Standard Report

on

Methods and Quality

for

Information Society Statistics (ICT) on Households and Individuals

This documentation applies to the reporting period:

\<2019\>

Last edited: \<17/10/2019\>

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1 Overview

The Information and Communications Technology (ICT) Household Survey is carried out on an annual basis in the first quarter of the year. and collects data on households' access to, and individuals' use of, the internet. The survey covers a range of topics related to internet penetration and the use of ICT by households and individuals, and provides information on households' and individuals' use of the internet and other information and communication technologies (ICTs).

The ICT Household Survey 2019 was designed in line with the European Community Survey on ICT Usage in Households and By Individuals 2019 Model Questionnaire. Data given in this domain are collected annually by the National Statistical Institutes (NSIs) and are based on Eurostat's annual Model Questionnaire on ICT usage in households and by individuals. The collection of the data under the aforementioned European Regulation implies that harmonised data can be obtained across the European continent.

The aim of the European ICT surveys is the timely provision of statistics on individuals and households on the use of Information and Communication Technologies at European level.

The data collected in this domain by Ireland and other National Statistical Institutes (NSIs) contribute to the Digital Economy and Society Index (DESI) and Digital Scoreboard. DESI is a composite index published every year by the European Commission since 2014, measuring the progress of EU countries towards a digital economy and society. As such, it brings together a set of relevant indicators on Europe's current digital policy mix, as follows:

- Connectivity - Broadband market developments in the EU - the deployment of broadband infrastructure and its quality. Access to fast and ultrafast broadband-enabled services is a necessary condition for competitiveness.
- Human Capital - Digital Inclusion and Skills - measures the skills needed to take advantage of the possibilities offered by digital.
- Use of Internet Services - accounts for a variety of online activities, such as the consumption of online content (videos, music, games, etc.) video calls as well as online shopping and banking.
- Integration of Digital Technology - measures the digitisation of businesses and e-commerce. By adopting digital technologies, businesses can enhance efficiency, reduce costs and better engage customers and business partners. Furthermore, the Internet as a sales outlet offers access to wider markets and potential for growth.

2 General Information

2.1 Statistical Category

Primary statistical survey.

2.2 Area of Activity

Households, Private individuals – Information and Communications Technology (ICT) Household Survey.

2.3 Organisational Unit Responsible, Persons to Contact

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2.4 Objectives and Purpose; History

The Information and Communications Technology (ICT) Household Survey is carried out on an annual basis in the first quarter of the year. and collects data on households' access to, and individuals' use of, the internet. The survey covers a range of topics related to internet penetration and the use of ICT by households and individuals, and provides information on households' and individuals' use of the internet and other information and communication technologies (ICTs).

The survey contributes to the EU requirement under Regulation (EC) No 808/2004 of the European Parliament and of the Council of 21 April 2004 concerning Community Statistics on the Information Society (OJ L143, 30.04.2004, p. 49). Data in this domain is collected annually by the National Statistical Institutes (NSIs) and provides statistics on households' access to and individuals' use of the internet to Eurostat, to allow comparability with other EU countries. Eurostat also compiles EU indicators which help monitor the development and use of ICTs and help to provide a better understanding of the adoption of ICTs and the internet by households and individuals.

The survey questionnaire is based on Eurostat's annual Model Questionnaire on ICT usage in households and by individuals. The Eurostat Model Questionnaire has a core set of questions, which are asked on an annual basis. Survey questions change from year to year to reflect changes in the use of technology and use of the internet, and to obtain new, relevant information, on different topics relating to the use of the internet and technology. Additional modules on ICT are repeated annually, biennially or triennially. In addition, special modules or topics on new emerging concepts or technologies are also included each year. In 2019, additional questions relating to Internet Security and Smart Technology in the Home were included.

2.5 Periodicity

Since its inception in 2004, the ICT Household Survey is carried out on an annual basis in the first quarter of each year. There have been no breaks in the survey.

