Single Integrated Metadata Structure (SIMS v2.0)
(user oriented)

Country: Greece

Compiling agency: ELSTAT

Domain name: Survey on Income and Living Conditions 2023

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1.	Contact	Top
1.1	**Contact organisation**	Hellenic Statistical Authority (ELSTAT)
1.2	**Contact organisation unit**	Population, Employment and Cost of Living Statistics Division Households' Special Statistics Section
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2. Metadata update	
2.1 Metadata last certified	17/09/2024
2.2 Metadata last posted	17/09/2024
2.3 Metadata last update	17/09/2024

3. Statistical presentation	

3.1 Data description

The European Union Statistics on Income and Living Conditions (EU-SILC) is an instrument aiming at collecting timely and comparable cross-sectional and longitudinal multidimensional microdata on income, poverty, social exclusion and living conditions. This instrument is anchored in the European Statistical System (ESS). In addition, are collected module variables every three year, six year or ad-hoc new policy needs modules.

The EU-SILC instrument provides two types of data:

- Cross-sectional data pertaining to a given time or a certain time period with variables on income, poverty, social exclusion and other living conditions;

- Longitudinal data pertaining to individual-level changes over time, observed periodically over a four-or more year rotation scheme (Annex III (2) of 2019/1700).

Social exclusion and housing condition information is collected mainly at household level while labour, education and health information is obtained for persons aged 16 and over. The core of the instrument, income at very detailed component level, is mainly collected at personal level.

3.2 Classification system

The EU-SILC results are produced in accordance with the relevant international classification systems. The main classifications used are:

- International Standard Classification of Education (ISCED'2011);

- International Standard Classification of Occupations (ISCO-08);

- Classification of Economic Activities (NACE Rev.2-2008);

- Common classification of territorial units for statistics (NUTS 2);

- Standard Code List (SCL) - Geographical (GEO);

- The recommendations made by the United Nations in the Canberra Group Handbook on Household Income Statistics should also be taken into account.

For more details on the classification used please, see EU Vocabularies, Eurostat's metadata server or CIRCABC'.

3.3 Sector coverage

Data refer to all private households and individuals living in the private households in the national territory at the time of data collection.

The EU-SILC survey is a key instrument for providing information required by the European Semester and the European Pillar of Social Rights, in particular for income distribution, poverty and social exclusion, as well as various related living conditions and poverty EU policies, such as on child poverty, access to health care and other services, housing, over indebtedness and quality of life.

It is also the main source of data for microsimulation purposes and flash estimates of income distribution and poverty rates.

3.4 Statistical concepts and definitions

Statistical concepts and definitions for EU-SILC are specified in Regulation (EU) 2019/1700, Commission Implementing Regulation (EU) 2019/2181, and Commission Implementing Regulation (EU) 2019/2242. Additional information is available in the EU statistics on income and living conditions (EU-SILC) methodology and in the methodological guidelines and description of EU-SILC target variables (see

CIRCABC).

Further details are provided in items 5, 15.1.1.1, 15.2.2 and 18.3.

In addition, the following definitions are used:

Income:

The total disposable income of a household is calculated by adding together the personal income received by all household members plus income received at household level minus regular taxes on wealth, regular inter-household cash transfer paid, tax on income and social insurance contributions.

Missing income information in individual questionnaires is imputed.

Disposable household income includes:

- income from work (employee wages and self-employment earnings)

- private income from investment and property

- transfers between households

- all social transfers received in cash including old-age pensions

Note: Some of the income components are mandatory only from 2007: Imputed rent, Interest paid on mortgage, Value of goods from own consumption, Employer's social insurance contributions. From the 2007 year on, all countries have to supply gross income information.

Additionally, from 2021 onwards, imputed rent is not part of the nucleus but will be collected every 3 years (starting in 2020) as part of the rolling module on 'Labour and housing'.

Equivalence scale:

To take into account the impact of differences in household size and composition, the total disposable household income is "equivalised". The equivalised income attributed to each member of the household is calculated by dividing the total disposable income of the household by the equivalisation factor. Equivalisation factors can be determined in various ways. Eurostat applies an equivalisation factor calculated according to the OECD-modified scale first proposed in 1994 - which gives a weight of 1.0 to the first person aged 14 years or more, 0.5 to other persons aged 14 years or more and 0.3 to each person aged under 14 years (0-13).

Household definition:

A 'private household' means a person living alone or a group of persons who live together, providing oneself or themselves with the essentials of living. EU-SILC implementing regulation number 2019/2181 specifying technical characteristics, defines households in terms of sharing income or household expenses and (for non-permanent members) in terms of duration of stay and (for temporarily absent members) in terms of duration of absence.

Household type:

Commission Regulation (EU) 2019/1700 establishing a common framework for European statistics relating to persons and households, based on data at individual level collected from samples and data collection surveys including LFS, HBS and EU-SILC as well as the subsequent presentation of indicators relating to income, housing, education, healthcare, etc. Rather than focussing on "couples" and/or "families", the classification is constructed by reference to the number of adult members, their age and gender, and the number of dependent children living with them. This is reproduced below:

Type of household

Total
All households without dependent children
Single person household
One adult male
One adult female
One adult older than 65 years
One adult aged between 0 and 64 years
Two adults, no dependent children, younger than 65 years

Two adults, no dependent children, at least one aged 65 years and over
Three or more adults, no dependent children
All households with dependent children
Single parent with a least one dependent child
Two adults with one dependent child
Two adults with two dependent children
Two adults with three or more dependent children
Three or more adults with dependent children

Dependent children were previously defined as all persons aged less than 16, plus those economically inactive persons aged 16-24 living with at least one of their parents. Now a slightly different definition has been adopted: All persons aged less than 18 are considered as dependent children, plus those economically inactive persons aged 18-24 living with at least one of their parents.

Activity status:

Under EU-SILC, respondents are asked to declare the number of months during the year that they spent in a list of activity statuses (cross-sectional part). From this information, a "calendar of activities" can be constructed.

Note: Separate questions also allow the construction of an "ILO activity status".

Using the calendar of activities, the following classification of most frequent activity status is established:

Activity and/or professional status

Employee (full-time)
Employee (part-time)
Self-employed (full-time)
Self-employed (part-time)
Unemployed
Pupil, student, further training, unpaid work experience
In retirement or in early retirement or has given up business
Unfit to work
Soldier
Domestic tasks
Person with permanent disability

For the 'in work poverty risk indicators', an individual is considered as having a particular activity status if he/she has spent time during the reference year in that status.

For the pensions indicator 'aggregate replacement ratio' only persons who have spent the total reported time in the relevant activity status are considered.

3.5 Statistical unit

Statistical units are private households and all persons living in these households who have usual residence in the Member State. Annex II of the Commission implementing regulation (EU) 2019/2242 defines specific statistical units per variable and specifies the, content of the quality reports on the organization of a sample survey in the income and living conditions domain pursuant to Regulation (EU) 2019/1700 of the European Parliament and of the Council.

3.6 Statistical population

The target population is private households and all persons composing these households having their usual residence in the Member State. Private household means a person living alone or a group of persons who

live together, providing oneself or themselves with the essentials of living.

There are no differences with the standard EU-SILC concepts. Definitions of reference population, household and household membership are provided below

Reference population	Private household definition	Household membership
The target population is private households and all persons composing these households.The source of our sample is the Census Population. This Census includes all private households and their current members residing in the territory independently of any socio-economic characteristics they may have. Persons living in collective households and in institutions are excluded from the target population as well as households with diplomatic missioners as members.	The definition of household that Eurostat recommends is used. Household is defined as a person living alone or a group of persons living together in the same dwelling and sharing income or expenditures including the joint provision of the essentials of living.	All household members aged 16 years and over at the time of the interview are selected for a personal interview. Subject to the further and specific conditions shown below, if the following persons share household expenses, must be regarded as household members: 1. Persons usually residents, related to other members 2. Persons usually residents, not related to other members 3. Resident boarders, lodgers, tenants 4. Visitors 5. Line-in domestic servants, au-pairs 6. Persons usually resident, but temporarily absent from the dwelling (for reasons of holiday travel, work, education or similar) 7. Children of the household being educated away from home 8. Persons absent for long periods, but having household ties: persons working away from home 9. Persons temporarily absent but having household ties: persons in hospitals, homes or other institutions Further conditions for inclusion as household members are as follows: (a) Categories 3,4 and 5: Such persons must currently have no private address elsewhere, or their actual or intended duration of stay must be six months or more. (b) Category 6 Such persons must currently have no private address elsewhere, or their actual or intended duration of absence must be less than six months (c) Category 7 a) for primary/secondary students away from home during the week but returning to family home for weekends, b) for tertiary students who live in a collective household (student dormitories) and receive income from the family home. Tertiary students that leave in a different private address irrespectively of their source of income are not regarded members of the household.

