Standard Report on Methods and Quality

for

e-Commerce and ICT Usage

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1. Overview

The annual Survey on e-Commerce and ICT (Information and Communications Technology) Usage for Enterprises measures the level of use of ICT by enterprises in the conduct of their business.

The survey covers industrial, selected services and building and construction enterprises with 10 or more persons engaged.

This inquiry was initiated to meet national and EU requirements for e-Commerce variables, and is conducted under article 10 of Regulation (EC) No 808/2004 of the European Parliament of the Council of 21 April 2004.

The survey results, which cover a sample of companies with 10+ employees, are grossed to the relevant populations using the latest available grossing factors from the Census of Industrial Production (CIP), Annual Services Inquiry (ASI) and Building and Construction Inquiry (BCI).

The results, which contain details for enterprises only, are released in December of the reference year: Information Society Statistics - Enterprises.

2. General Information

2.1.1 Statistical Category

Primary statistical survey.

2. 1.2 Area of Activity

Business Sectors, Science and Technology – Survey on e-Commerce and ICT.

2.1.3 Organisational Unit Responsible, Persons to Contact

Structural Business Statistics Division - Data Collection Unit

Structural Business Statistics Division - Results Analysis and Publications:

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2.1.4 Objectives and Purpose; History

The purpose of the e-Commerce and ICT survey is to collect data on the use of ICT within enterprises. A pilot survey was conducted in 2002 and a full annual survey began in 2003.

2.1.5 Periodicity

Since its inception in 2003, the survey on e-Commerce and ICT Usage is carried out on an annual basis. There have been no breaks in the survey.

2.1.6 Client

Since 2003, Ireland has been obliged to carry out the survey on e-Commerce and ICT. Initially the Regulation (EC) No 322/97 covered the e-Commerce survey. Since then the survey has been conducted under article 10 of Regulation (EC) No 808/2004 of the European Parliament of the Council of 21 April 2004.

2.1.7 Users

Eurostat / European Commission
Government
Other CSO sections
Interest Groups for research purposes
Professional Bodies
The general public
University students

2.1.8 Legal Basis

This inquiry was initiated to meet national and EU requirements for e-Commerce variables, and is conducted under article 10 of Regulation (EC) No 808/2004 of the European Parliament of the Council of 21 April 2004. For each ICT survey, it is necessary to enact an implementing measure. The relevant measure for the 2015 survey is the Commission Regulation (EU) No 1196/2014 of 30 October 2014 implementing Regulation (EC) No 808/2004 of the European Parliament and of the Council concerning Community statistics on the information society.

Since 2019 there has also been a Statutory Instrument in place

Statistics (Information & Communication Technologies Survey) Order 2018 (S.I. No. 524 of 2018)

3 Statistical Concepts, Methods

3.1 Subject of the Statistics

The subject of the statistics is the level of e-Commerce and ICT usage within Industry, selected Services and Building and Construction enterprises with 10+ employees.

3.2 Units of Observation/Collection Units/Units of Presentation

The survey is made up of a sample of approximately 4,000 enterprises with 10+ employees between NACE codes 10 – 82, 95.1. A random stratified sample is taken from the Central Business Register (CBR) of enterprises with 10+ employees. Figures on our release are full figures.

3.3 Data Sources

None - primary survey.

3.4 Reporting Unit/Respondents

Reporting unit – Results aggregated to NACE sectors (Manufacturing Sectors, Construction Sector and Selected Services Sectors).

Respondents - Enterprises employing 10+ persons.

3.5 Type of Survey/Process

Survey with a stratified random sample of enterprises with 10+ employees.

3.6 Characteristics of the Sample/Process

3.6.1 Population and Sampling Frame

The survey population is made up of Manufacturing, Construction and selected Service enterprises with 10+ employees.

The sampling frame is the CSO's Central Business Register.

3.6.2 Sampling Design

The implementing measure that is enacted annually contains a list of NACE categories that must be covered by the survey. A sample plan is then applied to the Central Business Register using SAS which creates the potential sample of respondents. The sample is edited to ensure that no duplicates exist, ceased companies are excluded, and companies who requested a specific exclusion from the survey are excluded. While some companies are included every year, care is taken to rotate the sample among smaller enterprises to minimise the response burden. A file of approximately 4,000 potential respondents is then prepared for surveying.

