statutory Instrument No. 77 of 2008) and in accordance with Council Regulation (EC, EURATOM) No. 58/97, No. 410/98 and European Parliament and Council Regulation No. 2056/2002. All data collected is governed by the Statistics Act, 1993.

3 Statistical Concepts, Methods

3.1 Subject of the Statistics

The survey covers all enterprises in the retail, wholesale, real estate, renting and business services and other selected services sectors (NACE Rev.1.1 sectors G, H, I, K and O). Enterprises that traded for at least 6 months in the reference year are included in the survey.

The principal variables collected are Turnover, Stocks, Capital Assets, Personnel Costs, Purchases, Employment, Location of Ownership, Exports, Imports, data on E-Commerce etc.

3.2 Units of Observation/Collection Units/Units of Presentation

The ASI is an enterprise survey, where an enterprise is defined as the smallest legally independent unit. All enterprises with 1 or more persons engaged are included.
Results are published aggregated by the type of activity (NACE), region, size class etc.

3.3 Data Sources

Enterprises' returns on the issued survey forms are the primary data source.

Administrative data sources are used for imputation in a small number of cases.

3.4 Reporting Unit/Respondents

The enterprises economically active in the reference year.

3.5 Type of Survey/Process

The ASI is conducted as a postal inquiry.

3.6 Characteristics of the Sample/Process

3.6.1 Population and Sampling Frame

The survey covers all enterprises in the retail, wholesale, real estate, renting and business services and other selected services sectors (NACE Rev.1.1 sectors G, H, I, K and O).

Since 1995 the CSO's Central Business Register provides the sampling frame, from which the Annual Services Inquiry sample is selected each year.

Prior to aggregation the sampling frame is adjusted for ceased and non-relevant units based on the survey data.

3.6.2 Sampling Design

The ASI is designed to provide grossed estimates of the principal trading aggregates for all enterprises in the relevant sectors. The 'enterprise' is the unit used for survey purposes i.e. one return is sought in respect of each enterprise covering all constituent branches, local units or subsidiaries.
The survey sample consists of the census of enterprises with 20+ employees plus a random sample of the smaller units stratified by activity (NACE Rev.1.1) and employment size class. The employment size classes and approximate sampling rates are shown in the table below:

Persons Engaged	Size Class	Sampling Rate
1 – 4	1	1/13
5 – 9	2	1/6
10 – 19	3	1/3

The samples are taken separately for the Southern and Eastern (SE) and Border, Midlands and West (BMW) regions and then merged.

3.7 Survey Technique/Data Transfer

Survey forms printed in the CSO's printing section are posted to the enterprises in the end of April. Two reminders to non-respondents are sent in June and August. A field campaign is run for 11 weeks in autumn, with 25 field officers visiting non-responding companies and encouraging them to fill the questionnaire.

When a survey form is returned to the section, the form is scrutinised to catch any errors prior to scanning. The forms are then scanned and verified. The scanned data are transferred to the CSO's Data Management System (DMS), where it can be viewed and amended as required.

Edits are run after the data is uploaded and any issues that arise are looked at and resolved where necessary. This is done by contacting the company or looking at previous returns.

3.8 Questionnaire (including explanations)

An Annual Services questionnaire requests the data on Turnover, Stocks, Capital Assets, Personnel Costs, Purchases, Employment, Exports, Imports etc., including detailed breakdowns.

The survey forms may be accessed on the CSO website at

http://www.cso.ie/surveysandmethodologies/surveyforms/ser_ann_services_inq.htm

3.9 Participation in the Survey

The survey is statutory under S.I. No 77 of 2008, and participation, thus, is compulsory.

3.10 Characteristics of the Survey/Process and its Results

Collected and edited data is aggregated using Horvitz-Thomson estimators (a general estimator for a population total). Total Number of Persons Engaged is known for all members of the population and used as an auxiliary parameter for all monetary and employment variables. No auxiliary parameter is used for number of enterprises and number of local units.

The enterprises' data are aggregated at regional level, for Southern and Eastern, and Border, Midlands and Western regions.

