Single Integrated Metadata Structure (SIMS v2.0)

Country: Greece

Compiling agency: ELSTAT

Domain name: Price Indices of Work Categories (CSTO) and

Construction Cost Indices of New Residential Buildings (CSTI)

ELSTAT metadata **Reference metadata** 1. Contact 2. Metadata update 3. Statistical Presentation 4. Unit of measure 5. Reference period 6. Institutional mandate 7. Confidentiality 8. Release policy 9. Frequency of dissemination 10. Accessibility and clarity 11. Quality management 12. Relevance 13. Accuracy and reliability 14. Timeliness and punctuality 15. Coherence and comparability 16. Cost and burden 17. Data revision 18. Statistical processing 19. Comment

1. Contact	<u>Top</u>
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2. Metadata update	<u>Top</u>
2.1 Metadata last certified	14/06/2023
2.2 Metadata last posted	14/06/2023
2.3 Metadata last update	14/06/2023

3. Statistical presentation

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3.1 Data description

The Price Indices in the Construction of New Residential Buildings are quarterly indices, as follows:

- Price Index of Work Categories in the Construction of New Residential Buildings (CSTO).
- Price Index of Construction Cost for New Residential Buildings (CSTI).

The data are monthly or quarterly when they are collected and refer to Greece total and are presented as indices and rates of change. The indices are compiled on a quarterly basis and are released as follows:

- Indices with base year 2015=100.0.
- Quarterly rates of change.
- Annual rates of change.

3.2 Classification system

For the compilation of the indices the following classifications are used:

- Statistical classification of economic activities NACE Rev.2 of EU (pursuant to Regulation (EC) 1893/2006 of the European Parliament and of the Council).
- Classification of types in Construction CC Classification.

Moreover, the Price Index of Work Categories follows the national classification, which includes 30 works categories aggregated in 17 groups, whereas the Price Index of Construction Cost follows the national classification, which includes 24 works categories aggregated in 11 groups.

3.3 Sector coverage

The indices covers the F - Construction sector of NACE Rev.2 and specifically group 41.2, which concerns the construction of residential buildings.

3.4 Statistical concepts and definitions

Price Indices in the Construction of New Residential Buildings are quarterly indices, as follows:

<u>Price Indices of Work Categories in the Construction of New Residential Buildings (CSTO)</u>. This index reflects the changes in the prices paid to the constructors - contractors of the different construction stages of new residential buildings (e.g. concrete, wall-building, plastering, etc.).

Overall Costs Index for the Construction of New Residential Buildings (CSTI). This index reflects the changes in the costs, incurred by the constructors for the construction of a standard residential building (block of flats) and it is calculated on the basis of the materials prices and the labour remuneration paid by them. This index is compiled from the aggregation of two individual price indices: i) the Material Costs Index for the Construction of New Residential Buildings (CSTM), which is a monthly input index reflecting changes in building materials prices and ii) the Price Index of Labour Remuneration or Labour Costs Index (CSTL), which is a quarterly input index which monitors the evolution of labour remuneration for the individual works performed for the raising of a new residential building

construction.

Labour is a major factor in the construction of residential buildings and has a pivotal role in the overall construction costs.

3.5 Statistical unit

The reporting units for the collection of prices are the construction enterprises and the contractors.

3.6 Statistical population

The reference population is the total of construction and construction contractors and new building construction contractors. The selection of sample enterprises took place in the biggest urb cities, based on their turnover and the ability to provide continuous pricing.

3.7 Reference area

The geographical coverage refers to the whole of the country, only from the biggest cities of Greece, as the Greater Athens, Thessaloniki, Patras, Herakleion, Larisa and Volos.

3.8 Time coverage

From the 1st quarter 2000 onwards, the time series for the Price Indices of Work Categories and the Overall Costs Index for the Construction of New Residential Buildings, with base year 2015 (2015=100.0), are available on a quarterly basis.

3.9 Base period

The base year is the year 2015 (2015=100.0).