Reference population	Private household definition	Household membership
		(d) Category 8:
		Irrespective of the actual or intended duration of absence, such persons must currently have no private address elsewhere, must be the partner or child of a household member and must continue to retain close ties with the household and consider this address to be their main residence.
		(e) Category 9:
		Such persons must have clear financial ties to the household and must be actually or prospectively absent from the household for less than twelve months.

3.6.2. Population not covered by the data collection

The sub-populations that are not covered by the data collection includes: those who moved out of the country's territory; or those with no usual residence; or those living in institutions or who have moved to an institution compared to the previous year.

3.7 Reference area

The whole country.

3.8 Time coverage

EU-SILC in Greece has been carried out on an annual basis since 2003. The income reference period is the calendar year prior to the survey year e.g. in EU-SILC 2022 survey the income reference period is 2021.

3.9 Base period

Not applicable.

4. Unit of measure

The data involves several units of measure depending upon the variables. Income variables are transmitted to Eurostat in national currency. For more information, see methodological guidelines and description of EU-SILC target variables available on CIRCABC.

5. Reference period

Description of reference period used for incomes

All reference periods used are consistent with technical specifications and no changes were applied to methodological guidelines.

Period for taxes on income and social insurance contributions	Income reference periods used	Reference period for taxes on wealth	Lag between the income ref period and current variables
The income reference period is a fixed twelve-month period, namely the previous calendar year. Tax refunds received during 2022 refer to income received in previous years.	For SILC 2023, the income reference period is the year 2022.	The reference period for taxes on wealth was 2022.	The income reference period is the previous calendar year (year 2022), while current variables refer to the fieldwork period (May - November 2023). Therefore the lag may vary from 5 to 11 months.

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6. Institutional mandate

6.1 Legal acts and other agreements

Regulation (EU) 2019/1700 was publish in OJ on 10 October 2019, establishing a common framework for European statistics relating to persons and households, based on data at individual level collected from samples (IESS). The Annex to the Commission implementing regulation (EU) 2019/2180 of 16 December 2019 specifies the detailed arrangements and content for the quality reports pursuant to Regulation (EU) 2019/1700 of the European Parliament and of the Council and Regulation (EU) 2019/2242.

The legal framework concerning the organization and operation of ELSTAT is detailed in the following link:

http://www.statistics.gr/en/legal-framework

6.2 Data sharing

Confidential microdata are not disclosed by Eurostat. Access to confidential microdata for scientific purposes may be granted on the basis of Commission Regulation 557/2013 and Regulation 223/2009 of the European Parliament and the Council on European statistics.

7. Confidentiality

7.1 Confidentiality - policy

The issues concerning the observance of statistical confidentiality by the Hellenic Statistical Authority (ELSTAT) are arranged by articles 7, 8 and 9 of the Law 3832/2010 as in force, by Articles 8, 10 and 11(2) of the Regulation on Statistical Obligations of the agencies of the Hellenic Statistical System and by Articles 10 and 15 of the Regulation on the Operation and Administration of ELSTAT.

More precisely:

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.

Protection of personal data

ELSTAT abides by the commitments and obligations arising from the applicable EU and national legislation on the protection of the individual from the processing of personal data and the relevant decisions, guidelines and regulatory acts of the Hellenic Data Protection Authority.

Pursuant to the Regulation on the protection of natural persons with regard to the processing of personal data [Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 (General Data Protection Regulation - GDPR)], ELSTAT implements the appropriate technical and organisational measures for ensuring adequate level of security against risks for the personal data it collects and has access to, in the context of carrying out its tasks, in order to meet the requirements of this Regulation and to protect these personal data from any unauthorised access or illegal processing.

The personal data collected by ELSTAT are used exclusively for purposes related to the conduct of surveys and the production of relevant statistics. Only ELSTAT has access to the data. The controller is the person appointed by law pursuant to the relevant provisions concerning the Legal Entities of Public Law and the Independent Authorities. The data are stored in the databases of ELSTAT for as long as required by the relevant legislation.

Legal basis of the processing: Article 6, para 1(c) and 1(d) of the General Data Protection Regulation (GDPR).

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) 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;
    -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 defense 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.

- Pursuant to the Regulation on the protection of natural persons with regard to the processing of personal data [Regulation (EU) 2016/679 of the European Parliament and of the Council, of 27 April 2016 (General Data Protection Regulation - GDPR)], ELSTAT implements the appropriate technical and organisational measures for ensuring adequate level of security against risks for the personal data it collects and has access to, in the context of carrying out its tasks, in order to meet the requirements of this Regulation and to protect these personal data from any unauthorised access or illegal processing.

8. Release policy

8.1 Release calendar

Releases of EU-SILC survey are published, on an annual basis, on the website of ELSTAT at 12:00 (EET) in accordance with the releases calendar (except in unforeseen circumstances). Release dates are planned during the previous calendar year and therefore changes may occur in the release dates.

8.2 Release calendar access
Please refer to the [Release calendar - Eurostat (europa.eu)](#) publicly available on the Eurostat's website.

8.3 User access
In line with the Community legal framework and the [European Statistics Code of Practice](#), Eurostat disseminates European statistics on Eurostat's website (see section 10 - 'Accessibility and clarity'), respecting professional independence and in an objective, professional and transparent manner in which all users are treated equitably. The detailed arrangements are governed by the [Eurostat protocol on impartial access to Eurostat data for users](#). Additional information about microdata access is available in [Statistics on Income and Living Conditions - Access to microdata - Eurostat (europa.eu)](#).
ELSTAT grants access to anonymized microdata, part of which is the survey on income and living conditions (EU-SILC), which have been anonymized in accordance with anonymization criteria it has predefined, so that the direct or indirect identification of surveyed units is not possible ([Public Use Files](#)). The list of the anonymization criteria, per statistical survey, is available on ELSTAT's website, at the link: [Anonymization Criteria for Public Use Files of ELSTAT](#).

9. Frequency of dissemination   [Top](#)

Annual

10. Accessibility and clarity   [Top](#)

10.1 News release
Listed below are the regular or ad-hoc releases linked to the EU-SILC data over the past year. They can be found on ELSTAT webpage, in the link: https://www.statistics.gr/en/statistics/-/publication/SFA10/-
- Risk of poverty (publication date 03.04.2024)
- Income inequality (publication date 03.04.2024)
- Material and social deprivation, and living conditions (publication date 03.04.2024)
- Intergenerational transmission of advantages and disadvantages (publication date 16.04.2024)
- Household energy efficiency and Housing difficulties (publication date 16.04.2024)

10.2 Publications
Further to the EU-SILC Press Releases mentioned in the previous paragraph, the *Living Conditions in Greece* publication aims to provide the latest statistics illustrating living conditions in Greece in a clear and comprehensive manner. Chapter 3 of the publication is dedicated to EU-SILC data while some other EU-SILC-stemming information is referring in further chapters. The publication is written in both greek and english and is designed for users of statistics who seek updated information on recent social developments, as well as long-term social trends. The publication is updated with the latest data every second month, the first Friday of January, March, May, July, September and November. In order to facilitate users, on page 7 of the publication there is a reference list containing all the tables that are updated with new or revised data. The publication can be found in the following link:
https://www.statistics.gr/en/living-conditions-in-greece#tab-2023

10.3 On-line database
10.3.1 Data tables - consultations
EUSILC 2023 data was released on 03.04.2024 and 16.04.2024 as described in 10.1 above. Number of consultations is continuasly updated.

10.4 Dissemination format - Micro-data access
Users can order statistical data, in electronic format, tailored to their needs, when these are not available at the "Statistics" section in ELSTAT webpage. They just have to fill in the application form that can be found by clicking on "Statistical data request" on the left, in the menu under "Products & Services" in ELSTAT webpage https://www.statistics.gr/en/statistical-data-request. The Statistical Data Dissemination Section accepts the data requests and reply to users as soon as possible. Everything related to access to both public use files and condidential data for scientifi purposes can be found in ELSTAT webpage under: https://www.statistics.gr/en/public-use-files.

