Single Integrated Metadata Structure (SIMS v2.0)

(user oriented)

Country: Greece

Compiling agency: ELSTAT

Domain name: SURVEY ON THE USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES IN HOUSEHOLDS AND BY INDIVIDUALS, 2022

ELSTAT metadata

Reference metadata

1. Contact		Top
1.1 Contact organisation	HELLENIC STATISTICAL AUTHORITY	
1.2 Contact organisation unit	EMPLOYMENT, POPULATION AND COST OF LIVING STATISTICS STATISTICS DIVISION	
1.3 Contact name	1.Ntouros Georgios 2.Chalkiadaki Maria 3.Zouliatis Ioannis	
1.4 Contact person function	1. Unit Head	

	2. In charge of the whole project/survey (survey conduct, design of questionnaires, guidelines and other documents, database management, data dissemination, etc.) 3. Questionnaire design, preparing of guidelines, database management, data publication, etc.
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2. Metadata update

3.1 Metadata last certified	30.5.2022
3.2 Metadata last posted	5.5.2023
3.3 Metadata last update	15.5.2024

3. Statistical presentation

3.1 Data description

The basic aim of the survey of the year 2022 is to study, according to individuals' demographic characteristics, educational level, occupation and total household income:
- Access to selected information and communication technologies (computer, internet connection, etc.)
- internet access
- e-government
- e- commerce
- IoT (Internet of Things)
- Green ICT

3.2 Classification system

NUTS 1, ISCO 08 – two digit code, NACE rev2 – one digit code, ISCED 2011, household income (5 equivalised income quintiles' groups)

3.3 Sector coverage

The ICT survey in households and by individuals covers those households having at least one member in the age group 16 to 74 years old. Internet access of households refers to the percentage of households that have an internet access, so that anyone in the household could use the internet.

3.4 Statistical concepts and definitions

1. Household
  Household is considered to be a person residing alone in a dwelling or a group of persons, relatives or not, residing in the same dwelling. Prerequisite for a household to be included in the survey is the existence of at least one member aged 16-74 years old.
2. Household members
Household members are considered to be the individuals residing in the household during the 1rst quarter of the year 2022 (or for most of this time interval).

For more information please consult surveys' guidelines (in Greek only) ΟΔΗΓΙΕΣ ΓΙΑ ΕΡΕΥΝΗΤΕΣ ICT 2022

3.5 Statistical unit

Individuals and households.

3.6 Statistical population

The survey covers all private households of the country, irrespective of their size or their socio – economic characteristics, with the only pre-requisite that they comprise at least one member aged 16-74 years old.

The following cases are excluded:

- Collective households, such as hotels, hospitals, elderly homes, camps, reformatories, etc. Collective households will also be considered the dwellings with more than 5 lodgers.
- Households with foreign citizens serving in diplomatic missions.

Target population composed of households and/or individuals:

- Number of households: 3,565,317

- Number of individuals 16-74 years old: 7,608,143

Non - target population composed of households and/or individuals:

- Number of households (without at least one member aged 16-74) : 510,008

Number of individuals (residing in the pre-mentioned households): 2,914,496

3.7 Reference area

Whole Greek territory

3.8 Time coverage

2022

3.9 Base period

4. Unit of measure	

Percentages % of households
Percentages % of individuals

5. Reference period	

1rst quarter 2022: for key variables
For the reference period of the secondary variables please consult the survey questionnaire
http://www.statistics.gr/en/statistics/-/publication/SFA20/-

6. Institutional mandate	

6.1 Legal acts and other agreements

The legal framework concerning the organization and operation of ELSTAT is as follows:

- **Law 3832/2010** Law 3832/2010 (Government Gazette No 38, Issue A): *"Hellenic Statistical System Establishment of the Hellenic Statistical Authority (ELSTAT) as an Independent Authority",* as amended by article 90 paragraphs 8 and 9 of the Law 3842/2010 (Government Gazette No 58, Issue A): *"Restoration of fiscal justice, confrontation of tax evasion and other provisions",* by article 10 of the Law 3899/2010 (Government Gazette No 212, Issue A): *"Urgent measures for the implementation of the assistance program of the Greek Economy",* by article 45 of the Law 3943/2011 (Government Gazette No 66, Issue A): *"Combating tax evasion, staffing of auditing services and other provisions falling within the competence of the Ministry of Finance",* by article 22 paragraph 1 of the Law 3965/2011 (Government Gazette No 113, Issue A): *"Operations Reform of the Consignment and Loan Fund, Public Debt Management Agency, Public Enterprises and Government bodies, the establishment of the General Secretary of Public Property and other provisions",* by article first of the Law 4047/2012 (Government Gazette No 31, Issue A): *"Ratification of the Act of Legislative Content "Very urgent measures for the implementation of the Medium-term Fiscal Strategy 2012-2015 and of the State Budget for 2011" and of the Act of Legislative Content "Regulation of very urgent issues for the implementation of law 4024/2011 "Pension provisions, uniform pay scale - grading system, labour reserve and other provisions for the implementation of the Medium-term Fiscal Strategy Framework 2012-1015" and of issues falling within the competence of the Ministries of Administrative Reform and E-Governance, Interior, Finance, Environment, Energy and Climate Change, and of Education, Lifelong Learning and Religious Affairs and related to the implementation of the Medium-term Fiscal Strategy Framework 2012-2015" and other provisions",* by article 323 of the Law 4072/2012 (Government Gazette No 86, Issue A): *"Improvement of the business environment New corporate form - Trade Marks - Realtors - Regulating maritime, port and fishing matters and other provisions"* and by article 7 paragraph 1 of the Act of Legislative Content dated 18/11/2012 (Government Gazette No 228, Issue A): *"Financial rules and other provisions",* by Article 93 of the Law 4182/2013 (Government Gazette No 185, Issue A): *"Code of charitable estate, inheritances in abeyance and other provisions",* by Article 6 paragraph 8 of the Law 4244/2014 (Government Gazette 60, Issue A): *"Integration in Greek law of the Council Directive 2013/1/EU of 20 December 2012 amending Directive 93/109/EC as regards certain detailed arrangements for the exercise of the right to vote and stand as a candidate in elections to the European Parliament for citizens of the Union residing in a Member State of which they are not nationals and amendment of law 2196/1994 (A΄ 41) and other provisions",* by Article first subparagraph C.3 of the Law 4254/2014 (Government Gazette No 85, Issue A): *"Measures for the support and development of the Greek economy, in the context of the implementation of Law 4046/2012, and other provisions of law"* and by Article 33, paragraphs 5a and 5b of the Law 4258/2014 (Government Gazette No 94, Issue A): *"Demarcation process and arrangements of matters for streams - arrangements of Urban Planning legislation and other provisions".*