4. Unit of measure	<u>Top</u>
Indices, percentage changes (%).	

5. Reference period

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The reference period is the quarter.

6. Institutional mandate

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6.1 Legal acts and other agreements

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

- Law 3832/2010 (Government Gazette No 38, Issue A): "Hellenic Statistical System Establishment of the Hellenic Statistical Authority (ELSTAT) as an Independent Authority", as amended and in force.
- Regulation on the Operation and Administration of the Hellenic Statistical Authority (ELSTAT), 2012, (Government Gazette No 2390, Issue B, 28-8-2012)
- Regulation on the Statistical Obligations of the agencies of the Hellenic Statistical System (Government Gazette 4083 B, 20.12.2016)
- Greek Commitment on Confidence in Statistics (Government Gazette 40 A, 29.02.2012)
- Regulation (EC) No 223/2009 on European statistics, as amended by Regulation (EU) 2015/759
- European Statistics Code of Practice (CoP) revised edition 2017
- REGULATION (EU) 2016/679 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 27 April 2016 on the
 protection of natural persons with regard to the processing of personal data and on the free movement of
 such data, and repealing Directive 95/46/EC (General Data Protection Regulation GDPR)
- Presidential Decree 73/2019 (Government Gazette No 114, Issue A,04.07.2019): "Organization of the Hellenic Statistical Authority (ELSTAT)" (Available only in Greek)

• Law 4624/2019 (Government Gazette A'137 / 29.08.2019) "Hellenic Data Protection Authority, measures implementing Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 for the protection of natural persons with regard to the processing of personal data and transposition (into national law) Directive (EU) 2016/680 of the European Parliament and of the Council of 27 April 2016 and other provisions " (Available only in Greek)

The Legal Framework is detailed in the following link: http://www.statistics.gr/en/legal-framework

EU legislation:

The legal basis for the STS indices is Regulation (EU) No 2019/2152 of the European Parliament and of the Council on European Business Statistics, as well as Commission Implementing Regulation (EU) No 2020/1197 laying down technical specifications and arrangements pursuant to Regulation (EU) No 2019/2152.

The definitions of short-term statistics variables are laid down in Commission Implementing Regulation (EU) No 2020/1197 laying down technical specifications and arrangements.

6.2 Data sharing

The data of Price Indices of Work Categories and the Price Indices of Construction Cost of New Residential Buildings are transmitted to Eurostat, according to Regulation (EU) No 2019/2152 of the European Parliament and of the Council on European Business Statistics, as well as Commission Implementing Regulation (EU) No 2020/1197 laying down technical specifications and arrangements pursuant to Regulation (EU) No 2019/2152.

7. Confidentiality

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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.

http://www.statistics.gr/en/statistical-confidentiality

7.2 Confidentiality - data treatment

- ELSTAT protects and does not disseminate data it has obtained or it has access to, which enable the direct or indirect identification of the statistical units that have provided them by the disclosure of individual information directly received for statistical purposes or indirectly supplied from administrative or other sources. ELSTAT takes all appropriate preventive measures so as to render impossible the identification of individual statistical units by technical or other means that might reasonably be used by a third party. Statistical data that could potentially enable the identification of the statistical unit are disseminated by ELSTAT if and only if:
 - a) these data have been treated, as it is specifically set out in the Regulation on Statistical Obligations of the agencies of the Hellenic Statistical System (ELSS), in such a way that their dissemination does not prejudice statistical confidentiality or
 - b) the statistical unit has given its consent, without any reservations, for the disclosure of data.
- The confidential data that are transmitted by ELSS agencies to ELSTAT are used exclusively for statistical purposes and the only persons who have the right to have access to these data are the personnel engaged in this task and appointed by an act of the President of ELSTAT.
- ELSTAT may grant researchers conducting statistical analyses for scientific purposes access to data that enable the indirect identification of the statistical units concerned. The access is granted provided the

following conditions are satisfied:

- a) an appropriate request together with a detailed research proposal in conformity with current scientific standards have been submitted;
 - b) the research proposal indicates in sufficient detail the set of data to be accessed, the methods of analyzing them, and the time needed for the research;
 - c) a contract specifying the conditions for access, the obligations of the researchers, the measures for respecting the confidentiality of statistical data and the sanctions in case of breach of these obligations has been signed by the individual researcher, by his/her institution, or by the organization commissioning the research, as the case may be, and by ELSTAT.
- Issues referring to the observance of statistical confidentiality are examined by the Statistical Confidentiality Committee (SCC) operating in ELSTAT. The responsibilities of this Committee are to make recommendations to the President of ELSTAT on:
 - the level of detail at which statistical data can be disseminated, so as the identification, either directly or indirectly, of the surveyed statistical unit is not possible;
 - the anonymization criteria for the microdata provided to users;
 - 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.

8. Release policy

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8.1 Release calendar

At the end of September of each year ELSTAT publishes a release calendar with the precise release dates of statistics for the following year.

8.2 Release calendar access

The calendar is distributed to the press and is available to all interested parties free of charge.

This calendar is also posted on the website of the ELSTAT (http://www.statistics.gr/en/calendar) under the title: "Release Calendar".

8.3 User access

In compliance with the Community legal framework and the European Statistics Code of Practice, ELSTAT

disseminates national statistics on ELSTAT's website respecting professional independence and in an objective, professional and transparent manner in which all users are treated equitably.

In that way, data are released simultaneously to all interested parties and users through the Announcement on the Price Indices of Work Categories and the Overall Construction Costs Index of New Residential Buildings, which is released on the official website of ELSTAT (www.statistics.gr) according to the releases calendar. The Announcement is also available by e-mail. In addition, data are transmitted to Eurostat on a predefined date, concomitantly with their national publication.

Neither users nor the government have access to the data prior to their publication.

9. Frequency of dissemination

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The Price Indices of Work Categories and the Overall Construction Costs Index of New Residential Buildings are disseminated on a quarterly basis.

10. Accessibility and clarity

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10.1 Announcements

Every quarter, approximately 25 days after the end of the reference quarter, at 12:00 pm, an Announcement is released concerning the newly compiled indices in Greek and in English. The Announcement is sent, free-of-charge, and mostly by email to the press and to other interested parties and is available on the ELSTAT website (www.statistics.gr) at:

http://www.statistics.gr/en/statistics/-/publication/DKT63/-

10.2 Publications

Data on Price Indices of Work Categories Construction Costs and Labour Remuneration of New Residential Buildings are published in the publication of ELSTAT "Greece in Figures" (http://www.statistics.gr/en/greece-in-figures), as well as in specialized publications of Eurostat.

10.3 On-line database

There are no available data on the Price Indices of Work Categories and for the Construction Costs Index of New Residential Buildings on the on-line database of ELSTAT.

10.3.1 Data tables - consultations

In 2022, total access to the website as regards the CSTO and CSTI amounted to 34,912 hits. There is no possibility to make the distinction between users' consultations on data tables and users' consultations on metadata.

10.4 Micro-data access

Microdata are made available to users after their submitting a request to the:

Division of Statistical Information and Publications

46, Peiraios and Eponiton Str., 18510 Piraeus

Tel: +30 213 135 2022

http://www.statistics.gr/en/provision-of-statistical-data

For confidentiality reasons access to microdata is granted to users only under strict conditions and by always adhering to the relevant procedure. More information is available in the following link:

https://www.statistics.gr/en/scientific provision data

10.5 Other

Apart from the dissemination of the data to Eurostat, users can be given data or further analysis, usually by e-mail after submitting a request, describing the requested data, to the Section of Statistical Dissemination, at the following e-mail addresses:

data.dissem@statistics.gr and data.supply@statistics.gr.