2.6 Client

The ICT Household Survey 2019 was designed in line with the European Community Survey on ICT Usage in Households and By Individuals 2019 Model Questionnaire. Data given in this domain are collected annually by the National Statistical Institutes (NSIs) and are based on Eurostat's annual Model Questionnaire on ICT usage in households and by individuals. The collection of the data under the aforementioned European Regulation implies that harmonised data can be obtained across the European continent.

2.7 Users

Eurostat/European Union, Government, other CSO sections, researchers and academics, Professional Bodies, general public, University students

2.8 Legal basis

This inquiry was initiated to meet national and EU requirements for ICT, and is conducted under Regulation (EC) no. 808/2004.

3 Statistical Concepts, Methods

3.1 Subject of the Statistics

The subject of the statistics is the level of ICT usage conducted by individuals and households. The survey covers a representative sample of all individuals residing in Ireland aged 16 to 74 years.

3.2 Units of Observation/Collection Units/Units of Presentation

The ICT Household Survey data is collected directly from private households. Questions about individuals' ICT activities and internet usage are asked only of persons aged 16 to 74 years. Institutional households, (e.g. nursing homes, barracks, boarding schools, hotels etc.) are not covered by the survey.

The survey is made up of a selected sample of approximately 9,000 households. A two stage stratified sample procedure is taken from the Census of Population. Figures on our publication are presented as full figures (i.e. zero decimal place).

3.3 Data Sources

None - primary survey.

3.4 Reporting Unit/Respondents

Reporting unit – Individuals aged 16-74 years, Households
Respondents – Individuals aged 16-74

3.5 Type of Survey/Process

The data was collected by a team of up to one hundred Field Interviewers and ten Field coordinators (each with a team of ten interviewers). Interviewers were provided with a map of each of their interview areas as well as a listing of the address of each of the selected households. These interviewers also working on CSO surveys such as the Survey on Income and Living Conditions and the Labour Force Survey. Interviewers received a manual with information such as detailed explanations about the questionnaire, definitions of the concepts involved and examples.

It was conducted using a team of face-to-face interviewers using Computer Assisted Personal Interviewing (CAPI). This enabled the use of extensive checks in the BLAISE interviewing software to make sure correct and coherent data was collected.

One person from each household was selected. Information was collected directly from respondents - proxy responses from other members of the household were not accepted.

3.6 Characteristics of the Sample/Process

3.6.1 Population and Sampling Frame

The survey population is all residents of Ireland aged 16-74.
The sampling frame is the CSO's Census of population updated and adjusted for net migration. The Population and Migration Estimates are published in April of each year and maintain a record of population stocks and migration flows on an annual basis for inter-censal periods.
The entire stock of private households at the time of the most recent Census of Population in the country represents the full sampling frame for the ICT Household Survey.The sample was based on the 2016 Census.

3.6.2 Sampling Design

The sample for the General Household Survey (GHS) is stratified using administrative county and the Pobal HP (Haase and Pratschke) Deprivation Index (quintile). A two-stage sample design is used. In the first stage 1,300 blocks are selected using Probability Proportional to Size (PPS) sampling. In the second stage households are selected using Simple Random Sampling (SRS). This ensures each household in the sample frame has an equal probability of selection.

The total sample size for the ICT Household survey was 9,000 households. The number of valid responding households for the ICT Household Survey in Q1 2019 was 4,477.

The survey results were weighted to agree with population estimates broken down by age, sex and region and are also calibrated to nationality totals.

To provide national population results, the survey results were weighted to represent the entire population of 16 to 74 year olds. The survey results were weighted to agree with population estimates broken down by age group, sex and region and were also calibrated to nationality totals.

Household weights were calculated for all households in the initial sample. The design weights are computed as the inverse of the selection probability of the unit. The purpose of design weights is to eliminate the bias induced by unequal selection probabilities.

These design weights were then adjusted for non-response. This eliminated the bias introduced by discrepancies caused by non-response, particularly critical when the non-responding households are different from the responding ones in respect to some survey variables as this may create substantial bias in the estimates. Design weights are adjusted for non-response by dividing the design weights of each responding unit in the final/achieved sample by the (weighted) response probability of the corresponding group or strata.