10.5 Dissemination format - other
Internal outputs produced by other statistical processes (Digital library).
10.5.1 Metadata – consultations
As mentioned in 10.3.1, EUSILC 2023 data was released on 03.04.2024 and 16.04.2024 described in 10.1 above. Number of consultations is continuously updated.
10.6 Documentation on methodology
The available Methodological documentation is the following: -Guidelines to interviewers (in greek language) https://www.statistics.gr/el/statistics/-/publication/SFA10/2023 -Methodology and description of public files https://www.statistics.gr/en/statistics/-/publication/SFA10/2023
10.6.1 Metadata completeness – rate
All required concepts are provided.
10.7 Quality documentation
Not applicable.

11. Quality management

11.1 Quality assurance
The quality of the survey is ensured by a) the existence of a methodological handbook issued by Eurostat, containing all the details and characteristics of the variables to be collected, the format the information should be transferred to ESTAT and suggested questions to be made to the interviewees, in order to improve comparability of results in all member states, and b) the implementation of Code of Practice for European Statistics. More specifically, the EU-SILC survey is based on a framework Regulation (2019/1700) that defines the scope, definitions, time reference, characteristics of the data, data required, sampling, sample sizes, transmission of data, publication, access for scientific purposes, financing, reports and studies. In addition, Eurostat and Member States have developed the technical aspects of the instrument, in particular one Regulation on 'Quality Reports' (2019/2180). Quality Assurance Framework of the European Statistical System https://www.statistics.gr/en/hellenic-statistical-system
11.2 Quality assessment
Assessment of the quality is carried out by both ELSTAT and Eurostat. The sample size is such, as to ensure high accuracy results according to Annex II of Regulation (EU) 2019/1700. The sample size represents the reference research population and all necessary measures are taken in order to accomplish the appropriate checks and minimize measurement errors in data collection. The data are accompanied by quality reports according to the Single Intergrated Metadata Structure (SIMS 2.0) 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

The main users of EU-SILC statistical data are Eurostat, policymakers, research institutes, media, and students. Users (further to Eurostat) could be classified as follows:
 	
    • Institutional users like other Commission services, other European institutions (such as the ECB), national administrations (mainly those in charge of the monitoring of social protection and social inclusion, or other international organisations;
 	
    • Statistical users in Eurostat or in Member States National Statistical Institutes to feed sectoral or

transversal publications such as report on progress towards the Sustainable Development Goals (SDGs) according the United Nations 2030 Agenda, the Eurostat yearbook and various pocketbooks, among other reports;

- Researchers having access to microdata

End users - including the media - are interested in living conditions and social cohesion in the EU

12.2 User satisfaction

The mission of the Hellenic Statistical Authority (ELSTAT) is to systematically develop, produce and disseminate official statistics of Greece, and to ensure and constantly improve the quality of the statistics of the Hellenic Statistical System (ELSS). ELSTAT pursues its mission by following the highest international statistical standards, and strictly adheres to the prescribed rules and fulfills its obligations in accordance with the European Statistics Code of Practice. The User Satisfaction Survey contains annual data on the number of users who submitted requests for data provision to the Statistical Data Dissemination Section, and the Library and Web Content Management Section of ELSTAT, in combination with other parameters, such as the response rate to users' requests, the type of requested data and the dissemination mode of statistical information. The above information, for the year 2022, was collected by the use of an online questionnaire (User Satisfaction Questionnaire). This questionnaire is addressed to all users who submit a request for data provision to the above Sections, while its completion is optional. The purpose of the User Satisfaction Survey is to:

• communicate with the users of official statistics, with the aim of further improving the quality of the produced statistical product of ELSTAT and the services provided by it,

• fully utilising the collected data, such as for example those relating to the type of statistical data requested and investigating new needs.

Additionally, Eurostat carried out an online general User Satisfaction Survey (USS) in the period between April and July 2019 to obtain a better knowledge about users, considering their needs and satisfaction with the services provided by Eurostat. The survey has shown that EU-SILC is of very high relevance for users. For the majority, both aggregates and micro-data were important or essential in their work irrespective of the purpose of their use. The use of the ad-hoc modules was less widespread than the use of the nucleus variables. Nevertheless, there was high interest to repeat these modules in order to have the possibility of comparing data over time. Users emphasized their strong need for more detailed micro-data, which is currently not possible. Under the new legal framework implemented from 2021, the NUTS 2 division will be available for the main indicators. Finally, users were satisfied with overall quality of the service delivered by Eurostat, which encompasses data quality and the supporting service provided to them.

For more information, please consult User Satisfaction Survey 2022 (and previous years).

12.3 Data completeness

EU-SILC 2023 survey and data as contacted by ELSTAT covers all the variables (mandatory and optional) required in 2023 operation. The completeness of data and breakdowns are considered as very satisfactory (data completeness rate =100%) based on the needs set by Eurostat's Regulations.

12.3.1. Data completeness - rate

The completeness of data and breakdowns are considered as very satisfactory (data completeness rate =100%) based on the needs set by Eurostat's Regulations.

13. Accuracy and reliability   Top

13.1 Overall accuracy

According to Reg. (EU) 2019/1700 Annex II, precision requirements for all data sets are expressed in standard errors and are defined as continuous functions of the actual estimates and of the size of the statistical population in a country or in a NUTS 2 region. For the income and living conditions domain, the estimated standard errors of the following indicators are examined according to certain parameters set:

- Ratio at-risk-of-poverty or social exclusion to population;

- Ratio of at-persistent-risk-of-poverty over four years to population;

- Ratio at-risk-of-poverty or social exclusion to population in each NUTS 2 region.

Further information is provided in section 13.2 Sampling error.

EU-SILC is a complex survey involving different sampling designs in different countries. In order to harmonize and make sampling errors comparable among countries, Eurostat (with the substantial methodological support of Net-SILC2) has chosen to apply the "linearization" technique coupled with the "ultimate cluster" approach for variance estimation.

Linearization is a technique based on the use of linear approximation to reduce non-linear statistics to a linear form, justified by asymptotic properties of the estimator. This technique can encompass a wide variety of indicators, including EU-SILC indicators. The "ultimate cluster" approach is a simplification consisting in calculating the variance taking into account only variation among Primary Sampling Unit (PSU) totals. This method requires first stage sampling fractions to be small which is nearly always the case. This method allows a great flexibility and simplifies the calculations of variances. It can also be generalized to calculate variance of the differences of one year to another.

The main hypothesis on which the calculations are based is that the "at risk of poverty" threshold is fixed. According to the characteristics and availability of data for different countries, we have used different variables to specify strata and cluster information.

In particular, countries have been split into 3 groups:

1) BE, BG, CZ, IE, EL, ES, FR, HR, IT, LV, HU, PL, PT, RO, SI, UK and AL, whose sampling design could be assimilated to a two-stage stratified type we used DB050 (primary strata) for strata specification and DB060 (Primary Sampling Unit) for cluster specification;

2) DK, DE, EE, CY, LT, LU, NL, AT, SK, FI, CH whose sampling design could be assimilated to a one stage stratified type we used DB050 for strata specification and DB030 (household ID) for cluster specification;

3) MT, SE, IS, NO, whose sampling design could be assimilated to a simple random sampling, we used DB030 for cluster specification and no strata.

The desired precision of estimation at NUTSII level, and thus the required minimum effective sample sizes for all NUTSII regions, are specified for the important poverty indicator AROPE (at risk of poverty or social exclusion). The target precision level, for a theoretical value of AROPE of 20%, is a standard error ranging from 1.4% to 2% (giving 95% confidence interval of ±2.8 to 4 percentage points), depending on the size of the region. No requirements are specified at NUTSII level for regions with a population below 500000 persons if the corresponding NUTSI is precise enough.

The desired precision requirements are expressed through the formula

$$\widetilde{SE}(\hat{p}) = \sqrt{\left(\frac{\hat{p}*(1-\hat{p})}{f(N)}\right)}$$

where se denotes standard error, p denotes proportion (the value of the AROPE), and X is the required minimum sample size. Taking into consideration that poverty is a household concept, a proposed model for determining the value of X for each region, independently of the actual value of the AROPE, but depending on the population size of the region, is given by the function

X=a√N+b,

where N is the household population size, and the parameters a and b have the same values a=600 and b=0 for all regions. Obviously, this requirement for X varies with the size of the region, and is more demanding for big regions. Thus, for fixed value of the AROPE the required level of precision (i.e. the value of se) is less stringent for small regions.

The new design was introduced gradually with the annual replacement of the outgoing panel, starting in 2019, and was fully implemented in 2022. Complying to EUROSTAT's specifications for precision at national and regional level, the total sample is 15261 households. The total sample size for each stratum divided by four, is determined the sample size (at stratum, region and national levels) for each of the four panels of the survey.