Specific size categories are used in the selection of the sample as follows:

-Employment Group 1: 10 to 49 persons engaged

-Employment Group 2: 50 to 249 persons engaged

-Employment Group 3: 250+ persons engaged

3.7 Survey Technique/Data Transfer

The survey is completed online. Initially, enterprises receive notification of the online process and how to access the relevant URL for completion of the questionnaire. When the return is submitted to the CSO, the data is loaded onto a CSV file which is periodically transferred to the CSO's Data Management System (DMS)

for editing. The failed edits that arise are scrutinised and resolved if possible. If an edit cannot be easily resolved, then the enterprise is contacted for clarification and the edit is subsequently cleared based on the updated information.

3.8 Questionnaire (including explanations)

The 2020 survey on e-Commerce and ICT contained the following modules:

A.   General information about ICT systems

B.   Access and use of the internet

C.   E-commerce

D.   Invoicing

E.   Use of 3D Printing

F.   Use of Cloud Computing

G.   Big Data analysis

H.   Use of Robotics

I.   Details of enterprise activity

Each year at least one module in the questionnaire is directly replaced by another module, while some of the questions   contained in the other modules are refined. Therefore, the survey questionnaire is in a constant state of   development.

The 2020 survey form may be accessed as follows:

3.9 [Survey on e-Commerce and ICT Form](#)

3.10   Participation in the Survey

Participation was mandatory in 2020.

3.11 Characteristics of the Survey/Process and its Results

The survey is a random stratified sample of enterprises with 10+ employees, which is aggregated and published at national level and also at NACE sectoral level. Results are published for all enterprises and include tables on   the 'Use of ICT by Enterprises' and 'Connecting to the Internet'. The data from the survey is grossed to the   relevant population by using grossing factors from the latest available Census of Industrial Production (CIP),   Annual Services Inquiry (ASI) and Building and Construction Inquiry (BCI).

3.12 Classifications Used

NACE REV.2 is currently used to produce NACE sectional breakdowns.

-Manufacturing enterprises – NACE 10-18, 19-22, 23-25, 26-33

-Construction enterprises – NACE 41-43

-Services enterprises – NACE 45-47, 49-53, 55-56, 58-63, 68, 69-74, 77-82, 95.1

The following is a link to the NACE Rev.2 classification listing:
http://www.cso.ie/en/surveysandmethodology/classifications/

3.13 Regional Breakdown of Results

Results are not broken down by region. The results are broken down by NACE sectional groups and are aggregated at national level.

4 Production of the Statistics, Data Processing and Quality Assurance

4.1 Data Capture

When the return is received online, the data is automatically uploaded into a CSV file and transferred periodically to the CSO's DMS (Data Management System).

When the completed returns are received, the data is captured by NACE class.

4.2 Data Editing

Within the online forms system, there are a number of automatic edits in place. For example, the number of employees with internet access cannot be greater than the total number of employees. Once data has been transferred to the DMS, a number of edits are run to ensure the consistency of the data. For example, the sum of the electronic sales from the web, apps and EDI cannot be more than 100% of total sales.

Once the data collection phase has ceased, the edit procedures within the DMS are run to ensure that there are no edits outstanding. Each failed edit is first checked for a comment on the return from the relevant enterprise that may explain the failure. Returns for the previous year are also checked for consistency purposes. If the edit failure cannot be resolved locally, then the enterprise is contacted to resolve any discrepancy. Once all edits in the DMS are cleared, the source data is then transferred to SAS where further editing takes place.

Edit programs are run using SAS software to perform checks on consistency of returns between separate questions, between returns for this year and last year, and comparisons between enterprises within the same NACE group for this year.

There are numerous edits carried out every year, examples of which include:

1. Questions that do not change from year to year are cross-referenced against the previous year's responses

for consistency purposes.

2. Whether responses given are consistent with responses from other enterprises within that employment group and NACE classification.

Once all edits are cleared a copy is made of the clean dataset and the dissemination process can be commenced.