To obtain the final household weights for the results, after the previous steps were carried out, the distribution of households by deprivation, NUTS3 region, sex and age was calibrated to the population of households in Quarter 1 2018 (as derived from the LFS Survey). The CALMAR2-macro, developed by INSEE, was used for this purpose.

3.7 Survey Technique/Data Transfer

Computer Assisted Personal interviewing (CAPI). Encrypted data transferred via secure network

3.8 Questionnaire (including explanations)

The ICT Household Survey 2019 was designed in line with the European Community Survey on ICT Usage in Households and By Individuals 2019 Model Questionnaire. Data given in this domain are collected annually by the National Statistical Institutes (NSIs) and are based on Eurostat's annual Model Questionnaire on ICT usage in households and by individuals. The collection of the data under the aforementioned European Regulation implies that harmonised data can be obtained across the European continent.

The Eurostat Model Questionnaire has a core set of questions, which are asked on an annual basis. Additional modules on ICT are repeated annually, biennially or triennially. In addition, special modules or topics on new emerging concepts or technologies are also included each year. In 2019, additional questions relating to the Internet Security and Smart Technology in the Home were included. Additional questions of national interest are also included in the national questionnaire.

The 2019 ICT Household Survey included questions on:
- Household internet access
- Access to Information and Communication Technologies
- Use of the Internet
- Use of e-Government
- Use of e-Commerce
- Shared economy
- e-Skills
- Internet Security
- Home smart technology

The survey form may be accessed on the CSO website at:
https://www.cso.ie/en/methods/informationsociety/informationsocietystatistics-households/

3.9 Participation in the Survey

Participation is voluntary.

3.10 Characteristics of the Survey/Process and its Results

The ICT Household Survey 2019 was carried out as a stand-alone survey using the General Household Survey (GHS) survey vehicle.

The GHS is a national survey that place takes place three or four times each year and is part of an EU-wide programme. Each survey usually has a specific theme. Its first data collection was the AES in the second half of 2017 and in the first quarter of 2018, the main GHS survey was the ICT Household Survey, with a module on Cross Border Shopping added also. The survey usually has a core of common demographic questions that are always asked (e.g. age, sex, education, etc.) plus one or more specific sets of survey questions that will change each year. Up to 2018, the ICT Household Survey was carried out as a module of the Quarterly National Household Survey (QNHS). The QNHS is the national title given to the continuous quarterly Labour Force Survey carried out in accordance with Council Regulation 577/98.

Since 2018, the Information and Communications Technology (ICT) Household Survey has been carried out as part of the General Household Survey (GHS). The GHS is a national survey that place takes place three or four times each year.

The ICT Household Survey 2019 was designed in line with the European Community Survey on ICT Usage in Households and By Individuals 2019 Model Questionnaire. The survey is harmonised across EU member states and meets EU regulation requirements to allow comparability of results published by other countries. The specific data requirements of the survey are defined annually through a consultation process with users and policy makers within Eurostat and EU member states. Once the details of the survey requirements have been agreed, an annual implementing regulation is passed to turn the requirements into EU law. CSO takes part in this annual consultation process and fully engage in the development of the questionnaire for each year. The collection of the data under the aforementioned European Regulation implies that harmonised data can be obtained across all EU member states.

Data in this domain is collected annually by the National Statistical Institutes (NSIs) and is based on the aforementioned Eurostat's annual Model Questionnaire on ICT usage in households and by individuals. The Eurostat Model Questionnaire has a core set of questions, which are asked on an annual basis. Additional modules on ICT are repeated annually, biennially or triennially. In addition, special modules or topics on new emerging concepts or technologies are also included each year. In 2019, additional questions relating to the Internet Security and Smart Technology in the Home were included. Additional questions of national interest are also included in the national questionnaire.

3.11 Classifications used

Individuals Classifications

Age group, Sex, Principle Economic Status (PES), Region, Household composition, Deprivation quintile.