This process results in assigning every company on the final dataset two grossing factors (weights) dependent on the NACE code, employment size class (see 3.6.2) and geographical location.

The underlying assumption in Horvitz-Thomson strategy is that a variable of interest (e.g. turnover) and the auxiliary parameter (employment) are linearly connected. Units, for which this assumption is strongly violated (outliers), are identified and adjusted if necessary.

3.11 Classifications used

NACE Rev.1.1 is used to classify the companies by activity

http://www.cso.ie/surveysandmethodologies/classification_indus_act.htm

3.12 Regional Breakdown of Results

The regional classifications in this publication are based on the Nomenclature of Territorial Units (NUTS) classification used by Eurostat. Statistics is available at NUTS2 level, for Southern and Eastern (SE) and Border, Midlands and West (BMW) regions.

The counties constituting each of the two regions are listed below:

BMW Region	SE Region
Cavan	Carlow
Donegal	Clare

Galway	Cork
Laois	Dublin
Leitrim	Kerry
Longford	Kildare
Louth	Kilkenny
Mayo	Limerick
Monaghan	Meath
Offaly	Tipperary
Roscommon	Waterford
Sligo	Wexford
Westmeath	Wicklow

4 Production of the Statistics, Data Processing, Quality Assurance

4.1 Data Capture

Returned survey forms are scrutinised to catch any errors, scanned and verified. The scanned data are transferred to the CSO's Data Management System (DMS), where it can be viewed and amended as required.
SAS programs are used for the transfers and management of the survey.

4.2 Coding

Every company is coded according to its primary activity (NACE); territorial DED (District Electoral Division) codes are used in the course of the field campaign. These are the only types of coding used.

4.3 Data Editing

The data scanned from the surveys forms is uploaded into DMS and edited on-screen. Multiple derived variables are created to check for abnormalities in the companies' returns. These are mainly ratios such as Stocks to Turnover, Opening Stocks to Closing etc., which are supposed to be within a certain range.

In addition the following edit rules are built in the DMS

1. Turnover is larger than zero.
2. VAT charged on Turnover is less than 22%
3. The sum of Retail, Wholesale and Other Turnover adds up to Total.
4. Turnover from Agriculture, Forestry, Fishing and Manufacturing is less than 50% of the Total.
5. Closing Stocks are less than 50% of Total Turnover.
6. The ratio of the Closing Stocks to Opening is in the range [0.5;2]
7. Opening/Closing Stocks are larger than Opening/Closing Stocks for Direct Resale.
8. The ratio of Profit to Total Turnover is in the range [-0.2;0.5]
9. Individual items on the Purchase list add up to Total Purchases.
10. Individual items on the Capital Acquisitions list add up to total.
11. Individual items on the Intangible Assets list add up to total Intangible Assets.
12. If the company does not employ, the wages paid are equal to zero.
13. Average wage paid per annum is in the range [€5,000 - €100,000] and changed by less than 40% in comparison to the previous survey period.

If any of the edit rules is violated, the enterprise is contacted to resolve any discrepancy. The data is then manually edited on the basis of the enterprise explanation.

In certain cases (very large companies) the enterprises' returns are checked for consistency across available administrative data sources.

4.4 Imputation (for Non-Response or Incomplete Data Sets)

Imputation is only used to compensate for non-response from the very large companies. It is performed manually on the basis of the data from administrative sources, if available.

4.5 Grossing and Weighting

The data is aggregated using Horvitz-Thomson estimators. Total Number of Persons Engaged is known for all members of the population and used as an auxiliary parameter for all monetary and employment variables. No auxiliary parameter is used for number of enterprises and number of local units.

Aggregation is run separately for the companies with local units in SE only, BMW only and both regions.

For each cell both in the stratified sample and in the whole population the number of persons engaged is evaluated. The ratio of these two values is then applied to all other monetary and employment aggregates known from the sample to obtain the estimates for the whole population.

This process results in assigning every company on the final dataset two grossing numbers dependent on the NACE code, employment size class and geographical location.

