



HELLENIC REPUBLIC



HELLENIC STATISTICAL AUTHORITY

ELSTAT Quality Guidelines

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1. INTRODUCTION

The Hellenic Statistical Authority (ELSTAT) aims at ensuring and further improving the quality of the statistics produced and maintaining the confidence of users in them. This objective is accomplished by fully implementing the Greek and EU legal and statutory framework on statistics. This consists of the Greek Statistical Law (No 3832/2010, as amended and in force [1]), the European Statistical Law (Regulation (EC) No 223/2009 of the European Parliament and of the Council, as amended by Regulation (EU) No 2015/759 [2]), the European Statistics Code of Practice [3], EU Regulations on statistics, the Regulation on the Statistical Obligations of the Agencies of the Hellenic Statistical System (ELSS) [4] and the Memoranda of Cooperation between the agencies of the ELSS. A crucial factor for the accomplishment of the above objective is the implementation of the Commitment on Confidence in Statistics¹, which was signed by the Greek Government and the European Commission in 2012 (Article 8 and Annex I of the Law 4051/2012 [5]).

Within the European Statistical System (ESS), the concept of quality is seen in a broad context and not only in connection with the accuracy of statistical data. In ELSTAT, as in the other ESS members, the quality work in statistics concerns the quality assessment in the whole statistical production chain. For the development, production and dissemination of its statistics ELSTAT follows uniform standards and harmonised methods in the European Statistical System and implements the quality assessment criteria such as "relevance", "accuracy", "timeliness", "punctuality", "accessibility", "clarity", "comparability" and "coherence", as defined in Article 12 of Regulation (EC) No 223/2009 of the European Parliament and of the Council of 11 March 2009, as amended by Regulation (EU) No 2015/759 [2]. The rules and principles stipulated in the Quality Policy of ELSTAT shall apply [6].

The following Sections contain guiding principles and best practices for ensuring quality in the various stages of the statistical production process in ELSTAT, in order to provide users with high quality statistical products and services meeting their needs. The Divisions of ELSTAT should make sustained efforts to increasingly fulfill all the guidelines in this circular. ELSTAT will make every effort to ensure the conditions (e.g. adequate human resources) to support these efforts.

"ELSTAT's Quality Guidelines" is a "living" document, updated from time to time according to the developments in various areas, such as in the internal organisation of ELSTAT, the available resources, the availability of

¹ The Greek Commitment on Confidence in Statistics was adopted by the Hellenic Parliament and signed by the Prime Minister and the competent EU Commissioner on 29 February 2012. The Greek commitment is the first one signed by a Member State. The Commitment outlines the commitments of the Greek government with a view to taking all the necessary measures to ensure the independence of ELSTAT and the production of accurate and reliable statistics in the ELSS following European and international quality standards.

administrative data to produce statistics and the emergence of new technologies for the collection, processing and dissemination of data.

Apart from the monitoring and quality checking at the various stages of the statistical production process and in the quality assurance system of the statistical work at ELSTAT by the involved Divisions, important role in monitoring the quality at every stage of the statistical production process and in the quality assurance system of the statistical work of ELSTAT has the Committee for Monitoring and Management of the Quality of Statistical Works [7], which has been created in ELSTAT and in which the senior management of ELSTAT participates.

In these guidelines, where more than one Divisions are indicated as responsible for a stage in the statistical production process and in the quality assurance system of the statistical work at ELSTAT, including cases where the need for cooperation with another Division is indicated, there is the possibility of divergent opinions from the involved Divisions. In such a case, the issue and the different opinions are recorded and, in case all the possibilities of convergence of the views of the involved Divisions have been exhausted, the issue is discussed in the Committee for Monitoring and Management of the Quality of Statistical Works and a final decision is taken by the President of ELSTAT in accordance with the relevant provisions in force.