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

There is no formal method of imputation for unit non-response used for this survey. A limited use is made of Structural Business Statistics (SBS) as a method of imputation for item non-response if no details are offered for total employment, purchases and turnover. Limited use is made of the Last Value Carried Forward (LVCF) method if a respondent has left a particular field blank and if they responded to this question in the previous year.

4.4 Grossing and Weighting

Grossing is performed using SAS software.

Grossing Factors are taken from the latest available Census of Industrial Production (CIP), Annual Services Inquiry (ASI) and Building and Construction Inquiry (BCI), and applied to the survey results in order to gross the data up to the relevant populations.

Grossing is done by 2-digit NACE and by employment size class for each of the 3 surveys. Grossing factors are generated for Turnover, Employment and Purchases. This is done by dividing the Total Enterprise Population (NACE and Employment Size) by the Total number of Responses (NACE and Employment). The resulting grossing factors are then used to gross the results of the e-Commerce survey to the population.

Weighting is not used for the derivation of results.

4.5 Computation of Outputs and Estimation Methods Used

Results are aggregated to national level and a limited number of tables are produced at 2-digit NACE sectoral level. The results are released in December of the relevant year.

Estimation is not used for the derivation of results.

4.6 Other Quality Assurance Techniques Used

The sample is selected from the latest version of the Central Business Register (CBR). Duplicate enterprises, companies that have ceased trading or who have stated that they are unable to provide the necessary data are removed from the sample.

Consistency checks are performed against previous returns at enterprise level and against other companies in

the same employment group and NACE sector. There is a limited amount of Structural Business Statistics (SBS) data gathered in other surveys Census of Industrial Production (CIP), Annual Services Inquiry (ASI) and Building and Construction Inquiry (BCI), and comparisons are made for selected variables for consistency purposes.

5 Quality

5.1 Relevance

e-Commerce is an important indicator used both nationally and by the EU. It provides for inter-country comparisons and analysis of the level of usage and penetration of ICT within the EU as well as providing important national indicators for domestic ICT policy-making.

5.2 Accuracy and Reliability

5.2.1. Sampling Effect & Representivity

A representative sample is taken of all enterprises with 10+ employees. Some editing of the sample takes place to remove duplicates or enterprises that have ceased trading. Eurostat determines the target population. The sample is rotated in order to reduce the response burden, especially on the smaller enterprises.

Every effort is made to ensure that there are a sufficient number of responses in each cell to be representative of the sample and to ensure that confidentiality is maintained.

Standard errors are calculated at a national level using a methodology devised by Eurostat. A standard error is a measure of the sampling variability or precision of an estimate. Standard errors are used in order to help with the comparisons of results between countries.

The target population was enterprises with 10 or more employees excluding the financial sector.

The sampling variability is very small and the precision of the estimate is likely to be quite high.

The standard errors are calculated for different questions on the direction of Eurostat each year.

Attached are the Standard Errors as reported to Eurostat

ICT 2020 Metadata
Report.xlsx

5.2.2. Non-Sampling Effects

5.2.2.1 Quality of the Data Sources Used

The random stratified sample is taken from the Central Business Register. No other data sources are used.

5.2.2.2 Register Coverage

The sample for this survey is a random stratified sample of enterprises taken from the Central Business Register (CBR). The sample is rotated so that every company should be selected at least once approximately every five years.

Coverage errors – there may be some multiple listings (duplicates) and ceased companies when the sample is first taken from the Central Business Register. They are removed from the sample when discovered.

Certain NACE categories are omitted every year. Therefore, coverage is restricted to the required NACE categories only.

5.2.2.3 Non-Response (Unit and Item)

Unit non-response:

The response rate for the survey in 2020 was 43.9%

The main reasons for unit non-response are as follows:

1. Company Gone-Away from the address on the letter

2. Duplicate – company receive two forms with different reference numbers

3. Company has ceased trading

4. There is a query about the survey form

5. IT problems

6. Hold – company request an extension on the due return date

7. Company is Inactive/Dormant

8. Merger – Takeover or change in structure of company

9. Company refuses to respond

The section investigates these issues and resolves them as appropriate e.g. ringing the company for confirmation of information, removing the company from the survey, etc.