The underlying assumption in Horvitz-Thomson strategy is that a variable of interest (e.g. turnover) and the auxiliary parameter (employment) are linearly connected. Companies, for which this assumption is strongly violated, (outliers) are assigned grossing factor equal one.

4.6 Computation of Outputs, Estimation Methods Used

Outputs are computed using Horvitz-Thomson estimator with Total Number of Persons Engaged as an auxiliary parameter.

4.7 Other Quality Assurance Techniques Used

The sample is manually checked for accuracy of names, addresses and NACE codes before posting.

The enterprises deemed to be inactive, non-relevant or duplicates of other enterprises are removed from the survey and reported to Business Register for further actions.

The original survey population is adjusted based on the acquired knowledge. The assumption is made that the same percentage of ceased, duplicates and non-relevant units exists in the whole population as in its sampled fraction.

Qualified field officers visit over 10,000 companies for an 11 week period and provide advice and help that may be required.

5 Quality

5.1 Relevance

The ASI is an important instrument for production of Structural Business Statistics both on national and European level. It provides a base for computing other important indicators, such as consumer, wholesale price and retail indexes.

The results are constantly used by National Accounts and Balance of Payments sections of CSO.

5.2 Accuracy and Reliability

5.2.1. Sampling Effect & representivity

Estimation of survey results from data relating to only a sample of enterprises introduces a statistical variability that would not be present if data had been collected for all relevant enterprises. This means that the survey results cannot be taken as accurate to the full degree shown in the publication.

The variability is expressed by means of the coefficient of variation. This coefficient gives the relative size of the “sampling error” (variability) present in an estimate compared with the estimate itself. In general, estimates can be said to have a relative precision of twice their coefficient of variation. The estimated coefficients of variation for the variables Turnover, Number of Persons Engaged and Gross Value Added broken down by NACE Rev 1.1 at 2 digit level are shown in Table 2 below.

NACE Rev 1.1 Section	Turnover excl. VAT (€000)	Coefficient of Variation	Number of Persons Engaged	Coefficient of Variation	Gross Value Added (€000)	Coefficient of Variation
G	123,615,442	1.3	338,941	0.9	18,452,020	1.1
H	8,997,052	2.0	151,875	1.7	3,662,761	2.1
I	23,687,675	3.5	93,310	1.9	8,261,607	3.1
K	42,258,527	2.3	248,492	1.4	15,736,066	2.9
O	3,629,875	6.6	53,384	2.5	1,975,037	8.1
Total	**202,188,271**	**1.0**	**886,002**	**0.7**	**48,087,491**	**1.2**

This means, for example, that the turnover in section G is estimated with the accuracy of 2.2% of the total and the "true" value is in the range €123.6 ±1.6 Billion (95% confidence interval).
Note this applies to sampling error only. Other sources of error can also occur – see following sections.

5.2.2. Non-Sampling Effects

5.2.2.1 Quality of the Data Sources used (other than survey register)

Non-relevant.

5.2.2.2 Register Coverage

The sample is taken from the CSO’s Central Business Register (CBR). All enterprises in NACE Rev.1.1 sectors G, H, I, K and O with at least 1 person engaged are covered.
Misclassification errors (wrong NACE code) are corrected manually and reported back to CBR.

5.2.2.3 Non-response (Unit and Item)

A breakdown of the response rate per sector is available in the table below

NACE Rev. 1.1	Services Sector	Total Sampled	Non-relevant Forms	Effective Sample	Completed Forms	Response Rate
G	Wholesale and Retail distribution	7,132	626	6,506	4,725	73%
H	Hotels and Restaurants	3,111	295	2,816	1,943	69%
I	Transport, Storage and Communications	1,292	129	1,163	810	70%
K	Real Estate, Renting and Business Services	5,666	531	5,135	3,466	67%
O	Other Community, Social and Personal service activities	1,311	139	1,172	886	76%
	Total	18,512	1,720	16,792	11,830	70%

Item non-response is treated by contacting the respondent and trying to obtain the missing data.

No actions are taken to compensate for unit non-response, except for the imputation based on the accounts submitted to CRO and previous returns. These are only made for very large companies that may dominate the sector.