2. PRODUCTION OF STATISTICS BY ELSTAT

The production of statistics by ELSTAT encompasses the following stages:

- Determination of the necessity for the production of statistics
- Planning of the statistical survey/work
- Design of the statistical survey/work
- Data collection
- Data processing
- Production of statistics
- Dissemination of statistical data
- Assessment of the statistical survey/work

2.1. Determination of the necessity for the production of statistics

Most of the statistics produced by ELSTAT refer to European statistics compiled pursuant to European Regulations. The production of new statistics planned on a yearly basis is driven, to a large extent, by the need to fulfil ELSTAT's obligations towards the Statistical Office of the European Union (Eurostat) and other European and international organisations. These obligations involve, inter alia, implementing new European Regulations, ensuring compliance with existing Regulations, filling in questionnaires, updating databases, etc.

With the aim of improving its statistical product and the services provided, as well as identifying new needs and requirements for the production of statistics, ELSTAT organises annual User Conferences and conducts a User Satisfaction Survey. On the basis of the comments and interventions of users in the above conferences and the results of the above survey, ELSTAT records and prioritizes users' needs. In the framework of the compilation of the Annual Statistical Work Programme of ELSTAT, as well as of the three-year Hellenic Statistical Programme, prioritization of the aforementioned needs on the basis of their importance both to users and to ELSTAT's statistical product takes place and then ELSTAT explores the possibility of satisfying such needs. ELSTAT proceeds to the satisfaction of users' needs, incorporating them in its statistical work programmes, while taking into account its available resources and its national and international obligations.

The Divisions of ELSTAT that produce statistics keep an updated list of main users and uses of their statistics.

Necessary steps (*Competent Divisions*)

Keeping an updated list of main users and uses of the statistics produced (*All the Divisions of ELSTAT producing statistics and the Statistical Dissemination and Publications Division*).

2.2. Programming of the statistical survey/work

The Divisions of ELSTAT conducting statistical surveys/works program these statistical surveys/works, whether they are regular or ad hoc surveys.

The programming of the statistical surveys/works of ELSTAT for a specific year is initiated during the second quarter of the previous year, when the aforementioned Divisions fill in and submit to the Coordination and Programming Section a questionnaire on the new statistics planned to be produced during the next year and/or the planned revisions/discontinuation of produced statistics. The answers given by the Divisions in the questionnaire are taken into consideration for the compilation, by the Coordination and Programming Section, of a draft Annual Statistical Work Programme of ELSTAT for the next year, which is approved by ELSTAT by the end of May of the compilation year.

Moreover, the Divisions program their statistical surveys/works on the basis of distinct phases, starting from the design of the survey, the selection of the sample, etc. up to the dissemination of results and the compilation of the statistical publication (compilation of Press Release, production and printing of the publication, etc.), on a yearly basis, through a specific application developed in the Integrated Information System of ELSTAT. During the last month of the calendar year, the responsible Divisions record all the statistical surveys/works under their competency that have been programmed in the framework of the annual statistical programme of the following calendar year (available since May of the current year). At this stage, for each statistical

survey/work the competent Division records also the reference year of data, the type of the statistical survey/work (regular, ad hoc, pilot) and the periodicity (monthly, quarterly, annual, etc.). The competent Division selects also all the phases that are necessary for the specific statistical survey/work. For each selected phase, it sets out the start and end dates and up to three more important dates – milestones.

The progress of the statistical surveys/works is continuously monitored and updated on a regular basis (during the first ten days of each month). At this stage, for each selected phase of statistical survey/work, the competent Division updates the system with the actual start/completion dates of the phase. This mainly takes place by entering the actual start and end dates by the competent employee of the Division who is responsible for updating the system. As regards dates–milestones, the above employee updates the system with the actual materialization rate (in percent) of the specific phase of the statistical survey/work. The report of the statistical surveys/works is taken into account in their programming for the next year.

Furthermore, all the Divisions of ELSTAT update, on a quarterly basis, the progress of materialization of the actions under their competency of the Annual Statistical Work Programme, at the end of each quarter of its implementation year.

Necessary steps (*Competent Divisions*)

- Filling in, by the beginning of May of each year, the questionnaire on the planned new statistics and/or revisions/discontinuations of produced statistics (*All the Divisions of ELSTAT producing statistics*).
- Planning, in December of each year, all the statistical surveys/works to be conducted in the next year and reporting on the progress of their materialization within the first ten days of each month (*All the Divisions of ELSTAT producing statistics*).
- Quarterly update of the materialization progress of the Annual Statistical Work Programme of ELSTAT at the end of each quarter of its implementation year (*All the Divisions of ELSTAT*).