- **Regulation on the Operation and Administration of the Hellenic Statistical Authority** (ELSTAT), 2012, (Government Gazette No 2390, Issue B, 28-8-2012) Regulation on the Operation and Administration of ELSTAT

- **Regulation (EC) No 223/2009 of the European Parliament and of the Council**, on the European statistics (Official Journal of the European Union L 87/164) Regulation No 223/2009

- **Article 14 of the Law 3470/2006** (Government Gazette No 132, Issue A): *"National Export Council, tax regulations and other provisions".*

- **Article 3, paragraph 1c, of the Law 3448/2006** (Government Gazette No 57, Issue A): *"For the further use of information coming from the public sector and the settlement of matters falling within the responsibility of the Ministry of Interior, Public Administration and Decentralization".*

- **European Statistics Code of Practice**, adopted by the Statistical Programme Committee on 24 February 2005 and promulgated in the Commission Recommendation of 25 May 2005 on

the independence, integrity and accountability of the national and Community statistical Authorities, after its revision, which was adopted on 28 September 2011 by the European Statistical System Committee COP.

> **Presidential Decree 226/2000** (Government Gazette No 195, Issue A): *"Organization of the General Secretariat of the National Statistical Service of Greece".*

> **Articles 4, 12 , 13, 14, 15 and 16 of the Law 2392/1996** (Government Gazette No 60, Issue A): *"Access of the General Secretariat of the National Statistical Service of Greece to administrative sources and administrative files, Statistical Confidentiality Committee, settlement of matters concerning the conduct of censuses and statistical works, as well as of matters of the General Secretariat of the National Statistical Service of Greece"*

The survey is conducted in accordance with Regulation (EU) 2019/1700 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 10 October 2019 establishing a common framework for European statistics on individuals and households, based on data collected from a sample of amending Regulations (EC) No (EC) No 808/2004, 452/2008 and (EC) no. Regulation (EC) No 1338/2008 of the European Parliament and of the Council repealing Regulation (EC) No Regulation (EC) No 1177/2003 of the European Parliament and of the Council and Regulation (EC) No Council Regulation (EC) No 577/98.

Specifically for the 2022 survey, the survey is conducted in accordance with Implementing Regulation 2021/1898 determining the technical components of the data set, to define the technical formats for the transmission of information and in accordance with Regulation (EU) 2021/1223 of the European Parliament and of the Council for the determination of the detailed arrangements and content of quality reports.

Indicators from these surveys are used for benchmarking purposes. These indicators are provided by the European Statistical System.

6.2 Data sharing

Access is provided to the anonymised public use micro-datasets for researchers free of charge via ELSTAT's website https://www.statistics.gr/en/public-use-files

7. Confidentiality   Top

7.1 Confidentiality policy

The issues concerning the observance of statistical confidentiality by the Hellenic Statistical Authority (ELSTAT) are governed by articles 7, 8 and 9 of the Law 3832/2010, as amended by article 90 paragraph 8 of Law 3842/2010 and by article 10 of Law 3899/2010, as well as by article 8 of Law 2392/1996, which was brought back into force, in accordance with article 90 paragraph 8 of Law 3842/2010. http://www.statistics.gr/en/legal-framework

Furthermore, ELSTAT disseminates the statistics in compliance with the statistical principles of the European Statistics Code of Practice and in particular with the principle of statistical confidentiality COP.

7.2 Confidentiality – data treatment

> ELSTAT protects and does not disseminate data it has obtained or it has access to, which enable the direct or indirect identification of the statistical units that have provided them by the disclosure of individual information directly received for statistical purposes or indirectly supplied from administrative or other sources. ELSTAT takes all appropriate preventive measures so as to render impossible the identification of individual statistical units by technical or other means that might reasonably be used by a third party. Statistical data that could potentially enable the

identification of the statistical unit are disseminated by ELSTAT if and only if:

a) these data have been treated, as it is specifically set out in the Regulation on Statistical Obligations of the agencies of the Hellenic Statistical System (ELSS), in such a way that their dissemination does not prejudice statistical confidentiality or
b) the statistical unit has given its consent, without any reservations, for the disclosure of data.
➢ The confidential data that are transmitted by ELSS agencies to ELSTAT are used exclusively for statistical purposes and the only persons who have the right to have access to these data are the personnel engaged in this task and appointed by an act of the President of ELSTAT.