13.2.1. Sampling error - indicators

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 effects and structure of the population under study. In addition to that, sampling errors and non-sampling errors need to be taken into account. Sampling error refers to the variability that occurs at random because of the use of a sample rather than a census and non-sampling errors are errors that occur in all phases of the data collection and production process.

The Table with standard errors and confidence intervals of main indicators at country and NUTS II level is attached in Annex A (excel file with tables).

13.3 Non-sampling error

Non-sampling errors are basically of four (4) types:

- Coverage errors: errors due to divergences existing between the target population and the sampling frame.

- Measurement errors: errors that occur at the time of data collection. There are a number of sources for these errors such as the survey instrument, the information system, the interviewer and the mode of collection.

- Processing errors: errors in post-data-collection processes such as data entry, keying, editing and weighting.

- Non-response errors: errors due to an unsuccessful attempt to obtain the desired information from an eligible unit. Two main types of non-response errors are considered:

  - Unit non-response: refers to absence of information of the whole units (households and/or persons) selected into the sample.

Item non-response: refers to the situation where a sample unit has been successfully enumerated, but not all required information has been obtained.

13.3.1. Coverage error

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

EU-SILC survey is based on a two-stage stratified sampling of households from a frame of sampling which has been created on the basis of the results of the 2011 population census and covers completely the reference population.

The frame of PSUs is updated every ten (10) years through the general population census. Concerning the frame of households, within each selected PSU this is updated before the selection of the sampling households used for data collection. So, any coverage problem that may arise is more possible to relate to the frame of PSUs.

Coverage problems encountered were:

- Some houses were used as secondary residences, so they were out of the scope of the survey.

- Some houses were impossible to be located due to incomplete information regarding their addresses.

- Housing units built after March 2023, were not included in our sampling frame.

The number of the above cases was (222) and such cases are corrected with the use of the calibration procedure applied as it is described in the respective paragraph.

13.3.1.1 Over-coverage – rate

Coverage error

Main problems	Population (sub-population)	Size of error	Comments
Over-coverage			
Under-coverage	222		Addresses non contacted
Misclassification			

13.3.1.2 Common units – proportion

Not applicable.

13.3.2 Measurement error

Measurement error for cross-sectional data

Source of measurement errors	Building process of questionnaire	Interview training	Quality Control
Measurement errors can occur from the questionnaire (design, content and wording), the interviewers and their training, the respondents, the routing of the questions, and the skills testing before starting the fieldwork. As the 2023 EU-SILC round was the 21th in the series, quality has considerably been improved due to interviewers' feedback, continuous data analysis and research.	For building up the questionnaires we adopted the methodological guidelines and the proposed questions and suggestions of Eurostat. In order to finalize the questionnaires, we took into account any observations made on the questionnaires of the previous years. The questionnaires for the 2023 survey were the same as those of the previous years except for some improving small changes in the wording. There were also suggested questions added for to the rolling modules "Intergenerational transmission of disadvantages & Housing difficulties" (6Y) and "Labour Market and Housing" (3Y) as well as for the ad-hoc policy needs module "Households' energy efficiency/poverty. We have adapted the suggestions of Eurostat to the national cisrcumstances where necessary and we have added questions to be used in the net / gross / net conversion model (https://www.statistics.gr/en/statistics/-/publication/SFA10/2023 under questionnaire or on CIRCA). Finally, a few complementary variables (on a voluntary basis) on the impact of COVID-19 on households' were added. Variables refer to changes in income, benefits, education of children, working conditions, and health.	a) Interviewers All the external collaborators (interviewers) of Attiki Prefecture together with persons in charge of the survey in the Regional Offices of ELSTAT attended a one-day training course before starting the fieldwork. The training was focused both on the basic concepts of the survey and the questionnaire completion and data entry in electronic formats. The persons in charge of the survey in Regional Offices, in their turn, had to train the external collaborators in their areas. Training followed the structure of the manual that was distributed to the participants. It is a general guidelines manual containing information about the objectives of the survey, the organization of it, legal and administrative aspects, fieldwork aspects (how to contact the household, how to introduce oneself, who answers which questions, time delays) and the content and correct completion of the questionnaires with analytic information on every question and further details where needed. Unfortunately, it seems	As mentioned, apart from the interviewers, also the persons in charge of the survey in the Regional Offices attended the training. These are actually supervisors. Each one of them was responsible for a group of interviewers. During the fieldwork period, the supervisor had meetings with the interviewers at least once a week. During these meetings, apart from discussing problems or questions raised during the week, the supervisors also collected all the completed questionnaires. Their main duty during the data collection period was to examine the interviewers' work. Furthermore, the supervisors had to double-check some of the answers with respondents either by telephone or by personally visiting the household in question, especially in the case of unusual answers or missing data.

| | | that still some interviewers don't use the exact wording of the questions, while others may skip questions, especially subjective ones (e.g. deprivation questions). Also, in some cases, when the respondents didn't provide the figures the interviewers completed/imputed the figures themselves.

(b) The respondents The respondents hesitate in providing income figures and in general deny consulting their tax return, in order to provide the exact /correct amounts. Income from interests, dividends in unincorporated businesses is in general not provided from the households, resulting thus in a significant underestimation of it. There is a sense that still self-employment income is under-estimated.

ELSTAT made several plausibility checks. Especially, for income data, lower and upper bounds of the range in which an amount of income was accepted were applied. These checks were carried out during the survey conduction, as the guidelines of the survey included such bounds for specific income data and afterwards centrally by personnel of ELSTAT. Whenever necessary, households were called back. Changes occurring in persons' activity status longitudinally resulted in a number of inconsistencies. For | |

		example, persons having been working in year N-1 but retired in year N, persons being students in year N-1 and employed in year N, income in year N-1 from persons who died in year N, etc. may result in these inconsistencies representing though reality. In any case, the pre-mentioned examples resulted both in under and over-reporting of income.	

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. Two main types of non-response errors are considered:

1) **Unit non-response** which refers to the absence of information of the whole units (households and/or persons) selected into the sample. According to Annex VI of the Reg.(EU) 2019/2242

- **Household non-response rates (NRh)** is computed as follows:

NRh=(1-(Ra * Rh)) * 100=(1-(0.9829 * 0.9137)) * 100=10.19

Where Ra is the address contact rate defined as:

Ra= Number of address/selected person (including phone, mail if applicable) successfully contacted/Number of valid addresses/selected person (including phone, mail if applicable) selected

and Rh is the proportion of complete household interviews accepted for the database

Rh=Number of household interviews completed and accepted for database/Number of eligible households at contacted addresses (including phone, mail if applicable)

• **Individual non-response rates (NRp)** is computed as follows:

NRp=(1-(Rp)) * 100=(1-(0.9950)) * 100=0.50%

Where Rp is the proportion of complete personal interviews within the households accepted for the database

Rp= Number of personal interview completed/Number of eligible individuals in the households whose interviews were completed and accepted for the database

• **Overall individual non-response rates (*NRp)** is computed as follows:

*NRp=(1-(Ra * Rh * Rp)) * 100=(1-(0.9829 * 0.9137 * 0.9950)) * 100

So, the overall individual non-response rate is 10.64%

2) **Item non-response** which refers to the situation where a sample unit has been successfully enumerated, but not all the required information has been obtained.

13.3.3.1. Unit non-response - rate

Unit non-response rate for cross-sectional

Address (including phone, mail if applicable) contact rate			Complete household interviews			Complete personal interviews			Household Non-response rate			Individual non-response rate			Overall individual non-response rate		
(Ra)			(Rh)			(Rp)			(NRh)			(NRp)			(NRp)*		
A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
98.29	94.92	100.00	91.37	73.48	100.00	99.50	99.51	99.52	10.19	30.26	0.00	0.50	0.49	0.48	10.64	30.60	0.4

where

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A=total (cross-sectional) sample,

B =New sub-sample (new rotational group) introduced for first time in the survey this year,

C= Sub-sample (rotational group) surveyed for last time in the survey this year.

13.3.3.2.1. Item non-response rate by indicator

Annex 2 - Item non-response is attached.