2.3. Design of the statistical survey/work

The statistical surveys conducted by ELSTAT are distinguished into census surveys and sample surveys. The vast majority of the surveys of ELSTAT – like in all the other National Statistical Institutes – are sample surveys for reasons of saving resources and accelerating the production of results.

The statistical works of ELSTAT refer to the production of statistics by using administrative data, estimates, statistical models, etc.

The designing of a statistical survey/work encompasses the determination of: the target population to which the survey results will refer, the frames to be

used for data collection, the appropriate methodology to be implemented for data collection, as well as the standards and classifications to be used.

2.3.1. Defining target population and alternative sampling frames for data collection

The target population of a statistical survey/work must be determined so that the inclusion of each unit of the population can be clearly defined.

The purpose of almost every statistical survey is to generalise the final results to the whole target population. The generalisation, relevance and accuracy of the results of a sample statistical survey require the use of a proper sampling frame. Both in census and sample surveys the coverage, completeness, timeliness and accuracy of the frame are key factors for its suitability. It is also important to assess the linking of the units of the frame to the surveyed units, as well as any conceptual differences and similarities.

The quality of the frame is assessed through the collected data. Overcoverage and undercoverage of the frame, as well as errors in the classification of its units are assessed through the use of other sources of information. Information from other statistical surveys or from other sources as regards the timeliness and completeness of postal addresses and the correctness of the classification of units shall also be taken into account.

Necessary steps (*Competent Divisions*)

- Clear definition of the target population of the statistical survey/work (*Competent Division for conducting the statistical survey/work, in cooperation with the Organisation, Methodology and International Relations Division*).
- Ensuring a full, timely and accurate sampling frame (*Organisation, Methodology and International Relations Division, in cooperation with the competent Division for conducting the statistical survey/work*).

2.3.2. Selection of the data collection method

When the data collection method of a statistical survey/work is defined by a European Regulation or manual, the competent Divisions of ELSTAT see to the full adherence to the relevant Regulation or manual in designing the statistical survey/work.

When the data collection method is not provided for in a European Regulation or manual, its selection generally depends on the surveyed statistical aggregate, or the surveyed characteristics of the population, the degree of homogeneity of the population, the available frames for data collection, the available administrative data and other supporting information on the surveyed units, the mode of data collection (e.g., personal interview, collection of data by telephone, via computer, etc.), the level of breakdown of the statistics produced and the required data accuracy at this specific level, as well as on the available resources. In this context, best methods and practices of other countries are explored by the competent Divisions for conducting the surveys and possible consultation takes place with the Methodology, Analysis and Research Section of the Organisation, Methodology and International

Relations Division, which conducts its own corresponding investigation. Moreover, ESS experts may be consulted. The suggestion (or, in the case of divergence of views, the various suggestions) that captures the result of collaboration between the above Divisions as regards the method to be followed is discussed in the **Committee for Monitoring and Management of the Quality of Statistical Works** before the President of ELSTAT takes a final decision in accordance with the relevant provisions in force.

Necessary steps (*Competent Divisions*)

- Implementation of the methods of data collection of statistical surveys/works which are stipulated in European Regulations or manuals (*Competent Division for conducting the statistical survey/work, in cooperation with the Organisation, Methodology and International Relations Division*).
- Selection of the method for data collection of statistical surveys/works, when this is not laid down in a European Regulation or manual, by taking into consideration various factors, so that the statistics produced have the required accuracy for the desired level of their analysis (breakdown), on the basis of the available resources. Exploration, in this context, of best methods and practices of other countries and cooperation with ESS experts (*President of ELSTAT after discussion in the Committee for Monitoring and Management of the Quality of Statistical Works of the suggestion that captures the result of collaboration between the Competent Division for conducting the statistical survey/work and the Organization, Methodology and International Relations Division*).

2.3.3. Setting out standards and classifications

The data of the statistical surveys of ELSTAT conducted on households and enterprises are collected by the use of questionnaires (printed and electronic) and web applications.

Questionnaires intended for households and those intended for enterprises do not differ significantly in terms of their designing principles. When the structure of the questionnaires is defined in relevant manuals of Eurostat, this structure is fully observed when designing the specific questionnaires.