➢ ELSTAT may grant researchers conducting statistical analyses for scientific purposes access to data that enable the indirect identification of the statistical units concerned. The access is granted provided the following conditions are satisfied:

a) an appropriate request together with a detailed research proposal in conformity with current scientific standards have been submitted;

b) the research proposal indicates in sufficient detail the set of data to be accessed, the methods of analyzing them, and the time needed for the research;

c) a contract specifying the conditions for access, the obligations of the researchers, the measures for respecting the confidentiality of statistical data and the sanctions in case of breach of these obligations has been signed by the individual researcher, by his/her institution, or by the organization commissioning the research, as the case may be, and by ELSTAT.
➢ Issues referring to the observance of statistical confidentiality are examined by the Statistical Confidentiality Committee (SCC) operating in ELSTAT. The responsibilities of this Committee are to make recommendations to the President of ELSTAT on:

• the level of detail at which statistical data can be disseminated, so as the identification, either directly or indirectly, of the surveyed statistical unit is not possible;

• the anonymization criteria for the microdata provided to users Anonymization criteria;

• the granting to researchers access to confidential data for scientific purposes.

➢ The staff of ELSTAT, under any employment status, as well as the temporary survey workers who are employed for the collection of statistical data in statistical surveys conducted by ELSTAT, who acquire access by any means to confidential data, are bound by the principle of confidentiality and must use these data exclusively for the statistical purposes of ELSTAT. After the termination of their term of office, they are not allowed to use these data for any purpose.

➢ Violation of data confidentiality and/or statistical confidentiality by any civil servant or employee of ELSTAT constitutes the disciplinary offence of violation of duty and may be punished with the penalty of final dismissal.

ELSTAT, by its decision, may impose a penalty amounting from ten thousand (10,000) up to two hundred thousand (200,000) euros to anyone who violates the confidentiality of data and/or statistical confidentiality. The penalty is always imposed after the hearing of the defence of the person liable for the breach, depending on the gravity and the repercussions of the violation. Any relapse constitutes an aggravating factor for the assessment of the administrative sanction.

8. Release policy

8.1 Release calendar

Press Release date - General Results – « Survey on the Use of Information and Communication

Technologies by Households and Individuals» : 8 December 2022

8.2 Release calendar access

https://www.statistics.gr/en/calendar#52022

8.3 User access

Users are informed on data release dates through ELSTAT's website. The equal access of users to data is governed by the European Statistics Code of Practice.

9. Frequency of dissemination

Annual.

10. Accesibility and clarity

10.1 News release

The press release has been announced on 8 December 2022.

10.2 Publications

Publication "The Living Conditions in Greece" provides, both in greek and english languages, the latest statistics illustrating living conditions in Greece, among which data from the Survey on the use of information and communication technologies in households and by individuals.

The publication is updated with the latest data the first Friday of January, March, May, July, September and November.
Relative link: http://www.statistics.gr/en/living-conditions-in-greece

Also publication "Greece in figures" publishes data on the ICT survey. Relative link: Greece in figures

10.3 On-line database

On line data base for data access, is available, upon the announcement of press release, in ELSTAT's site : https://www.statistics.gr/el/public-use-files

10.3.1 Data tables - consultations

Information is not available. However, up to the end of November 2022 10,100 users have visited ELSTAT's site (www.statistics.gr) to consult information (Press Releases, Tables, Questionnaires, SIMS) on HH ICT survey, in general, and not of a specific year.

10.4 Micro-data access

Anonymized public use microdata are available, beginning of February of year N+1 (where N:year of survey conduct), in ELSTAT's site https://www.statistics.gr/el/public-use-files

10.5 Other

http://dlib.statistics.gr/portal/page/portal/ESYE

10.5.1 Metadata – consultations

Information is not available.

10.6 Documentation on methodology

Information on the survey (in Greek and in English) is posted on the website of ELSTAT

http://www.statistics.gr/en/statistics/-/publication/SFA20/2022

Users in the above link can find the questionnaire of the survey, the surveys' guidelines (only in Greek) and the SIMS in national language and in English.

Detailed methodological information are also included in the survey's Quality Report posted on ESTAT's website https://webgate.ec.europa.eu/estat/spe/metaconv/home.htm

10.6.1 Metadata completeness - rate

100%

10.7 Quality documentation

Commission Implementing Regulation EU 2021/1223 specifies the detailed arrangements and content of the quality reports on the organisation of a sample survey in the use of information and communication technologies domain for reference year 2022 pursuant to Regulation (EU) 2019/1700 of the European Parliament and of the Council.
Quality documentation is included in the Quality Report posted on ESTAT's website.

11. Quality management

11.1 Quality assurance

The quality of the survey is ensured by the existence of a methodological handbook issued by Eurostat, as well as by the use of a common questionnaire – template, in order to improve comparability of results in all member states, and in general by the implementation of the European Statistics Code of Practice.

11.2 Quality assessment

Quality assessment is carried out by ELSTAT and Eurostat.