Item non-response:

Where a part of the form is not completed the following is done:

1. Contact Company – to confirm the details on the survey form

2. Last Value Carried Forward (LVCF) for a variable if no other data are available

5.2.2.4 Measurement Errors

Measurement Error is not formally calculated for the survey. However, the following should be noted:

(a) Questionnaire - we ensure that the questionnaire is clear with definitions provided as appropriate.

(b) Data collection method – the collection method is by means of an online survey via the CSO's e-form system, allowing sampled enterprises to complete and return the survey form electronically.

(c) Respondent – survey data can contain sensitive and confidential information. Data on turnover, purchases and number of people employed is not published to preserve confidentiality.

5.2.2.5 Processing Errors

Data Capture Errors are likely to be a low risk as survey e-forms are verified.

    a. There is also the option of manual data entry.

    b. Data Editing - Edits are run which check for the fo llowing:

    c. that all the relevant questions have been answered

    d. There is internal consistency in answers within the form

    e. There is consistency with responses from last year if relevant

    f. There is consistency with enterprises operating in the same employment group and NACE category

If the edit cannot be resolved locally, then the enterprise is contacted to confirm the returned data. The return is manually changed if required.

NACE Code and NACE division are linked to the enterprise number and are applied when the enterprise number is scanned. This means that the possibility of a NACE misclassification error is very low.

5.2.2.6 Model-Related Effects

There is no formal imputation for non-response. However, limited use is made of imputation for item non-response from other available resources such as Structural Business Statistics (SBS) and previous year return if available.

Grossing factors are generated from the latest Census of Industrial Production (CIP), Annual Services Inquiry (ASI) and Building and Construction Inquiry (BCI).

5.3 Timeliness and Punctuality

5.3.1 Results

A clean dataset is sent to Eurostat in early October of the relevant year. Eurostat perform a number of validation checks and if necessary send a list of queries back to the CSO for resolution. When all of the queries have been cleared in all the participating countries, Eurostat publish EU results in mid-December. The CSO releases detailed results: Information Society Statistics - Enterprises.

5.4 Coherence

Data for e-Commerce is checked for consistency with previous returns and with enterprises in the same employment class and NACE sector. The Structural Business Statistics (Turnover, Purchases, and Number Employed) contained within the e-Commerce survey are compared to the SBS data gathered in other surveys for consistency purposes. Any differences that are found are resolved on an individual enterprise basis.

5.5 Comparability

The pilot e-Commerce survey was first carried out in 2002 and the full e-Commerce survey has been carried out annually since 2003.

Certain modules contained within the survey change every year, therefore some variables may not be directly comparable to previous years.

A random stratified sample is selected every year. While some enterprises are included in the sample every year, the sample is rotated every year in order to minimise the response burden, especially on the smaller enterprises. This means that it may not be possible to compare returns for individual enterprises from year to year.

Where possible comparisons are done with:

-Previous year

-Other enterprises operating in the same employment group and NACE category.

Structural Business Statistics (SBS) gathered from other surveys, notably the Census of Industrial Production, Annual Services Inquiry, and Building and Construction Inquiry.

Eurostat also does comparisons between the EU states on the data returned by individual countries.

5.6 Accessibility and Clarity

5.6.1 Assistance to Users and Special Analyses

The publication is available on the CSO web site at

https://www.cso.ie/en/statistics/informationsociety/ictusagebyenterprises/

The questionnaire is available here:

[Survey on e-Commerce and ICT forms](#)

Specific user requests are acceded to where possible, and where confidentiality issues do not arise.

5.6.2 Revisions

Some revisions may occur as a result of queries received from Eurostat or other national users. Results are published in Q4 of the survey year and generally are not subject to revision.

5.6.3 Publications

5.6.3.1 Releases, and Regular Publications

'Information Society Statistics – Enterprises' is released in Q4 of the reference year.

5.6.3.2 Statistical Reports

Statistical Yearbook

5.6.3.3 Internet

http://www.cso.ie/en/statistics/informationsociety/

5.6.4 Confidentiality

All data are treated as strictly confidential in accordance with Part V of the Statistics Act, 1993. In order to ensure confidentiality, results are produced at NACE sectional level.

6 Additional documentation and publications

The results, which contain details for enterprises only, are released in Q4 of the reference year: Information Society Statistics - Enterprises.