13.3.4. Processing error

Description of data entry, coding controls and the editing system

Data entry and coding	Editing controls
Mainly the PAPI method was used for interviews while the analysis of all methods used is presented in 18.3 (data collection). **(1) Data entry controls** As pre-mentioned, several plausibility checks have been made, using the validation rules of doc.65. Besides Eurostat's basic checks, some additional checks were applied through data entry programs. 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 • Number of expected household questionnaires per area unit. • Number of expected personal questionnaires per interviewed household. • Number of split-off households. • Number of tracing sheets and number of moved members. • Deletion of duplicates • Person identification check (household member check/person identification check on household register) • Monitoring of flows, valid values and out-of-range values • Intra-year inconsistencies check • Intra-questionnaire inconsistencies check • Controlling of the amount of income components and especially of social transfers *Personal Register* The specific childcare programs are cross-checked with the age of the child. For example, for a three-year-old child the field "number of hours spent per week in a program of obligatory educational level" cannot be completed. *Household Questionnaire* • On *tenure status*, if the answer is "owned dwelling without financial obligations" or "provided rent-free" the answer in question on arrears on mortgage or rent payments should be recorded as "not applicable". • When in all five items regarding the *Capacity of the household to afford paying for one week annual holiday away from home, have a meal with meat, chicken, fish every second year, etc.* the answer is positive, then in question on "ability to make ends	The finalized data files prepared by expert staff were then processed using SAS programs and applying various logical and consistency checks. Before sending the final D-, R-, H- and P-files, these were further checked using EUROSTAT's SAS programs.

meet" the answer "with great difficulty" is not accepted.

Personal Questionnaire
- The age is cross-checked with the educational level attended.
- Cross-check between the educational level currently attended and the level of education attained (a person cannot attend a level of education lower than the one he/she has completed).
- Cross-check between the age at which the person completed a specific educational level and the specific educational level attained. The age should not be less than the usual age at which the level is attained.
- When a person is suffering from a chronic illness or condition the answer "very good" to the question on health status is not accepted
- In the question on basic activity status, all the answers are cross-checked with the answer provided in the personal register.
- A more complicated cross-check is applied as regards the year of birth, the age first job was undertaken and years spent as employee or self-employed.
- In activity history the answer "have never worked" is not accepted when the answer in current activity status is 'working (full or part time)' or when the answers in the question 'Have you ever worked?' is "yes".
- When the respondent is an employee, questions on income from paid employment should be answered.
- When the respondent is self-employed, questions on income from self-employment should be answered.
- As regards social security benefits, and specifically the social solidarity allowance for pensioners, upper and lower boundaries are inserted for the registration of the amount.
- The s/n of the member who submitted tax returns with the respondent is cross-checked with the information provided in the register.

For all the above checks the cursor couldn't continue to the next answer and a special notice appeared on the screen.

Longitudinal checks
- Checks and comparisons of the *demographic data* recorded in the Personal Register with the data provided in the previous year.
- Checks and comparisons of *citizenship and country of birth data* with the data provided in the previous year.
- **(2) Codification**
- The codification regarding occupation (ISCO), economic activity of the local unit (NACE), as well as nationality, is undertaken by experienced personnel, following the international classifications (ISCO-08,

- NACE rev.2) as well as the guidelines provided in Doc 65. **(3) Other controls and other problems** - Several plausibility checks have been made; mostly similar to the checks SAS program applies. During data processing of raw data Office 365 (Access, Excel), ORACLE (Golden 6.2), SPSS and R have been used.	

13.3.5 Model assumption error

Not applicable.

14. Timeliness and punctuality Top

14.1 Timeliness

Derogation period has been granted to Greece (Commission Implementing Decision (EU) 2020/2050) for 3 years (2021-2023) for the deadlines of transimtting pre-checked microdata without direct identifiers. According to the derogation, for the 2023 data collection, the files should be transmitted by end of February 2024.

Pre-checked microdata for 2023 data collection was transmitted on the 19th of February 2024.

14.1.1. Time lag - first result

Three months and 3 days from the last day of the reference period (31/12/2023) to the day of publication of the first results (03/04/2024) for:

- Risk of Poverty

- Income Inequality

- Material and Social Deprivation and Living Conditions

(https://www.statistics.gr/el/statistics/-/publication/SFA10/2023)

14.1.2. Time lag - final result

Three months and 16 days from the last day of the reference period (31/12/2023) to the day of publication of the rest of the results (16/04/2024).

- Intergenerational transmission of advantages and disadvantages

- Household energy efficiency and Housing difficulties

(https://www.statistics.gr/el/statistics/-/publication/SFA10/2023)

14.2 Punctuality

The pre-checked microdata without direct identifiers concerning the data collection for 2023 was transmitted on the 19th February 2024 (prior to the deadline - end of February 2024) as scheduled in Commission Implementing Decision (EU) 2020/2050.

14.2.1. Punctuality - delivery and publication

The data were produced and transmitted to ESTAT on the 19th of February 2024. 100% of the data was delivered on time.

15. Coherence and comparability Top

15.1 Comparability - geographical

A number of studies, commissioned by EUROSTAT have been conducted to specify precision requirements for the NUTSII regions of Greece.

Complying to EUROSTAT's specifications for precision at national and regional level, and following the strategy regarding the number and formation of PSUs and the selfweighting of the regional sample the results are fully comparable for any regional level. Further enhancement of the efficiency was sought through improvements of the weighting system, such as revising the nonresponse adjustment procedure, the calibration scheme, and the combination of the four panels proportionally to their actual sample size of each survey year.

15.1.1 Assymetry for mirror flows statistics – coefficient

Not applicable.

15.2 Comparability over time

No breaks in series/significant changes in year 2023. Further details are provided in "Annex 8 - Break in Series".

15.2.1. Length of comparable time series

The EL-SILC survey was designed in 2003 to provide reliable estimates on the variables and indicators of interest at national level. In 2019 the sample design was refined and improved based on the results of the "Study of the current sampling design of the Survey of Income and Living Conditions (SILC) with the objective to increase/adjust the sample at regional (NUTSII) level" in order to improve the estimates of regional SILC indicators (NUTSII level). The data are comparable from the first year of the survey, i.e. 2003

15.2.2. Comparability and deviation from definition for each income variable

Comparability and deviation from definition for each income variable

Income	Identifier	Comparability	Deviation from definition if a
Total hh gross income	(HY010)	F	
Total disposable hh income	(HY020)	F	
Total disposable hh income before social transfers other than old-age and survivors' benefits	(HY022)	F	
Total disposable hh income before all social transfers	(HY023)	F	
Income from rental of property or land	(HY040)	F	
Family/ Children related allowances	(HY050)	F	
Social exclusion payments not elsewhere classified	(HY060)	F	
Housing allowances	(HY070)	F	
Regular inter-hh cash transfers received	(HY080)	F	
Alimonies received	(HY081)	F	
Interest, dividends, profit from capital investments in incorporated businesses	(HY090)	F	
Interest paid on mortgage	(HY100)	F	
Income received by people aged under 16	(HY110)	F	
Regular taxes on wealth	(HY120)	F	
Taxes paid on ownership of household main dwelling	(HY121)	F	
Regular inter-hh transfers paid	(HY130)	F	
Alimonies paid	(HY131)	F	
Tax on income and social contributions	(HY140)	F	
Repayments/receipts for tax adjustment	(HY145)	F	
Value of goods produced for own consumption	(HY170)	F	
Cash or near-cash employee income	(PY010)	F	
Other non-cash employee income	(PY020)	F	
Income from private use of company car	(PY021)	F	
Employers social insurance contributions	(PY030)	F	
Contributions to individual private pension plans	(PY035)	F	
Cash profits or losses from self-employment	(PY050)	F	
Pension from individual private plans	(PY080)	F	
Unemployment benefits	(PY090)	F	

Old-age benefits	(PY100)	F	
Survivors benefits	(PY110)	F	
Sickness benefits	(PY120)	F	
Disability benefits	(PY130)	F	
Education-related allowances	(PY140)	F	

F= Fully comparable; L= Largely comparable; P= Partly comparable and NC= Not collected.

n EL-SILC 2023, as also in 2021 and 2022, the gross monthly earnings for employees (PY200, dropped in 2021) v
collected in order to meet national needs, despite the fact that the gender pay gap is calculated with data from sou
other than EU-SILC. Additionally, this variable was used for checking reasons.

15.3 Coherence cross-domain

The coherence of two or more statistical outputs refers to the degree to which the statistical processes, by which they were generated, used the same concepts and harmonised methods. A comparison with external sources for all income target variables and the number of persons who receive income from each 'income component' will be provided, where the Member States concerned consider such external data to be sufficiently reliable.