The sample size is such as to ensure high accuracy results, representative for the reference population and all necessary steps are taken so as to make all appropriate checks and minimize measurement errors in data collection. Data are accompanied by quality reports analyzing the accuracy, consistency and comparability of data.
After the checks in order to detect errors, which are being corrected, and the estimation of sampling errors, the obtained results are considered to be of high quality.

12. Relevance

12.1 User needs

Main users of the survey data is Eurostat, OECD, Universities (professors, graduate and post graduate students), researchers on the field of information society, telecommunication providers etc. In general the users' requests are being satisfied.

The Hellenic Statistical Authority (ELSTAT) is in cooperation with the Ministry of Digital Governance during the development of the questionnaire, even at the very early stage, during the written consultations.

12.2 User satisfaction

The Section of Statistical Information and Dissemination of ELSTAT conducts a survey on users' satisfaction
http://www.statistics.gr/user-satisfaction-survey

12.3 Completeness

The completeness of data and breakdowns are considered to be very satisfactory according to user needs, while ESTAT's requirements are set out in Commission Regulations (EU) 2019/1700 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 10 October 2019 and Implementing Regulation 2021/1223.

All mandatory variables have been included in the microdata.

13. Accuracy and reliability

13.1 Overall accuracy

The concept of accuracy refers to the precision of estimates computed from a sample rather than from the entire population. Accuracy depends on sample size, sampling design effect and structure of the population under study. In addition to that, sampling errors and non sampling errors need to be taken into account.

The sample size has been defined from the Division of Methodology, Quality Management and Public Relations, according to the provisions set in the surveys' implementing regulation, allowing thus the production of high accuracy estimations for the country and also for the 4 great geographical areas of the country (NUTS1 level).

Sampling errors will be calculated from the competent division (see §13.2 below).

For the non-sampling errors see §13.3 below.

13.2 Sampling error

Sampling errors are estimated by the Coefficient of Variation.

The variance estimation is based on the assumption that the PSUs were selected according to a PPS with replacement scheme. As the clusters (one or more unified city blocks) are used as primary sampling units (PSUs) in the sample design, the variance procedure estimates the variance from the variation among the PSUs.

w_{hijk} (>0) stands for the survey weight (extrapolation factor) attached to the sample individual k ($k = 1$), as one individual is surveyed, in each sampling household) belonging to the sampling household of order j ($j = 1, ..., n_{hi}$) that belongs to the selected cluster of order i of the stratum h ($h = 1, ..., H$).

Estimation of survey characteristics

Let y_{hijk} be the value of variable y of the ultimate unit (individual) of the household of order j, belonging to the hi primary sampling unit (cluster). Moreover, Y stands for the total population, which is derived by adding the characteristic y of all ultimate units included in all strata h. The form of the estimator on the basis of the multistage-stage sample design is:

$$\hat{Y}_h = \sum_{h=1}^{H} \sum_{i=1}^{a_h} \sum_{j=1}^{n_{hi}} w_{hijk} y_{hijk}$$

Estimation of a ratio

Let x_{hijk} be the value of the characteristic x of the ultimate unit of the household of order j, belonging to the hi primary sampling unit (cluster). Moreover, X stands for the total population, which is derived by adding the characteristic x of all ultimate units included in all strata h. The form of the estimator $\hat{R}$ in the case of a multi-stage sample design is:

$$\hat{R} = \frac{\hat{Y}}{\hat{X}} = \frac{\sum_{h=1}^{H} \sum_{i=1}^{a_h} \sum_{j=1}^{n_{hi}} w_{hijk}\, y_{hijk}}{\sum_{h=1}^{H} \sum_{i=1}^{a_h} \sum_{j=1}^{n_{hi}} w_{hijk}\, x_{hijk}}$$

Variance estimation

In order to calculate the variance of the estimated characteristics, the following steps should be followed:

a) For every selected primary sampling unit (cluster) i of the stratum h, we calculate the quantity T_{hi} using the following formula:

$$T_{hi} = a_h \sum_{j=1}^{n_{hi}} w_{hijk}\, y_{hijk}$$

Where:

a_h: Number of primary sampling units

w_{hijk}: Weight attached to the sample individual k that belong to the household of primary sampling unit (cluster) i of the stratum h

y_{hijk}: Value of variable y of the ultimate unit (individual) of the household of order j, belonging to the hi primary sampling unit (cluster)

b) Since T_{hi} has been calculated for every primary sampling unit (cluster) i $(i = 1,..., a_h)$ of the stratum h, then $V(\hat{Y})$ is calculated as (Rao, 1988):

$$V(\hat{Y}) = \sum_{h=1}^{H} \frac{1}{a_h(a_h - 1)} \left[\sum_{i=1}^{a_h} T_{hi}^2 - \frac{1}{a_h} \left(\sum_{i=1}^{a_h} T_{hi} \right)^2 \right]$$

For the estimation of the variance of a ratio $\hat{R} = \frac{\hat{Y}}{\hat{X}}$ additional steps should be followed, below:

a) For every selected primary sampling unit (cluster) i of the stratum h, we calculate the quantity F_{hi} using the following formula:

$$F_{hi} = a_h \sum_{j=1}^{n_{hi}} w_{hijk}\, x_{hijk}$$

b) Since T_{hi} and F_{hi} have been calculated for every primary sampling unit (cluster) i ($i = 1,2,\dots, a_h$) of the stratum h, then $V(\hat{X})$ is calculated as:

$$V(\hat{X}) = \sum_{h=1}^{H} \frac{1}{a_h(a_h-1)} \left[\sum_{i=1}^{a_h} F_{hi}^2 - \frac{1}{a_h} \left(\sum_{i=1}^{a_h} F_{hi} \right)^2 \right]$$