Household Classifications
Household composition, Internet type, Region, Deprivation quintile

3.12 Regional Breakdown of Results

Results are broken down by NUTS 3 region.

4 Production of the Statistics, Data Processing, Quality Assurance

4.1 Data Capture

The data was collected by a team of up to one hundred Field Interviewers and ten Field coordinators (each with a team of ten interviewers). Interviewers were provided with a map of each of their interview areas as well as a listing of the address of each of the selected households. These interviewers also working on CSO surveys such as the Survey on Income and Living Conditions and the Labour Force Survey. Interviewers received a manual with information such as detailed explanations about the questionnaire, definitions of the concepts involved and examples.

It was conducted using a team of face-to-face interviewers using Computer Assisted Personal Interviewing (CAPI). This enabled the use of extensive checks in the BLAISE interviewing software to make sure correct and coherent data was collected.

One person from each household was selected. Information was collected directly from respondents - proxy responses from other members of the household were not accepted.

4.2 Coding

Primary coding takes place as interviews are being conducted. Additional coding of responses takes place using SAS software.

4.3 Data Editing

Editing and validation procedures are carried out using SAS software to perform checks on consistency of returns between separate questions, between returns for this year and last year and previous years as some questions are asked only on a biennial or triennial basis.

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

There is no formal method of imputation for unit non-response used for this survey.

4.5 Grossing and Weighting

To provide national population results, the survey results were weighted to represent the entire population of 16 to 74 year olds. The survey results were weighted to agree with population estimates broken down by age group, sex and region and were also calibrated to nationality totals.

Household weights were calculated for all households in the initial sample. The design weights are computed as the inverse of the selection probability of the unit. The purpose of design weights is to eliminate the bias induced by unequal selection probabilities.

These design weights were then adjusted for non-response. This eliminated the bias introduced by discrepancies caused by non-response, particularly critical when the non-responding households are different from the responding ones in respect to some survey variables as this may create substantial bias in the estimates. Design weights are adjusted for non-response by dividing the design weights of each responding unit in the final/achieved sample by the (weighted) response probability of the corresponding group or strata.

To obtain the final household weights for the results, after the previous steps were carried out, the distribution of households by deprivation, NUTS3 region, sex and age was calibrated to the population of households in Quarter 1 2018 (as derived from the LFS Survey). The CALMAR2-macro, developed by INSEE, was used for this purpose.

4.6 Computation of Outputs, Estimation Methods Used

Outputs are calculated primarily using SAS Enterprise Guide software. Estimation is not used for the derivation of results.

4.7 Other Quality Assurance Techniques Used

- A substantial effort is made to ensure that the terms used in the survey are clear and readily understood. The more complicated question topics had help text displayed on the laptop screen in CAPI interview.
- Members of the field staff are fully trained on the questionnaire. Field staff (interviewers and field coordinators) are trained and provided with visual aids (show cards especially for questions with long answer options) to boost response.
- Information on the interviews is collected and analysed to help minimise non-sampling effects (including, for example, when interviews were conducted and their duration). This information is compared across the interview team to ensure no unusual variation in interviewer performance exists. Co-ordinators, as an additional check on the quality of the interviewer's work, call back to around 2% of households to check the quality of the data collected.

5 Quality

5.1 Relevance

The development of ICT usage by individuals and households 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 27 as well as providing important national indicators for domestic ICT policy-making.

5.2 Accuracy and Reliability

5.2.1. Sampling Effect & representivity

A two-stage sample design is used using a GEO directory (register of households) as the basic sample frame. A new sample was introduced in Q4 2012 as a result of the 2011 Census of Population. The sample frame of households is clustered into blocks (small areas) with each block containing 60 occupied households on the night of the 2011 Census of Population. The sample frame is stratified using administrative county and population density. In the first stage 1,300 blocks are selected using Probability Proportional to Size (PPS) sampling and in the second stage 20 households are selected using Simple Random Sampling (SRS). This ensures that each household in the sample frame has an equal probability of selection and results in a total quarterly sample of 26,000 households. The actual achieved sample varies over time depending on the level of response.