Coherence between two or more statistical results refers to the degree of using the same definitions and methods in order to produce the statistics. In Annex 7, we present comparisons on indicators, income and employment between SILC and other surveys (HBS, LFS).

a) 2023 SILC and 2023 LFS compared target variables

The data presented in Annex 7 indicate that the examined target variables are in coherence with variables collected from LFS – annual results of 2023, making thus the survey robust.

b) 2023 SILC and 2022 HBS comparison

In addition, the risk of poverty indicator EL-SILC 2023 was compared with the same indicator calculated from the HBS 2022 (they are partly comparable because the 2022 HBS survey mainly concerns expenditure in 2022). It is noted that, for the Household Budget Survey, the pre-mentioned indicator has been estimated from consumption expenditure and not from income. When comparing the two survey results it is essential to keep in mind the differences between the concepts and methodologies. Discrepancies may further arise by the fact that they serve different purposes; HBS targets household expenditure whereas EL-SILC targets household income.

See Annex 7 - Coherence.

15.3.1 Coherence – sub annual and annual statistics

Not applicable.

15.3.2 Coherence – National Accounts

The Coherence with National Accounts for income variables is included in Annex 7.

Methodological background for comparisons is provided in the *Methodological note Comparison of household income: European Union Statistics on Income and Living Conditions and National Accounts* (*https://ec.europa.eu/eurostat/documents/7894008/9077550/Methodological_note.pdf*)

15.4 Coherence - internal

Further to the details provided in Annex 7 - Coherence, there is no lack of coherence in data to report.

16. Cost and burden   Top

Mean (average) interview duration per household = 51.3 minutes.

Mean (average) interview duration per person = 18.3 minutes.

Mean (average) interview duration for selected respondents (if applicable) = *not applicable.*

17. Data revision   Top

17.1 Revision policy

The revision policy may relate to the survey data and the survey itself, i.e. the questionnaire, the sample,

e.tc., and takes into account users' needs in additional statistical information.

The Hellenic Statistical Authority (ELSTAT) has a revision policy defining standard rules and principles for data revisions, in accordance with the European Statistics Code of Practice and the principles for a common revision policy for European Statistics contained in the Annex of the European Statistical System (ESS) guidelines on revision policy.

This policy is available on the ELSTAT's website in the section https://www.statistics.gr/en/policies.

17.2 Revision practice

After identifying the users' needs (e.g. Eurostat's) questionnaires are, whenever needed, redesigned with care not to danger comparability over time and at European level.

A review of data is being made after the application of checks by ELSTAT and by Eurostat, and after correcting any inconsistencies that may exist in the data, both cross-sectionally and longitudinally.

17.2.1. Data revision - average size

There is no reason for revisions in 2023 EUSILC data, so no revisions are planned.

18. Statistical processing

18.1 Source data

Sampling frame and coverage errors

EU-SILC survey is based on a two-stage stratified sampling of households from a frame of sampling which has been created on the basis of the results of the 2011 population census and totally covers the reference population.

The frame of PSUs is updated every ten (10) years through the general population census. Concerning the frame of households, within each selected PSU this is updated before the selection of the sampling households used for data collection. So, any coverage problem that may arise is more possible to relate to the frame of PSUs.

Coverage problems encountered were:

- Some houses were used as secondary residences, so they were out of the scope of the survey.

- Some houses were impossible to be located due to incomplete information regarding their addresses.

- Housing units built after March 2023, were not included in our sampling frame.

The number of the above cases was (222) and such cases are corrected with the use of the calibration procedure applied as it is described in the respective paragraph.

18.1.1. Sampling Design

Type of sampling design

The two-stage area sampling was applied for the EU-SILC survey.

Stratification and sub stratification criteria

The sampling design involves two levels of area stratification of the target population: (i) the first level is geographical stratification based on the partition of the total country area into the thirteen standard administrative regions, corresponding to the European NUTS II level. Stratification by region, also implemented in the original design of the SILC, is necessary for achieving specified precision at regional level. (ii) The second level of stratification involves grouping, within each region, municipalities and communes into four categories by degree of urbanization, i.e., according to their population size. The four degrees of urbanization are delineated in Table 1. The two major cities of ex-agglomerations of Athens and Thessalonica constitute two separate major geographical strata within the regions of Attiki and Kentriki Makedonia, respectively. Thus, the total number of strata in the thirteen regions, excluding the cities of Athens and Thessalonica, is 50; it should be noted that the highest degree of urbanization is lacking in two regions. The two major city agglomerations of Athens and Thessalonica are further partitioned into 31 and 9 substrata (administrative subdivisions), respectively, on the basis of the city blocks of the municipalities that constitute them. Thus, the total number of strata for this survey is 90.

Stratum	Degree of Urbanization
1	30,000 residents or more
2	5,000 – 29,999 residents
3	1,000 – 4,999 residents
4	0 – 999 residents

The number of the final strata in the thirteen (13) Regions is 50. The former Greater Athens Area was divided into 31 strata on the basis of the lists of city blocks of the Municipalities that constitute it and taking into consideration socio-economic criteria. Similarly, the former Greater Thessaloniki Area was divided into 9 strata. The two Major former City Agglomerations account for about 35.5% of total population and for even larger percentages in certain socio-economic variables. Thus, the total number of final strata of the survey is 90.

The initial sample size is $11,953$ households, 2.8‰ of the total population of households ($4,304,193$).

1st stage of sampling

Selection algorithm

The random selection of the specified number of PSUs is carried out separately in each stratum in the following steps.

1. Before the selection, list all PSUs in the stratum in random order;

2. for each PSU in the stratum, cumulate the population sizes (number of private households) for PSUs up to and including itself, e.g., for PSU i calculate the total $T_i = N_1 + N_2 + \cdots + N_i$, where N_1, N_2, …, N_i denote sizes of PSUs in the particular stratum;

3. determine the range corresponding to each PSU in the stratum, that is, from (but not including) the cumulative sum for the previous PSU to the cumulative sum for the current PSU, e.g., for PSU i the range is $(T_{i-1}, T_i]$;

4. divide the total cumulative size by the number n of PSUs to be sampled, to get the sampling interval (SI);

5. determine a random start, r, between 1 and SI;

6. select those n PSUs whose range contains the random numbers r, r+SI, r+2SI, …, r+(n-1)SI.

By design, the total number of selected PSUs in each stratum is a multiple, say d, of 4, so that each rotating panel is composed of 4d PSUs. The selected PSUs are assigned to the four panels as follows. Assume that all 4d selected PSUs are listed in the order of their selection. Then the d PSUs assigned to the ith panel (i=1,2,3,4) are those in the sequence of selection i, i+4, i+2*4, …, i+(d-1)*4. For example, in a stratum with 12 selected PSUs, the four panels will be formed by the PSUs according to the sequences of selection (1, 5, 9), (2, 6, 10), (3, 7, 11), (4, 8, 12), respectively.

Sample rotation

Annually, a newly rotating-in panel is formed by another d PSUs in each stratum, which are selected as follows. The d PSUs of the outgoing panel are located in the full randomized list of PSUs in the stratum. For each of these, the next PSU on the list is chosen as its replacement, and all these four replacements form the new panel.

In this stage, from any final stratum, say stratum h, n_h primary units were drawn. The number n_h of draws was approximately proportional to the population size N_h of the stratum (number of households according to the last population census of the year 2011).

2nd stage of sampling

In the second sampling stage, a systematic random sample of households is drawn, with a pre-fixed sampling rate, from the current population of households (based on a list constructed in the field, updating the list of the Census 2011) of each selected PSU.

Sample distribution over time

In this stage from each primary sampling unit (selected area), the sample of ultimate units (households) is selected. Actually, in the second stage, we draw a sample of dwellings. However, in most cases, there is a one-to-one relation between household and dwelling. If the selected dwelling consists of one or more households then all of them are interviewed.

Probabilities of selection

For the two-level stratification scheme described above, the lowest-level strata we will be referred to as final strata. Given the sample allocation to the final strata, the survey design determines the selection probabilities for the two stages as follows.