The variance of $\hat{R}$ can be calculated using the following formula:

$$V(\hat{R}) = \frac{V(\hat{Y}) + \hat{R}^2 V(\hat{X}) - 2\hat{R}Cov(\hat{X},\hat{Y})}{\hat{X}^2}$$

where:

$$Cov(\hat{X},\hat{Y}) = \sum_{h=1}^{H} \frac{1}{a_h(a_h-1)} \left[\sum_{i=1}^{a_h} T_{hi}F_{hi} - \frac{1}{a_h} \left(\sum_{i=1}^{a_h} T_{hi} \right) \left(\sum_{i=1}^{a_h} F_{hi} \right) \right]$$

The variance estimator $\hat{V}(\hat{\theta})$ has to be adjusted to take unit non-response into account. Different methods can be used: methods based on the assumption that respondents are missing at random or completely at random within e.g. strata or constructed response homogeneity groups, methods using the two-phase approach, etc.

Sampling error estimation method : Analytic method

13.2.1. Sampling error – indicators

Precision estimates for the question "Individuals having ordered goods or services for private use over the internet in the last 12 months" (individuals who ticked 'Within the last 3 months' or 'Between 3 months and a year ago' in question D1 of the 2022 model questionnaire):

Number of respondents *(absolute value for 'Yes' answers)*: 2,149

Estimated proportion (in %):   44.98% of total population 16-74 years old

Standard error (in percentage points):   **0.74%**

 Details of the breakdowns are available in the Table below.

Indicator or sub-indicator on individuals in the general scope (16-74) and related subgroups	Number of respondents	Estimated proportion (in %)	Standard error (in percentage points)
Proportion of individuals having ordered goods or services for private use over the internet in the last 12 months (individuals who ticked 'Within the last 3 months' or 'Between 3 months and a year ago' in question D1 of the 2022 model questionnaire) **4778**	**2,149**	**44.98**	**0.74%**
Proportion of individuals having ordered goods or services for private use over the internet in the last 12 months: males (as % of all men) **2176**	1,075	49.40	1.08%
Proportion of individuals having ordered goods or services for private use over the internet in the last 12 months: females (as % of all women) **2602**	1,074	41.28	0.99%

Proportion of individuals having ordered goods or services for private use over the internet in the last 12 months: **age group 16-24 years** (as % of all individuals aged 16-24 years) **330**	261	79.09	2.26%
Proportion of individuals having ordered goods or services for private use over the internet in the last 12 months: **age group 25-34 years** (as % of all individuals aged 25-34 years) **342**	297	86.84	1.80%
Proportion of individuals having ordered goods or services for private use over the internet in the last 12 months: **age group 35-44 years** (as % of all individuals aged 35-44 years) **670**	494	73.73	1.72%
Proportion of individuals having ordered goods or services for private use over the internet in the last 12 months: **age group 45-54 years** (as % of all individuals aged 45-54 years) **919**	565	61.48	1.62%
Proportion of individuals having ordered goods or services for private use over the internet in the last 12 months: **age group 55-64 years** (as % of all individuals aged 55-64 years) **1080**	373	34.54	1.46%
Proportion of individuals having ordered goods or services for private use over the internet in the last 12 months: **age group 65-74 years** (as % of all individuals aged 65-74 years) **1437**	159	11.06	0.84%
Proportion of individuals having ordered goods or services for private use over the internet in the last 12 months: **low educational level** (as % of all individuals with low education) **1548**	232	14.99	0.91%
Proportion of individuals having ordered goods or services for private use over the internet in the last 12 months: **medium educational level** (as % of all individuals with medium education) **1888**	937	49.63	1.18%
Proportion of individuals having ordered goods or services for private use over the internet in the last 12 months: **high educational level** (as % of all individuals with high education) **1342**	980	73.03	1.26%
Proportion of individuals having ordered goods or services for private use over the internet in the last 12 months: **cities (densely populated area)** (as % of all individuals living in cities (densely populated area) **2588**	1.387	53.59	1.03%
Proportion of individuals having ordered goods or services for private use over the internet in the last 12 months: **towns and suburbs (intermediate density area)** (as % of all individuals living in towns and suburbs (intermediate density area) **966**	417	43.17	1.68%
Proportion of individuals having ordered goods or services for private use over the internet in the last 12 months: **rural areas (thinly populated area)** (as % of all individuals living in rural areas (thinly populated area) **1224**	345	28.19	1.30%

13.3 Non-sampling error

The non-sampling errors are divided into the following categories:
- o Coverage error
- o Measurement error
- o Non-response error
- o Processing error

13.3.1 Coverage error

Coverage errors are caused by the imperfections of a sampling frame for the target population of the survey.

- Coverage errors include over-coverage, under-coverage and misclassification:

- Over-coverage: relates either to wrongly classified units that are in fact out of scope, or to units that do not exist in practice.

- Under-coverage: refers to units not included in the sampling frame.