Each questionnaire shall include mandatorily the following:

- The logo of ELSTAT and contact details of the competent Division for conducting the survey;
- The title of the survey and the reference period;
- Reference to the legal framework governing the provision of data to ELSTAT and the observance of statistical confidentiality;
- A field for entering the man-hours needed for the completion of the questionnaire – in the case of self-administered questionnaires;
- Concise instructions.

The questionnaire may also include:

- A field for entering the code of the questionnaire;
- The deadline for the return of the completed questionnaire;
- A field for entering contact details of the person who has filled in the questionnaire.

The questions of the questionnaire are classified by themes, they are clear and do not overlap. ELSTAT sees that the surveyed persons are requested to provide only the data which are absolutely necessary for the production of statistics, in order to reduce, as much as possible, their administrative burden.

The instructions for filling in the questionnaire are clear, concise and comprehensive, in order for the surveyed units to understand clearly the question and how it should be answered.

The competent Divisions for conducting statistical surveys draw up draft questionnaires of their surveys, which are finalised after the approval of the Organisation, Methodology and International Relations Division. In case of a different opinion, the issue is discussed in the *Committee for Monitoring and Management of the Quality of Statistical Works* and a final decision is taken in accordance with the relevant provisions in force.

The best practice followed, at international level, before finalising the draft of a new questionnaire is to test it on a pilot survey. Through this test, apart from the content of the questionnaire, a full cycle of its processing (data entry, codification, consistency of answers, etc.) is also checked. When redesigning the questionnaires of already conducted surveys, any experience from their previous usage in the relevant surveys is taken, inter alia, into consideration.

For the production of its statistics ELSTAT implements the European classifications adopted by the European Statistical System. In parallel, it develops, when necessary to fulfil national needs, national classifications that are fully compatible with the European ones. In the latter case, the suggestion of the involved Divisions is discussed in the *Committee for Monitoring and Management of the Quality of Statistical Works* and a final decision is taken in accordance with the relevant provisions in force.

Necessary steps (*Competent Divisions*)

- Mandatory inclusion in each questionnaire of the logo of ELSTAT, the contact details of the competent Division for conducting the survey, the title and the reference period of the survey, the legal framework governing the provision of data to ELSTAT and the observance of statistical confidentiality, the man-hours needed for the completion of the questionnaire – in the case of self-administered questionnaires– as well as clear, concise and comprehensive instructions for its completion. Classification of the questions in the questionnaire by theme and avoidance of overlap. Limitation of questions to what is absolutely necessary for the production of statistics. Testing of the draft of a new questionnaire in a pilot survey before its finalisation. Redesigning questionnaires of already conducted surveys taking into consideration,

inter alia, any experience from their previous usage in the relevant surveys (*Competent Division for conducting the statistical survey/work, in cooperation with the Organisation, Methodology and International Relations Division*).

- Compilation of national classifications, when necessary to meet national needs, that are fully compatible with the respective European ones (*Suggestion of the Organisation, Methodology and International Relations Division in cooperation with the competent Divisions using the classifications; discussion in the Committee for Monitoring and Management of the Quality of Statistical Works; and adoption of a final decision in accordance with the relevant provisions in force*).

2.4. Data collection

2.4.1. Collection of survey data

The initiation of the fieldwork of data collection for a survey must be preceded by the following steps:

- Approval of the survey questionnaire;
- Signing of the decision for the survey assignment and conduct, which, inter alia, sets out the specific tasks for carrying out the survey, the time of their conduct, the persons (external survey workers, statistical correspondents, ELSTAT's employees) to be used for the data collection, and their remuneration;
- Selection of external survey workers and/or statistical correspondents;
- Definition and assignment of surveys to external survey workers and/or statistical correspondents;
- Development of algorithms for conducting automated logical checks and validation of the survey data;
- Compilation of guidelines intended for the external survey workers and/or statistical correspondents;
- Training of external survey workers;
- Announcement of the conduct of the survey on the website of ELSTAT, in the case of new, large-scale surveys;
- Transmission of a letter to the surveyed units aiming at informing them on the purpose of the survey and their obligation to participate in it.