Let N_h denote the number of private households in final stratum h of region R, according to the Census 2011, and let n_{1h} denote the number of PSUs to select from the same stratum for the sample of all four panels. Next let n_h denote the sample size for stratum h and let n_{hi} denote the number of households to select from PSU i in stratum h. Then, with the number n_{hi} kept constant for all PSUs in the stratum, the number of PSUs in stratum h is

$$n_{1h} = \frac{n_h}{n_{hi}}.$$

Now let N_{hi} denote the number of private households in PSU i in stratum h (in region R) according to Census 2011. Then the probability of selecting PSU i in stratum h in the first stage, proportionally to the size of the PSU, is

$$\pi_{hi} = n_{1h} \frac{N_{hi}}{N_h}.$$

The conditional probability $p_{j/hi}$ of selecting household j in the second stage, given that PSU i is selected, is the sampling rate λ_{hi} used to systematically select households for that PSU. Then the unconditional probability of selecting household j in PSU i in stratum h is

$$\pi_{hij} = \pi_{hi}\pi_{j/hi} = n_{1h} \frac{N_{hi}}{N_h} \lambda_{hi}.$$

Now, to make the probabilities of selection of all households in region R equal, the sampling rate λ_{hi} should satisfy the condition

$$\pi_{hij} = n_{1h} \frac{N_{hi}}{N_h} \lambda_{hi} = \frac{n^R}{N_R},$$

where n_R is the total sample size for region R (sum of the adjusted sample sizes for all strata of the region) and N_R is the total population size of region R. This implies that

$$\lambda_{hi} = \frac{1}{n_{1h}} \frac{N_h}{N_{hi}} \frac{n^R}{N_R}.$$

Note that because of the aforementioned rounding, λ_{hi} is not exactly equal to n_{hi}/N_{hi}.

The fixed sampling rate λ_{hi} is to be applied to the updated number of households of the selected PSU, denoted by M_{hi}. Thus, the number of households that will be selected will be $m_{hi} = \lambda_{hi}M_{hi}$, rounded to the nearest integer, and may be larger or smaller than n_{hi} depending on whether M_{hi} is larger or smaller than N_{hi}. In case that m_{hi} is significantly larger than n_{hi}, thereby increasing the cost and the operational burden, as well as the intracluster correlation, it may be decided to sample the planned number n_{hi} of households. This can be done by dropping at random, using systematic subsampling, $m_{hi} - n_{hi}$ of the selected households. This is equivalent to having initially sampled systematically with the adjusted (smaller) sampling rate λ_{hi} N_{hi}/M_{hi}, or with larger sampling interval.

On the other hand, if m_{hi} is smaller than n_{hi}, and with possible nonresponse yielding a too small sample, it may be decided to sample the planned number hi n of households. Again, this would be equivalent to having initially sampled systematically with the larger sampling rate λ_{hi} N_{hi}/M_{hi}. Such stabilization of the sample size should take place only if numerous instances of extreme deviation from the expected sample size are encountered.

Since every person of a selected household is included in the sample, computing the selection probability of a given person is equivalent to computing the probability that the person's household is selected. Consequently, all members of a household have the same selection probability.

As the survey is annual, the sample of households is not distributed over time. The 2023 survey was carried out from May to November 2023 with reference period the previous year (2022).

Month	Date	Number	%
May	1 to 10	2	0.02
	11 to 20	1	0.01
	21 to 31	2	0.02
June	1 to 10	27	0.25
	11 to 20	180	1.68
	21 to 31	628	5.86
July	1 to 10	1,314	12.26
	11 to 20	1,371	12.79
	21 to 31	1,254	11.70
August	1 to 10	1,256	11.72
	11 to 20	865	8.07
	21 to 31	1,329	12.40
September	1 to 10	688	6.42
	11 to 20	534	4.98
	21 to 31	440	4.11
October	1 to 10	353	3.29
	11 to 20	216	2.02
	21 to 31	196	1.83
November	1 to 10	56	0.52
	11 to 20	2	0.02
	21 to 31	3	0.03
Total		**10,717**	**100.00**

In 2019 the sample design based on the results of the "Study of the current sampling design of the Survey of Income and Living Conditions (SILC) with the objective to increase/adjust the sample at regional (NUTSII) level" in order to improve the estimates of regional EU-SILC indicators.

The new design was introduced gradually with the annual replacement of the outgoing panel, starting in 2019, and was fully implemented in four years when all four new panel samples will have been selected. In this meantime, the old and the new designs where running in combination, providing sufficient precision at both national and regional levels. The objective of the redesign was to satisfy the precision requirements with a smaller sample.

18.1.2. Sampling unit

The sample of private households was selected in two stages. The primary sampling units are the areas (one or more unified city blocks) and the ultimate units selected in each sampling area are the households.

18.1.3. Sampling frame

Cross-sectional information year 2023

Actual and achieved sample size

Obs	DB020	Actual_SSize	Achieved_SSize
1	EL	11953	10717

The actual sample size for 2022 by rotation is presented below.

	Total	Rotation 1 (wave4_23)	Rotation 2 (wave3_23)	Rotation 3 (wave2_23)	Rotation 4 (wave1_23)
Status of households' sample	11953	2856	2294	2773	4030

In Greece, there are thirteen (13) administrative regions (NUTS II). However, the 2nd geographical region (Kentriki Macedonia) and the 9th geographical region (Attiki) do not include the Greater Thessaloniki and the Greater Athens area respectively; both of these two major agglomerations are treated as separate geographical regions.

Sample Distribution

	Name	Drawn	Accepted (DB135=1)
EL30	Attiki	3782	3147
EL41	Voreio Aigaio	346	298
EL42	Notio Aigaio	446	336
EL43	Kriti	797	756
EL51	Anatoliki Makedonia & Thraki	643	609
EL52	Kentriki Makedonia	1762	1622
EL53	Dytiki Makedonia	289	275
EL54	Hpeiros	803	760
EL61	Thessalia	747	698
EL62	Ionia Nisia	436	372
EL63	Dytiki Ellada	730	728
EL64	Sterea Ellada	580	558
EL65	Peloponnisos	592	558
Total		**11953**	**10717**

Out of the initial 11953 households, a sample of 10717 households was successfully contacted and completed the household questionnaire, so accepted for the database.

The desired precision of estimation at NUTSII level, and thus the required minimum effective sample sizes for all NUTSII regions, are specified for the important poverty indicator AROPE. The achieved sample size was 10717 households, with 22936 persons in total off which 20278 are 16 years old and over and 20177 of them completed the personal interview. The number of households of the new sub-sample selected was 4030.

Obs	DB020	number_of_hh2023	persons_16_over2023	selected_respondents2023	NewRG
1	EL	10717	20177	.	4

Obs	newRG_number_of_hh2023	percent2	OldRG	OldRG_number_of_hh2023	percent3
1	2798	26.11	4	2856	26.65

Overall, 222 addresses were not successfully contacted, since they were actually out of scope of the survey (do not exist or are non-residential or unoccupied or not principal residences) or they were not be possible to locate the addresses despite special efforts were being made to do so.

The 2023 sample results are shown in the table below:

Distribution of Households by "record of contact at address (DB120)"

	Number of households	%
Total (DB120 =11 to 23)	4,115	100.0
Address contacted (DB120 =11)	3,893	94.6
Address non-contacted (DB120 =21 to 23)	222	5.4
Address cannot be located (DB120 =21)	204	5.0
Address does not exist (DB120 =23)	18	0.4

Distribution of Households by "Household questionnaire result (DB130)" and by "Household interview acceptance (DB135)"

	Number of households	%
Total	11,729	100.0
Household questionnaire completed (DB130 =11)	10,717	91.4
Interview not completed (DB130 =21 to 24)	1,012	8.6
Refusal to co-operate (DB130 =21)	533	4.5
Entire household temporarily away (DB130 =22)	234	2.0
Household unable to respond (DB130 =23)	37	0.3
Other reasons(DB130 =24)	208	1.8
Household questionnaire completed (DB135=1or 2)	10,717	91.4
Interview accepted for database (DB135=1)	10,717	91.4
Interview rejected (DB135=2)	0	0.0

Achieved Sample size

The table below presents the achieved samples of persons aged 16 years and over, as well as of households, within each rotational group.

	Total	Rotation 1 (wave4_23)	Rotation 2 (wave3_23)	Rotation 3 (wave2_23)	Rotation 4 (wave1_23)
Individuals 16 years and over	20278	5597	4432	5175	5074
Number of accepted personal questionnaires	20177	5570	4414	5144	5049
Accepted household interviews	10717	2856	2292	2771	2798

Substitutions

No substitution procedures were applied

Method of selection of substitutes

Not applicable

Renewal of sample: Rotational Groups

The survey is a simple rotational design survey. The sample for any year consists of 4 replications, which have been in the survey for 1-4 years. With the exception of the first three years of the survey, any particular replication remains in the survey for 4 years. Each year, one of the 4 replications from the previous year is dropped and a new one is added. Between year T and T+1 the sample overlap is 75%; the overlap between year T and year T+2 is 50%; and it is reduced to 25% from year T to year T+3, and to zero for longer intervals.