- Misclassification: refers to incorrect classification of units that belong to the target population.

A systematic source of coverage problems is the time lag between the reference date for the selection of the sample and the fieldwork period, which should be made the shortest.

13.3.1.1 A2 Over-coverage – rate

0.33% of selected households did not belong in the target population because all members were over 74 years old.

13.3.1.2 A3 Common units – proportion

Not applicable

13.3.2 Measurement error

They occur at the time of data collection from the questionnaire.

In order to reduce these errors the following actions were done:

- For building up the questionnaire we adopted the questionnaire proposed from Eurostat as the basis. The structure of the questionnaires is similar. The majority of the questions are almost literally copied and translated.
- Detailed guidelines handbook is provided to all interviewers. Also, a second manual on the use of the data entry programs / electronic questionnaires designed using Oracle - SQL (in central office desktops).
- Cooperation with the Ministry of Digital Governance during the development of the questionnaire (in particular of the e-government module) in order the questions to include the most common examples of citizens' transactions with public services and authorities.
- Training to interviewers takes place in Athens.
- Checks (validation/ logical/ completeness/ flow, etc.) are carried out both by ELSTAT and EUROSTAT (validation programs). Supervisors are in close communication with interviewers for attending work progress or to discuss and solve occurring problems.
- Participation in the survey of skilled and experienced, with previous years' ICT survey and other household surveys, interviewers.

13.3.3 Non-response error

Non-response errors are errors due to an unsuccessful attempt to obtain the desired information from an eligible unit. Unit non-response: refers to the absence of all information of a whole unit (household and person) selected for survey.

a. Unit non – response

The unit response rate is the ratio of the number of in-scope respondents (= the number of achieved interviews or the net sample size to the number of eligible elements selected from the sampling frame).

Unit non-response rate for

- **Households**:   41.16%
- **Individuals** (aged 16-74):   41.16%

Actions for minimizing units' non-response are:

o   An advance notification letter sent to all households, one month before the survey conduct, among others, providing information on how the data collected are used.

o   In cases where the households cannot be accessed, mainly due to temporary absence, a number of attempts for phone calls (at least three) are made, on different days or hours of day.

b. Item non - response

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13.3.4 Processing error

Good processing methods, but also quality controls having been developed since 2002 (1st year of survey) have significantly reduced this type of errors.

Data entry controls

Several plausibility checks have been made, using the validation rules of ESTAT, as well as using additional checks prepared by ELSTAT.

In general, data entry programs and post-data entry programs checks concern the following:

- Coverage
- Checks on the number of questionnaires expected to be collected
- Monitoring of flows, valid values and out of range values
- Intra-year inconsistencies check
- Intra-questionnaire inconsistencies check

Codification

The codification regarding occupation (ISCO-08), economic activity of the local unit (NACE rev.2), as well as nationality, is undertaken by experienced personnel, following the international classifications.

13.3.4 Model assumption error

Not applicable

14. Timeliness and punctuality

14.1 Timeliness

The time lag between the reference period of the survey data and the publication of data is approximately 10 months.

Time lag - final result

Length of time between the end of fieldwork and the delivery of final results to Eurostat :
Approximately 35 days

Date of the first full delivery of data to Eurostat: 3/10/2022

Date of the final full delivery of data to Eurostat: 4/10/2022

14.2 Punctuality

Dates when each of the phases of the projects started/ended

Data are produced and disseminated according to the predefined timetable.

	Duration / start / end date
Preparation of survey	February – May 2022
Data collection (fieldwork)	July – August 2022
Data delivery to Eurostat	Delivery of microdata 4/10/2022
Dissemination of national results	The national results are available upon the Press Release of the

survey results (8/12/2022)

15. Coherence and Comparability

15.1 Comparability - geographical

Since common variable definitions and data production methods have been implemented not only in all geographical regions of the country but also among the EU countries, no geographical comparability problems have been caused. This target is much aided by the use of EU proposed questionnaire and of the conceptual guidelines and instructions (methodological manual).

15.1.1 Assymetry for mirror flows statistics – coefficient

Not relevant

15.2 Comparability over time

From 2002 onwards, the data are comparable because common definitions and methods of data production are applied; therefore, in general, no problem on comparability over time exists.

The length of comparable time series depends on the module and variable considered within each of the modules of the survey.

15.3 Coherence cross-domain

No statistically significant differences have been observed for the same variables, published by ELSTAT or by other organizations / services conducting similar surveys.

Internet penetration indicator (Households with access to the internet at home) is compared with the indicator calculated from the Household Budget Survey.

15.3.1 Coherence – sub annual and annual statistics

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15.3.2 Coherence – National Accounts

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15.4 Coherence - internal

All statistics are coherent within the dataset.

16. Cost and burden

1) Costs and burden of the survey:
The ICT survey has been designed to keep respondent burden under control in order to avoid high non-response rate and to ensure good quality of the collected information. The burden mostly concerns the time required to get the information from the surveyed households/ individuals. Nevertheless, it seems not possible to lighten this burden.