The Divisions involved in the implementation of the aforementioned steps are, apart from the competent Division for the conduct of the survey, the Division of Organisation, Methodology and International Relations, the Division of Administrative Support, the Division of Financial Management, the Division of Informatics, and the Division of Statistical Information and Publications.

2.4.2. Use of administrative data

The use by ELSTAT of administrative data for the production of its statistics is clearly stipulated in the Greek Statistical Law 3832/2010, as in force [1]. The same Law explicitly refers to the obligation of providing ELSTAT access to all administrative data sources and primary data, including confidential data, as well as to the obligation of consulting ELSTAT prior to the submission to Parliament of any legal provision that concerns ELSTAT or the official statistics of the Country or any legal provision regarding the creation of new or the restructuring of administrative data sources and public registers or files.

In an effort to improve the quality of the statistics produced, while saving human and financial resources and reducing the burden of respondents (enterprises and households), ELSTAT sees to the best possible utilisation of data that are available in the administrative sources of Greece. In this context, ELSTAT intervenes in the design of administrative data and signs memoranda of cooperation with the agencies producing these data, as well as with the other agencies of the Hellenic Statistical System which collect and/or produce statistics. The memoranda of cooperation specify the issues of ELSTAT's access to the above data.

In order for ELSTAT to start using administrative data for the production of statistics, the following conditions must be fulfilled:

- a) These data have been checked for compliance of their quality and definitions with the statistical purposes,
- b) All the necessary applications have been developed for linking the data with the statistical databases and the production of statistics,
- c) All the preparatory works have been completed for ensuring the safe receipt of data and their safe storage and handling within ELSTAT.

ELSTAT implements international standards and best practices on the observance of statistical confidentiality in order to ensure safe storage and protection of confidential data obtained from administrative sources in the context of the production of its statistics.

Necessary steps (*Competent Divisions*)

- Checking of administrative data for compliance of their quality and definitions with statistical purposes (*Competent Division for conducting the statistical survey/work in cooperation with the Organisation, Methodology and International Relations Division*).
- Development of all necessary applications for linking the administrative data with statistical databases and the production of statistics (*Informatics Division in cooperation with the Competent Division for conducting the statistical survey/work*).

- Seeing to the safe receipt, storage and handling of administrative data within ELSTAT (*Informatics Division and competent Division for conducting the statistical survey/work*).

2.4.3. Modes of data collection

ELSTAT sees to the maximum possible exploitation of opportunities offered by modern technologies for data collection, so as to optimise the relevant procedures, particularly in terms of saving time and resources. In this context, it develops electronic questionnaires and web applications for data collection.

The questionnaires are filled in either by the external survey workers, statistical correspondents and employees of ELSTAT, through a personal interview, or by the surveyed units themselves (self-administered questionnaires). In the first case, the selection, appointment and assignment of survey units to external survey workers and statistical correspondents are carried out by strictly implementing the procedures and rules outlined in the circular of ELSTAT on the Implementation of Rules for the Selection, Appointment and Assignment of survey units to external survey workers [8]. Emphasis is put on the appropriate training and familiarisation of external survey workers and statistical correspondents with the survey questionnaire in order to avoid, to the maximum extent possible, any errors by the interviewer (interviewer bias). In the second case, it is important to provide the surveyed units with clear instructions for filling in the questionnaire, in order to avoid any erroneous or irrelevant answers.

The completed self-administered questionnaires are returned back to ELSTAT by mail, fax, e-mail and through the Internet. In any case, the returned questionnaires, either in paper form or electronically, are kept by the competent Divisions of ELSTAT in secure places (physical and/or electronic), which are only accessible by the employees who are responsible for processing the data of the questionnaires for the production of relevant statistics, in compliance with the security and access rules stipulated in the circulars of ELSTAT on the Security Policy of Information Systems for Digital Data Protection [9] and on the Policy for Managing Security Incidents of ELSTAT [10].

Necessary steps (*Competent Divisions*)

- Development of electronic questionnaires and web applications for data collection, to the maximum extent possible (*Informatics Division in cooperation with the competent Division for conducting the statistical survey/work*).
- Strict implementation of the procedures and rules established for the selection, appointment and assignment of survey units to external survey workers and/or statistical correspondents (*Administrative Support Division*).