Users can also submit their requests electronically, through the portal at:

http://www.statistics.gr/statistical-data-request

More links for data dissemination:

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

http://www.statistics.gr/en/statistics/-/publication/DKT63/-

http://ec.europa.eu/eurostat/web/short-term-business-statistics/

10.5.1 Metadata - consultations

See 10.3.1 above.

10.6 Documentation on methodology

The methodology for the compilation of the index is laid down by ELSTAT, taking into account international practices and, in particular, Eurostat's recommendations, guidelines and standards.

The methodological issue that includes a set of guidelines for the preparation of short-term statistics is available: Methodology of short-term business statistics - Interpretation and Guidelines

Moreover, the information note on the compilation of the Work Categories and for the Construction Costs Index of New Residential Buildings in Greece, which includes the methodology that is implemented for the compilation of the indices is available at the following link:

http://www.statistics.gr/en/statistics/-/publication/DKT63/-

10.6.1 Metadata completeness – rate

The metadata of the CSTO and CSTI are posted on the webpage of ELSTAT: <u>www.statistics.gr</u>. Metadata completeness amounts to 100%.

10.7 Quality documentation

A concise user-oriented quality report is available on the website of ELSTAT at:

http://www.statistics.gr/en/statistics/-/publication/DKT63/-

11. Quality management

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11.1 Quality assurance

Quality checks and validation of data are carried out during the whole process of the compilation of the indices: from the data collection stage to the final compilation of the indices.

First of all, well-trained and experienced staff is utilized for all the stages of the compilation of the indices, that is, for data collection including communication with the enterprises, initial checks, data entry and final checks, which are conducted after the calculation of the index. This way, the personnel have a comprehensive and longitudinal image of the enterprises under their responsibilities.

Data are validated either before or after data entry by means of logical checks. During data processing the data are checked in order to identify and correct any errors. When an error is identified, data are further investigated, in cooperation with the enterprises in order to confirm that it is an error or it is just an unusual price. At the same time, data are checked for completeness, accuracy and consistency of the correlating variables.

The indices are calculated by means of specialised software, through computation routines, thus eliminating any errors to the final results. Nevertheless, even during this stage, consistency checks are carried out on the final results, mainly by means of comparing the rates of change of the individual indices.

Moreover, in order to ensure the quality of data, all the procedures that are described in the circulars on the Quality Policy of ELSTAT are followed: http://www.statistics.gr/en/policies

11.2 Quality assessment

Generally, the Price Indices of Work Categories and the Construction Costs Index of New Residential Buildings are considered as highly reliable indices. Theses indices are being compiled in Greece since 1981, thus the staff has acquired a lot of experience in their compilation. In addition, concepts and definitions of variables, as well as relevant

methodology for the compilation of the Indices follow European and international standards and guidelines.

12. Relevance Top

12.1 User needs

The Price Indices of Work Categories and the Construction Costs Index of New Residential Buildings cover national needs, well as needs of European and other users. Among the main national users are: the government, public services, the Bank of Greece, other banks, the Hellenic Federation of Enterprises (SEV), the Foundation for Economic and Industrial Research (IOVE), technical or other Chambers, etc. At international level: Eurostat, IMF, UN, etc.

The compiled indices cover the wide range of users' needs: as concerns domestic market, the indices are used as a tool providing useful information on monitoring the prices in the construction sector, thus helping the government in drawing economic policy and enterprises or other agencies in decision making concerning their taking up several initiatives. At European level, there is the need for fully comparable statistics in order to draw the European economic policy.

12.2 User satisfaction

The Manufacture – Construction Indices and Industrial Products Section monitors on regular basis users' needs in order to satisfy them. More generally, there is a smooth cooperation resulting to the best possible response to user's requests, and comments made by users are positive.

In addition, ELSTAT conducts:

a. A users' satisfaction survey.