As far as costs are concerned:
(a) Costs of staff assigned to the action are estimated approximately to 80,000 euros and
(b) Costs for data collection by external collaborators are estimated approximately to 32,000 euros

2) Average time used for answering the survey questionnaire: 11.84 minutes

17. Data revision

17.1 Revision policy
The revision policy may relate to the survey data and the survey itself, i.e. the questionnaire, the sample, etc., and takes into account users' needs for additional statistical information.   http://www.statistics.gr/en/policies
17.2 Revision practice
Data transmitted to Eurostat undergo detailed verifications by implementing automated validation procedures at the level of variables and breakdowns. Besides cross-sectional checks, longitudinal checks are conducted and whenever necessary (if data inconsistencies are found) reporting countries are asked to verify and revise their results.

18. Statistical processing

18.1 Source data

18.1.1 Sampling frame

The HH ICT is a multi-stage stratified sampling survey. The primary sampling units are the areas (one or more unified city blocks) participating in the EU-SILC survey of the years 2014-2021.

Also only the private households participate in the survey. Individuals who permanently reside in collective houses (as hospitals, hotels, asylums, houses of old people, orphanages etc) are not covered by the survey. These individuals are - as a rule - members of institutional households. If however we subtract from this population the conscripts and the imprisoned, the actual percentage not covered by the survey procedure, accounts for 1.29% (Census 2011) of the total population, and in its major part concerns economically non-active persons.

18.1.2. Sampling design

The sampling design is a probability design (multi-stage stratified sampling).

Number of sampling stages: Two stages for households and three stages for individuals.

The primary sampling units are areas (one or more unified city blocks) participating in the EU-SILC of the years 2014 – 2021.

1) First stage – Stratification

The stratification variables of the first stage units (one or more unified city blocks) are:

1. Region (NUTS 2)
2. Degree of urbanization.

In each Region (NUTS 2), the stratification of primary units (first stage units) was conducted by allocating the Communes according to the degree of urbanization. Except for the former two Major City Agglomerations (Athens and Thessaloniki), the strata according to the degree of urbanization are:

1. Communes with 30.000 inhabitants or more
2. Communes with 5.000 to 29999 inhabitants
3. Communes with 1.000 to 4.999 inhabitants
4. Communes up to 999 inhabitants

The former Greater Athens Area was divided into 31 strata of about equal size (equal number of households), on the basis of lists of city blocks of the Communes that constitute it and taking into consideration socio-economic criteria. Similarly, the former Greater Thessaloniki Area was divided into 9 equally sized strata. Thus, the total number of strata of the survey was 90, that is the 'final strata'. The two former Major City Agglomerations account for about 36.7% (Population Census 2011) of total population and for even larger percentages in certain socio-economic variables.

1st stage of sampling

In this stage, for any ultimate stratum ('final strata'), say stratum h, a_h primary units were drawn with probabilities proportional to their sizes. The number a_h of draws is approximately proportional to the population stratum size N_h, as defined above.

The primary unit of order i in stratum h has probability of being drawn proportional to the population size as follows:

$$P_{hi} = \frac{a_h \cdot N_{hi}}{N_h}$$

where:

N_{hi}: Updated number of households from the EU-SILC in the hi primary unit.

N_h: Estimated number of households for the year 2021 in the stratum h.

The secondary sampling units are the households of the EU-SILC containing members belonging to the target population (individuals aged 16-74 years old). The third –and final- sampling unit is one person randomly selected among the household members of 16-74 years old.

In more detail:

2nd stage of sampling

In the hi primary unit, a sample of n_{hi} out of N_{hi} households was selected with equal probabilities. Each one of the n_{hi} households had the same chance to be selected, equal to:

$$\frac{n_{hi}}{N_{hi}} \quad (2)$$

The total number of households to be interviewed of the a_h sampling primary units is:

$$n_h = \sum_{i=1}^{a_h} n_{hi}$$

Within each primary sampling unit the calculation of the sampling interval $\delta_{hi} = \frac{N_{hi}}{n_{hi}}$ was carried out, so that the following two desired conditions to be satisfied.

a) The expectation of the fraction $\frac{n_h}{N_h}$ was constant in each stratum. That is:

$$E\left(\frac{N_h}{n_h}\right) = \frac{1}{\lambda} = 2,3\,\text{‰} \quad (3) \quad \text{and}$$

b) The estimator of the stratum total Y_h (for any characteristic) will be self-weighting. In other words, the estimate of the survey characteristics is derived as product of the sum of the values of the characteristics over the n_h sample households by the overall raising factor λ, which is equal in each stratum.

The conditions (a) and (b) are satisfied when:

$$\frac{1}{a_h} \cdot \frac{1}{P_{hi}} \cdot \frac{N_{hi}}{n_{hi}} = \lambda \ (4) \Rightarrow \frac{1}{a_h} \cdot \frac{1}{P_{hi}} \cdot \delta_{hi} = \lambda \Rightarrow \delta_{hi} = \frac{N_{hi}}{n_{hi}} = \lambda \cdot a_h \cdot P_{hi} \ (5)$$

From the relations (1) and (5) $\Rightarrow$

$$\frac{N_{hi}}{n_{hi}} = \lambda \cdot a_h \cdot \frac{N_{hi}}{N_h} \Rightarrow n_{hi} = \frac{N_{hi} \cdot N_h}{\lambda \cdot a_h \cdot N_{hi}} \Rightarrow n_{hi} = \frac{N_h}{\lambda \cdot a_h} \ (6)$$

From the relation (3), it is deducted that: $\frac{1}{\lambda} = \frac{n_h}{N_h} \Rightarrow \lambda = \frac{N_h}{n_h}$ (7)

From the relations (6) and (7), we have: $n_{hi} = \frac{n_h}{a_h}$ (8)

3rd stage of sampling

In this stage from each household one individual (member of household belonging to the target population) was selected with equal probabilities.