- Appropriate training and familiarisation of external survey workers and/or statistical correspondents with the survey questionnaires (*Competent Division for conducting the statistical survey/work*).
- Safekeeping of filled in printed and electronic questionnaires, in compliance with the security and access rules stipulated in the relevant circulars of ELSTAT (*Competent Division for conducting the statistical survey/work*).

2.4.4. Treatment of the non-response to surveys

Non- response to surveys is usually distinguished into two main categories: the unit non-response and the item non-response.

In the case of unit non-response, the missing data refer to all the surveyed variables. This may be on account of inability to contact with the surveyed unit, of refusal of the surveyed unit to fill in the questionnaire or of other reasons. In the case of item non-response, this may be on account of the inability of the surveyed unit to reply to the specific questions because of reluctance, ignorance, etc.

In order to produce unbiased, high-quality statistics, the response rate needs to be high and the sampling variance low. This objective can be achieved by means of carefully examining and comparing the population frame and sampling frames with the target population, by designing the data collection on the basis of statistical criteria, by testing the measurement tools -including for the questionnaire- and by properly executing and inspecting the fieldwork of data collection and the subsequent data processing.

The following actions contribute significantly to increasing response rate: continuous efforts to identify survey units with which it has not been possible to communicate; transmission of reminder letters; implementation of techniques aiming at prompting people to participate in the survey.

Necessary steps (*Competent Divisions*)

- Careful examination and comparison of the population frame and the sampling frames with the target population, designing of data collection on the basis of statistical criteria, testing of measurement tools -including for the questionnaire- and proper execution and inspection of the fieldwork of data collection and subsequent data processing (*Competent Division for conducting the statistical survey/work and Organisation, Methodology and International Relations Division*).
- Continuous effort to identify survey units with which it has not been possible to communicate, transmission of reminder letters and implementation of techniques aiming at prompting people to participate in the survey (*Competent Division for conducting the statistical survey/work*).

2.5. Data processing

Data processing encompasses: checking the completeness of source data, carrying out logical checks and substituting missing values of variables (imputation). This stage also includes data codification and data entry in the database. However, ELSTAT sees to the limitation, to the maximum extent possible, of the manual data entry by exploiting the possibilities offered by modern technologies for data collection.

The completeness and logical checks are aimed to identify missing, invalid or inconsistent entries. The missing values of variables may be on account of unit non-response or item non-response. In the first case, the lack of values is treated by reweighing or by introducing imputed values. These values are chosen from a set of values of the same variable of other surveyed units having similar characteristics with the unit which could not be surveyed or they are estimated on the basis of an appropriate model so as to be as close as possible to the actual but unknown values. In the latter case, the surveyed unit is invited to provide the missing information and when this is not possible imputed values are introduced as mentioned above. Imputation introduces additional bias and therefore values are imputed only after having explored all the possibilities for finding the actual value.

As regards the correction of invalid or inconsistent entries, the surveyed units are requested to provide the correct information. If this is not possible, imputation is applied.

The codification of data usually takes place after the completion of completeness and logical checks. In order to avoid codification errors, this task is undertaken by duly trained personnel that have been given clear instructions.

Data entry in the databases follows the codification of the data. Afterwards, the data are checked in order to detect any errors during the data entry.

For faster and better processing of the data, as well as for saving resources, the Divisions conducting statistical surveys/works see to the taking of full advantage of the possibilities offered by modern technologies for data collection. In this context, they see to:

- the development of automated completeness and logical checks of source data;
- the development of electronic questionnaires and web applications for data collection, with embedded data coding;
- The use of PCs (e.g., tablets) for data collection, as well as of OCR readable questionnaires for data collection and data entry through scanners.

Necessary steps (*Competent Divisions*)

- Data imputation only if all the possibilities for finding the actual values have been explored (*Competent Division for conducting the statistical*

survey/work in cooperation with the Organisation, Methodology and International Relations Division).

- Provision of adequate training and clear instructions to the personnel undertaking the codification of questionnaires (*Competent Division for conducting the statistical survey/work*).
- Checking of the data imported into the databases in order to identify any errors during the data entry (*Competent Division for conducting the statistical survey/work*).
- Exploitation, to the maximum extent possible, of the possibilities offered by modern technologies for data collection (*Competent Division for conducting the statistical survey/work in cooperation with the Informatics Division*).