The sampling variability is very small and that 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.

5.2.2. Non-Sampling Effects

Note: **Give descriptions, measurements and explanations under each of the following headings**

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

The stratified sample is taken from the GEO directory (register of households).

5.2.2.2 Register Coverage

The GEO register covers all constructed households in the state

5.2.2.3 Non-response (Unit and Item)

Unit non-response: The response rate for the survey is approximately 56%.
The main reasons for unit non-response are as follows:

1. No contact made by interviewer with sampled household

The interviewers endeavour to revisit households in the event of non-contact

Item non-response:

Item non-response is less than 5% due to the nature of the interviews. Respondents rarely curtail an interview once it has begun

5.2.2.4 Measurement Errors

Measurement Error is not formally calculated for the survey.

5.2.2.5 Processing Errors

All possible measures are taken to avoid processing errors, which may occur in coding, data transfer and in the process of updating the data manually.

The following measures are in place to minimise error:

- Comprehension errors – A substantial effort is made to ensure that the terms used in the survey are clear and readily understood. The more complicated question topics had help text displayed on the laptop screen in CAPI interview.
- Clear training - Members of the field staff are fully trained on the questionnaire. Field staff (interviewers and field coordinators) are trained and provided with visual aids (show cards especially for questions with long answer options) to boost response.
- Governance of field staff - Information on the interviews is collected and analysed to help minimise non-sampling effects (including, for example, when interviews were conducted and their duration). This information is compared across the interview team to ensure no unusual variation in interviewer performance exists. Co-ordinators, as an additional check on the quality of the interviewer's work, call back to around 2% of households to check the quality of the data collected.
- Data capture errors: These errors are minimised by logic checks and limits on values that can be keyed for each question in the electronic questionnaire at the data collection point. In certain cases where text strings (used as an "other" category for some questions) were re-coded to the proper category while further validation checks were done.
- Coding error: Checks are in place to minimise this risk, particularly with respect to Industry and occupational coding. The coding is conducted in-house at the CSO using an automated coding facility which is reviewed by a small team of coding experts. This approach reduces subjectivity and coding error. Overall it increases the quality and standard of coding of these key variables.

A validation system of derived variables and aggregates ensures that the processing errors, even if present, are not affecting the outcome significantly.

5.2.2.6 Model-related Effects

There is no formal imputation for non-response.

5.3 Timeliness and Punctuality

5.3.1 Provisional Results

No provisional results are released

5.3.2 Final 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 EU27 results in early December.

The CSO publishes within 6 months of the end of the data collection period (end April).

5.4 Coherence

Data for ICT household survey is checked for consistency with previous returns primarily using validation programs provided by Eurostat/in-house developed validation processes.

5.5 Comparability

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

Eurostat also does comparisons between the EU27 states on the data returned by individual countries.

5.6 Accessibility and Clarity

5.6.1 Assistance to Users, Special Analyses

The publication is available on the CSO web site at

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

The questionnaire and background notes are also available at
https://www.cso.ie/en/statistics/informationsociety/ictusagebyhouseholds/

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

5.6.2 Revisions

Some revisions may occur and revised on CSO website.

5.6.3 Publications

5.6.3.1 Releases, Regular Publications

'Information Society Statistics –Household Statistics' publication by end third quarter of the reference year.

5.6.3.2 Statistical Reports

Statistical Yearbook; Information Society Statistics –Households publication

5.6.3.3 Internet

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

 StatBank Interactive Tables:
https://statbank.cso.ie/px/pxeirestat/Database/eirestat/ICT%20Usage%20by%20Households/ICT%20Usage%20by%20Households_statbank.asp?SP=ICT%20Usage%20by%20Households&Planguage=0

5.6.4 Confidentiality

All data are treated as strictly confidential in accordance with Part V of the Statistics Act, 1993.

6 Additional documentation and publications

Further information can be found on data.gov.ie Ireland's open data portal to provide access to datasets held by public bodies.