Let p_{hij} is the selection probability of the hij individual, which belongs to the hi household. As one individual was selected with equal probabilities out of m_{hi} members belonging to target population, the p_{hij} was defined as: $p_{hij} = \frac{1}{m_{hi}}$

The sampling fraction in each of the 90 strata (Stratum = Region x Degree of urbanization) is $f = \frac{1}{\lambda} = \frac{n}{N} \cong 0.002$, where $n = 8,147$ is the total sample size of households and N=3.565.317 is the estimated total number of households belonging to the target population.

The number of the sampling households in each of the 90 strata (let h) was defined by applying the proportional allocation as follows:

$$n_h = n \cdot \frac{N_h}{N}$$

where:

N_h : the population size of the stratum h.

NET EFFECTIVE sample size (in number of individuals): 4,778

18.2 Frequency of data collection

Annual

18.3 Data collection

The method of data collection is the telephone interview (CATI). Upon the completion of the questionnaire, the interviewers data entered the answers in electronic questionnaires.

18.4 Data validation

Data validation is carried out by qualitative and quantitative tests based on:

- ○ Longitudinal checks on raw data (with data of previous years)
- ○ Comparisons of key variables with variables / data of other statistical sources
- ○ Calculation of sampling errors, also used as a criterion for the final validation of data.

Checks in data are made from ELSTAT's experienced personnel, also using ESTAT's validation programs. Rational checks, inconsistency checks, as well as coverage checks are being done.

Adequate number of rational and inconsistency checks also "run" while data entrying in the electronic questionnaires.

18.5 Data compilation

Population and sample weighting adjustments were used to compensate for non-response.

18.5.1 Imputation – rate

For the target indicator "Individuals having ordered goods or services for private use over the internet in the last 12 months" (individuals who ticked 'Within the last 3 months' or 'Between 3 months and a year ago' in question D1 of the 2022 model questionnaire):

Imputation rate (% of observations): 0%

Imputation rate (share of estimate): 0%

18.5.2 Weighting

Grossing up procedures have been applied to: Individuals and Households

Let h be one of the final strata of households (Final stratum = Region x Degree of Urbanization), then this will take the following values: $h = 1,2,...,H$ (where $H = 90$). In each of the final strata (let h), if statistical information was selected from a sample of n'_h households, the extrapolation factor of the household of order j belonging to the PSU of order i was defined as:

$$w_{hij} = \frac{N_h}{a_h \cdot N_{hi}} \cdot \frac{N_{hi}}{n_{hi}} \cdot \frac{1}{r_l} \cdot t_{hij} = \frac{N_h}{a_h \cdot n_{hi}} \cdot \frac{1}{r_l} \cdot t_{hij} \quad (9)$$

From relations (8) in paragraph 18.1.2.2 and (9), we have:

$$w_{hij} = \frac{N_h}{a_h \cdot \frac{n_h}{a_h}} \cdot \frac{1}{r_l} \cdot t_{hij} \Rightarrow w_{hij} = \frac{N_h}{n_h} \cdot \frac{1}{r_l} \cdot t_{hij} \quad (10)$$

where:

$\dfrac{N_h}{n_h}$: Inverse of initial inclusion selection probabilities of sampling households in h stratum, as

estimator of the stratum total Y_h (for any variable y) is self-weighting,

r_l : Response propensity in weighting class c_l (13 Regions-NUTS 2 plus unified strata in former Greater Thessaloniki and Regional Unities in former Greater Athens Area)

t_{hij} : Factor, which adjusts the sample weights of households, so that the sample totals conform to the population totals on a cell-by-cell basis (Population Weighting Adjustment). The auxiliary variable used at household level is the household size (1,2,3,4 or 5+ members) at NUTS 1 level, for the definition of cells or classes.

The distribution of households by size class per NUTSI is estimated by using population projections. These projections are based on vital statistics (population census, births, deaths, migration) and the Population Census 2011.

In each of the final strata of households (let h), if statistical information was selected from a sample of m_h individuals, the extrapolation factor of the individual of order k belonging to the hij household is defined as follows:

$$w_{hijk} = w_{hij} \cdot \frac{1}{p_{hijk}} \cdot g_{hijk} \quad (11)$$

where:

w_{hijk} : The extrapolation factor of the hij household in which the $hijk$ individual belongs.

p_{hijk} : The selection probability of the $hijk$ individual, which belongs to the hij household. As one individual was selected with equal probabilities out of m_{hij} members belonging to the target population, the p_{hijk} is defined as: $p_{hijk} = \frac{1}{m_{hij}}$

g_{hijk} : Factor, which adjusts the sample weights of individuals, so that the sample distribution conforms to the population distribution across a set of classes at NUTS1 level. The classes are 24, which are defined by crossing sex by age groups (2 sex categories × 12 age groups). The age groups are defined by the year intervals: 16-19, 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59,60-64, 65-69 and 70-74.
The population distribution of individuals by sex and age groups NUTSI is estimated by using population projections. These projections are based on vital statistics (population census, births, deaths, migration) and the Population Census 2011.

18.6 Adjustment

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18.6.1 Seasonal adjustment
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19. Comment
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