The size of each Rotational Group for the 2022 survey is shown in Table below:

Household sample size of the rotational groups

	Total	Rotation 1 (wave4_23)	Rotation 2 (wave3_23)	Rotation 3 (wave2_23)	Rotation 4 (wave1_23)
Addresses in initial sample	11953	2856	2294	2773	4030
Interviews Accepted for database	10717	2856	2292	2771	2798

Longitudinal Sample Size 2020-2023

	2020	2021	2022	2023
RG1	4186	2977	2919	2856
RG2	0	3829	2333	2294
RG3	0	0	3906	2773

RG1=Rotational Group 1 that was introduced in the survey for first time in 2020 (4186 in 2020) and has been surveyed every year until 2023, where it is surveyed for fourth and last time (2856 in 2023).

RG2=Rotational Group 2 that was introduced in the survey for first time in 2021 and has been surveyed every year until 2023, where it is surveyed for third time.

RG3=Rotational Group 3 that was introduced in the survey for first time in 2022 and has been surveyed every year until 2023, where it is surveyed for second time.

18.2 Frequency of data collection

ELSTAT collects EU-SILC data annually.

18.3 Data collection

Mostly paper assisted personal interviewing (PAPI) technique has been used. The other techniques used are presented in the following table as the distribution of individuals aged 16 or over by data status and type of interview.

Mode of data collection

	1-PAPI	3-CATI
% of total	60.1	39.9

Description of collecting income variables

The source or procedure used for the collection of income variables	The form (gross, net) in which income variables at component level have been obtained	The method used for obtaining target variables in the required form
Survey using PAPI, CATI modes of data collection	Net	net/gross/net conversion model (the siena microsimulation model (SM2) for net-gross conversion of EU-SILC income variables).

18.4 Data validation

According to Regulation (EU) No 2019/1700, the results of the survey are checked and validated. For this

purpose, the SAS programs produced by ESTAT are used.

These programs concern the following: i) Cross and Long weights checking procedures (summary statistics, outliers detection) ii) Analysis of basic characteristics of the SILC iii) Outliers on income variables on household and personal levels iv) Year-to-year comparison of distributions and v) Comparison between the observations of two different revised set of SILC files.

18.5 Data compilation

Details on the data compilation procedures are described in the paragraphs consisting the section.

18.5.1 Imputation – rate

There is no additiional information to that provided in 18.5.3.

18.5.2. Weighting procedure

Design Factor

For the computation of the sample household design weights and the cross-sectional weights of the survey in general, the EC-Eurostat document EU-SILC Doc. 157/05 and the report "Study of the current sampling design of the Survey of Income and Living Conditions with the objective of the increase/adjustment of the sample at regional (NUTS II) level" were used.

For the households of the new panel 3 introduced in 2022, the household design weight (target variable DB080) is defined as the inverse of its probability of selection.

For households in panels 1, 2 and 3 the household design weights are defined by applying the general procedure of EU-SILC Doc. titled "Longitudinal Weighting" for the longitudinal weights and EU-SILC Doc 65 as a supporting document:

- Computation of panel person design weights

- Correction for non-response due to attrition

- Computation of sub-sample household weights

- Computation of sample household design weights

The longitudinal period of this quality report refers to the period 2020-2023. The rotation panels this period comprises are depicted in the following scheme.

2020	2021	2022	2023
1	1	1	1
	2	2	2
		3	3
			4

As it is clear from the scheme above:

- The longitudinal component 2020-2023 of EU-SILC consists of rotation panels 1, 2 and 3 for a duration of 4, 3 and 2 years respectively (2020-2023 for rotation panel 1, 2021-2023 for rotation panel 2 and 2022-2022 for rotation panel 3).

- t the cross-sectional component 2023 of EU-SILC consists of rotation panels 1, 2, 3 and 4.

- The first wave of the EU-SILC longitudinal component is the first year each rotation panel of the longitudinal component is in the survey, while the second and following waves are the 2nd, 3rd and 4th year respectively for which the specific rotation panel is being surveyed. Also, in general, the cross-sectional weights computed for the survey form the basis also for the computation of longitudinal weights and the methods and procedures used are identical. So, the computation of the longitudinal weight variables and the relevant procedure is a continuation of the cross-sectional procedure

Non-Response Adjustments

Within each design stratum, the non-response adjustment of the responding households is carried out by the inverse of the response rate, so as to "make up" for non-responding cases in that stratum.

Target variable DB080 was adjusted for non-response for the variables DB120 (record of contact at address) and DB130 (household questionnaire result). The corrections were conducted at subsequent steps. The multiplication of DB080 with each one of the two corrections, results in a corrected DB080 weight that is used as initial weight in the calibration procedure referred in the following paragraph.

Concerning the non-response adjustment for the second and following waves of the longitudinal component,

especially concerning variables RB060 and PB050, the previous year's respective values are corrected (inflated) with an adjustment coefficient in order to take into account the population "attrition". This coefficient is computed for every year and panel separately based on the specific for that year and panel population characteristics. Also this coefficient is different for each one of the two variables RB060 and PB050 since those two refer to different populations (RB060 to all persons irrespectively of their age, while PB050 to adults that accepted to participate in the survey).

Adjustments to External Data

Adjustment to external data involves the calibration of the household and personal weights in conjunction with external sources (Projections for population and household totals for the year 2022). This method enables the distribution of auxiliary variables, at household and individual level, to coincide with the corresponding population distribution of external data.

The auxiliary variables used at household level are the household size, the tenure status and the Region (NUTS 2). Also, at personal level the auxiliary variables used are age groups (five years age groups) and gender.

The weights obtained after this procedure of calibration are the household cross-sectional weights (variable: DB090). As all the household members reply to the household questionnaire, DB090 is also the weight of each member of the household (variable: RB050).

The last step involves the calculation of the personal cross sectional weights for household members aged of 16 and over (variable: PB040). The calibration procedure was applied again using as initial weights variable RB050 and as auxiliary variable the distribution of population aged 16 and over by age (five years age groups) and sex.

Final Weights

The **final cross sectional weights** where calculated as described above, i.e using DB080 after non-response adjustment as the initial weights for new panel and base weights adjusted for non-response due to attrition for former panels. The calibration methods were then applied for the total sample.

The **final longitudinal weights** (variables DB095, RB060 and PB050) where calculated with the same way as the respective cross-sectional weights (DB090, RB050 and PB040). Then, longitudinal weight variables RB062, RB063 and RB064 are computed on the basis of RB060, but as indicated from the respective documents, they are computed only for year 2023 and panels "1,2,3", "1,2" and "1" respectively.

18.5.3. Estimation and imputation

Imputation Procedure Used

In the very few cases where imputation was required, mainly, net income was converted to gross by applying the existing tax system and social insurance contributions rules. Personal refusals were imputed using existing data from previous waves as the starting point. These cases are few and are therefore not recorded in Annex 3.

Imputed Rent

Imputed rent (HY030G) is not part of the 2022 operation but will be collected every 3 years as part of the rolling module on 'Labour and housing'.

Company Car

The benefit for individuals of using a company car for private use was not directly assessed at the interview but afterwards calculated by applying the depreciation method.

According to doc. EU-SILC 130/04 the main idea of the method was to impute to the employee the amount the recipient would have to pay over the reference period to enjoy the same benefit from the use of own vehicle.

More specifically:

1. Depreciation = (Purchase prices – selling prices at X) / X.

2. Where X is the average age of a company car.

To calculate the "purchase price" and the "selling price", the model, the registration year and other characteristics of the car have been used. A list of prices or manufacturer's recommended retail prices have been used for a wide range of new cars. If a specific type of car was not included in the list, the RRP has been available from the manufacturer's website. If a RRP was not available in the country, then it was estimated based on the price of a similar car or the price relative to other cars in the country with the similar pricing structure. The list price included VAT and vehicle registration tax. For calculating the "average age of a company car" an average of 5 has been considered.

18.6 Adjustment

Not applicable.

18.6.1 Seasonal adjustment

Not applicable.

19. Comment

Attached the Annexes with details in the above section as has been specified for the EU-SILC Quality Reports.
- Annex 2-Item_non_response_13.3.3.2.1.
- Annex 3 - Sampling errors
- Annex 4 - Data collection
- Annex 7 -Coherence
- Annex 8 – Breaks in series
- Annex 9 - Rolling module
- Annex A EU-SILC - content table