2.6. Production of statistics

After the completion of data processing, the following stage is the production of statistics.

At this stage, the aforementioned processed data are converted into statistics by applying the appropriate econometric models or estimation methods and processes. In the case of sample surveys, the statistics produced refer to estimates of values of variables (characteristics) of the target population. These estimates are calculated by applying appropriate extrapolation factors on the values of the above variables of the units of the sample, which (values) have derived from the processing of survey data.

The statistics produced are assessed in terms of their reliability by means of compiling aggregates and indices that reflect their accuracy (sampling errors, measurement errors, processing errors, non-response errors, imputation rate, etc.). In the case of sample surveys a common measure of the sampling error of an estimate is its standard error or its coefficient of variation.

Statistics are also compared with the respective statistics of previous reference periods, as well as with similar statistics produced by other surveys of ELSTAT or by other agencies of the Hellenic Statistical System. In case of implausible discrepancies between the compared statistics, any possible causes are investigated and listed. If the investigation identifies errors in the data used to produce the statistics, the data are duly corrected and the statistics are re-produced in accordance with the correct data.

Necessary steps (*Competent Division*)

- Implementation of appropriate econometric models or estimation methods and processes for the production of statistics (*Organisation, Methodology and International Relations Division in cooperation with the competent Division for conducting the statistical survey/work and the above two Divisions in cooperation with the Informatics Division*).
- Assessment of the quality of the statistics produced through the compilation of aggregates and indices that reflect their accuracy

(Organisation, Methodology and International Relations Division in cooperation with the competent Division for conducting the statistical survey/work).

- Comparisons of the statistics produced with similar statistics produced by other surveys of ELSTAT or by other agencies of the Hellenic Statistical System, investigation of the causes of possible discrepancies and reproduction of statistics in case of errors in primary data (*Competent Division for conducting the statistical survey/work in cooperation with the Organisation, Methodology and International Relations Division*).

2.7. Dissemination of statistical data

ELSTAT's statistics are disseminated in full compliance with the statistical principles of professional independence, impartiality, objectivity, reliability, statistical confidentiality and cost-effectiveness, as these are defined by the provisions of Article 2 of Regulation (EC) No 223/2009 of the European Parliament and of the Council, as amended by Regulation (EU) No 2015/759 [2] and further developed in the European Statistics Code of Practice [3]. The principles and rules followed by ELSTAT in the dissemination of its statistics are included in the Dissemination Policy it has compiled [11].

ELSTAT provides simultaneous and equal access of all users, without exception, to its statistical data. Statistical data of a survey are not provided to users, without any exception, before the publication of the survey results. In addition, ELSTAT takes all the necessary measures to ensure observance of statistical confidentiality during the dissemination of statistical data.

ELSTAT protects data collected for statistical purposes or provided by administrative or other sources, which allow the direct or indirect identification of statistical units (enterprises and households) by the disclosure of individual information. Confidential data collected for the production of statistics are used exclusively for statistical purposes. Right of access to these confidential data is granted exclusively to the staff of ELSTAT performing statistical activities within their specific domain of work. ELSTAT may allow access to confidential data to persons, other than its personnel, to whom it has contracted out statistical works, by ensuring, in all cases, compliance of these persons with the principle of statistical confidentiality. The above persons are bound to observe the principle of statistical confidentiality of the data they will handle or to which they will have access in the framework of carrying out the statistical works, by signing a relevant Statistical Confidentiality Declaration.

Individual data of the General Government entities are treated as confidential data to a certain extent. However, the nature of their confidentiality differs from the confidentiality of the individual data of households and enterprises of the private sector. While the individual data of households and enterprises of the private sector are characterised as absolutely confidential and are strictly covered by Article 8 of Law 3832/2010, as in force [1], and by Chapter V and recital 27 of the European Regulation 223/2009, as amended by Regulation 2015/759 [2], this does not apply for the data of General

Government entities, where there are specific arrangements and circumstances characterizing their handling and communication, which are included in the “Guidelines on the use/handling of data of individual General Government entities” [13].