5.2.2.4 Measurement Errors

Measurement errors are not formally calculated for the survey.

However, all measures are taken to prevent their occurrence

(a) All efforts are made to make the questionnaire form as clear as possible. Detailed Instructions on how to fill it are also provided.

(b) A large number of queries are dealt with by phone or e-mail on a day-to-day basis.

(c) Qualified field officers visit over 10,000 companies for an 11 week period and provide advice and help that may be required.

(d) Individual companies' data are confidential under the Statistics Act, 1993, and can only be used for statistical purposes. All efforts are made to make this fact known to the respondents.

5.2.2.5 Processing Errors

All possible measures are taken to avoid processing errors, which may occur in scanning, data transfer and in the process of updating the data manually. A system of derived variables and edit rules described in § 4.3 ensures that the processing errors, even if present, are not affecting the outcome significantly.

5.2.2.6 Model-related Effects

Since the use of imputation is limited to a few large companies, the model-related effects are minimal.

5.3 Timeliness and Punctuality

5.3.1 Provisional Results

Preliminary results containing only Turnover and Employment for the state at 3-digit NACE level are produced @T+10 month and transmitted to EuroStat. However, these have never published.

5.3.2 Final Results

Final results are produced and transmitted to EuroStat @T+18 month and published @T+95 weeks. This schedule is generally met.

5.4 Coherence

Prior to aggregation the data is thoroughly checked for consistency with National Accounts and Balance of Payments sections of CSO. Any major discrepancies are discussed and resolved.

5.5 Comparability

The 1995 inquiry was the first survey to use Business Register as the basis for the sampling frame, as previous inquiries were sampled and grossed with reference to the 1988 Census of Services register. The Business Register is continuously updated, and thus provides a more satisfactory approach to grossing than used previously. However, this change of registers, in addition to changes in classifications, means that the results of the 1995 and subsequent inquiries are not fully comparable with results from previous years. A more complex sampling/grossing methodology is used from 1999 ASI onwards; therefore the outcome is not directly comparable to previous years.
The ASI is conducted under the Eurostat guidelines, which apply to all member countries in the European Union. This ensures that the statistics produced are comparable across EU.

5.6 Accessibility and Clarity

5.6.1 Assistance to Users, Special Analyses

The publications starting from 1999 are available for download in PDF format from the CSO website

http://www.cso.ie/releasespublications/pr_servicesarchive.htm

as are survey forms and instruction in PDF and Excel formats.

http://www.cso.ie/surveysandmethodologies/surveyforms/ser_ann_services_inq.htm

Several hundreds of individual queries and requests for special data are answered by phone and e-mail. A typical example is a breakdown of data at more detailed level of NACE than in publication.

5.6.2 Revisions

Revisions are very infrequent and, if required, are done locally, e.g. the publication is not re-issued, but the future queries are answered on the basis of revised data.
Primary driving force for revisions is new sources of information that were not available at the time of the original publication.

5.6.3 Publications

5.6.3.1 Releases, Regular Publications

Annual Services Inquiry

5.6.3.2 Statistical Reports

Family Business in Ireland.
Statistical Yearbook of Ireland

5.6.3.3 Internet

The publications starting from 1999 are available for download in PDF format from the CSO website

http://www.cso.ie/releasespublications/pr_servicesarchive.htm

as are survey forms and instruction in PDF and Excel formats

http://www.cso.ie/surveysandmethodologies/surveyforms/ser_ann_services_inq.htm

5.6.4 Confidentiality

Individual companies' data are treated as strictly confidential under the Statistics Act, 1993. The aggregates are published broken down by principal activity of the enterprise as well as by regions, turnover and employment size classes, nationality of ownership, legal form etc.
The level of breakdown is determined by making sure that the data in the resulting categories does not violate the confidentiality of the returns.

6 Additional documentation and publications

Additional information can be obtained from the EuroStat website

http://epp.eurostat.ec.europa.eu

The entry for this statistic under StatCentral (the portal to Ireland's official statistics) is at
http://www.statcentral.ie/viewStat.asp?id=31