ELSTAT grants to researchers conducting statistical analyses for scientific purposes, access to data that enable indirect identification of statistical units (enterprises and households) concerned. Access is granted, provided that the conditions specified in Article 8(6) of the Regulation on the Statistical Obligations of the Agencies of the Hellenic Statistical System [4] are satisfied. The procedures for providing access to confidential data for scientific purposes and for granting access to anonymised microdata of statistical surveys are described in a relevant circular issued by ELSTAT [14].

ELSTAT sees to the improvement of the layout and content of its website and of the other dissemination modes of the statistics produced, with a view to fulfilling the changing needs of data users both at national and international level, in accordance with the developing international standards. In this context, it publishes on its website metadata, for each statistical survey/work, in accordance with the applicable, from time to time, presentation system in the ESS, methodological notes, quality reports and user oriented quality reports. ELSTAT compiles also a Press Release for each new statistical survey. The content of the printed publications and Press Releases of ELSTAT is amended from time to time so as to be more attractive and useful to users, by satisfying their changing needs.

Statistical data are revised in compliance with the rules and principles stipulated in the Revision Policy of ELSTAT [15]. In particular, as regards the issues of informing users on the revisions, the following apply:

- ELSTAT compiles and posts on its website a schedule for the planned revisions. In addition, a relevant text on the planned revisions of statistics is included in the Annual Statistical Work Programmes of ELSTAT.
- The users are promptly informed on significant errors identified in published statistics, leading to non-scheduled revisions. The revised results are released without any delay in an open and transparent manner. The reason of carrying out the non-scheduled revisions is also announced.
- Major revisions and non-scheduled data revisions are accompanied at the time of publication by relevant documentation, as well as by updated back data if available. Information on revisions is also contained in survey metadata published on ELSTAT’s website.
- ELSTAT announces substantial methodological changes in the compilation of statistics before the release to the public of statistics based on the new methods.
- ELSTAT conducts consultations with users at regular intervals, in order to be informed on their views about its revision practices.

ELSTAT provides for free, without prejudice to any expenditure or costs, the main economic and social statistics it collects and processes, and post them on

its website. The costs and expenses are calculated in accordance with pricing and dissemination systems and procedures, defined in the Regulation on the Operation and Administration of ELSTAT [16] (Articles 13 and 14) and further specified in the Pricing Policy of Statistical Products [17].

Necessary steps (*Competent Divisions*)

- Provision of simultaneous and equal access of all users, without exception, to statistics. No provision of statistical data of surveys to users before the publication of the results of surveys/statistical works (*Competent Division for conducting the statistical survey/work and Statistical Information and Publications Division*).
- Seeing to the protection of the statistical confidentiality of data during the dissemination of statistics, by fully implementing the relevant provisions of the European and national statistical legislative framework (*Competent Division for conducting the statistical survey/work and Statistical Information and Publications Division*).
- Implementation of the Revision Policy of ELSTAT for the revision of statistics (*Competent Division for conducting the statistical survey/work*).
- Pricing of the statistical product in accordance with pricing and dissemination systems and procedures defined in the Regulation on the Operation and Administration of ELSTAT and further specified in the Pricing Policy of Statistical Products (*Statistical Information and Publications Division in cooperation with the competent Divisions for the production of the statistical product*).

2.8. Assessment of the statistical survey/work

At this stage, the aggregates and indices calculated during the production of statistics in order to assess the degree of their reliability in comparison with the appropriated resources are used for the overall assessment of the statistical survey/work, as well as for the analysis of cost-effectiveness. This work provides useful information for the improvement of the method and the mode of conducting the survey.

The assessment of the statistical survey/work takes place after its completion (on a yearly basis as regards monthly, quarterly and annual surveys) and it evaluates the implementation of the aforementioned guidelines.

Necessary steps (*Competent Divisions*)

Assessment of the statistical survey/work, after its completion (on a yearly basis as regards monthly, quarterly and annual surveys) by evaluating the implementation of the aforementioned guidelines (*Committee for Monitoring and Managing the Quality of the Statistical Works of ELSTAT upon the suggestion of the Organisation, Methodology and International Relations Division*).

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