Every six month, ELSTAT conducts a user's satisfaction survey. The results of this survey are published in the "Library's Newsletter" (in Greek and English), a publication which is issued by the Library of ELSTAT and by the Section of Statistical Information Dissemination, on the basis of information deriving from the User Questionnaire. This publication present semi-annual data on the number of users in combination with other variables, such as the degree of satisfaction of users' requests, the kind of the requested data and the modes of statistical dissemination. These data are presented in the form of tables, absolutes values and percentage points.

b. A User Conference

In accordance with its Annual Statistical Work Programme, ELSTAT, from 2010 onwards, has been conducting a User Conference, on a yearly basis with the participation of representatives of the private and public sector, academics, researchers and research institutes. These conferences give ELSTAT the opportunity to gather comments and interventions made by the users of statistics on issues such as the dissemination of statistical information, access of users to statistics and any omissions in the statistical output. The User Conferences help ELSTAT to draw useful conclusions on how the statistical output and the services provided can be improved so as to meet user's growing needs. These conclusions are incorporated in the annual statistical work programmes of ELSTAT.

More information on the results of the user's satisfaction surveys and on the user conferences are available at: http://www.statistics.gr/en/user-satisfaction-survey

http://www.statistics.gr/el/user-conference

12.3 Data completeness

The compilation of the indices and the data provided are fully inline with the relevant EU Regulations.

13. Accuracy and reliability

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13.1 Overall accuracy

The accuracy of the indices is generally considered to be high. ELSTAT does not calculate sampling errors for these indices because the purposive sampling technique is applied, instead of the random sampling technique. As regards non-sampling errors, they mostly refer to measurement or non-response errors. The efforts which are made mostly focus on identifying and eliminating, to the extent possible, these errors, through the revision of data.

In compliance with Regulation (EU) No 2019/2152 of the European Parliamentand of the Council on European Business Statistics, as well as Commission Implementing Regulation (EU) No 2020/1197, short-terms indices should be revised every five years and more specifically in years ending in 0 or 5. In this framework, the Prices Indices of Work Categories and the Construction Costs Index for New residential Buildings are fully revised every five years with the

change of the base year and the adoption of the new weights.

13.2 Sampling error

Sampling error is not estimated for the indices because of the purposive sampling technique are applied. As a source of price index for the project price index and the labor price index, 323 technical construction companies and contractors are being investigated. The selection of sample enterprises was made in the largest urban centers, based on their turnover and the ability to provide continuous pricing.

The indices cover Greece-total and prices are collected in the biggest urban centres (Athens and surroundings, Thessaloniki, Patra, Irakleio, Larisa and Volos).

The price index of work categories records the changes in the prices of 30 work categories, aggregated into 17 groups and prices are collected from 511 reporting units.

The labour remuneration index records the changes in the prices of 24 job categories, aggregated into 11 groups, and prices are collected from 420 reporting units.

13.3 Non-sampling error

a. Unit non - response

In case of non-response, the surveyed enterprise is contacted by telephone or is sent a reminder by e-mail or even a statistical interviewer pays a visit to the enterprise in order to collect the required information. Total response rate is generally considered to be high, amounting to 99%.

b. Item non - response

There are not any errors related to the inconsistent implementation of definitions. If some products or variations of products cease to be representative or change their characteristics on the basis of which they are defined, new items or similar items are used to replace them. In these cases, their calculation, for the base year, is based on the use of the indices of the group in which they belong. Missing values are treated by estimating them by "repeating the last prices" during the period of non-response.

13.3.1 Coverage error

No coverage errors are observed in the Business Register of ELSTAT, on the basis of which the survey on the compilation of the index was designed.

<u>13.3.1.1 Over-coverage – rate</u>

No over-coverage errors (e.g., closed enterprises, enterprises out of the scope of the survey, etc.) are observed in the Business Register of ELSTAT, on the basis of which the survey on the compilation of the index was designed.

13.3.1.2 Common units - proportion

Not applicable..

13.3.2 Measurement error

Measurements errors occur during data collection. They are identified by means of quality checks and are duly corrected.

13.3.3 Processing error

After data collection a series of processes takes place before the compilation of the index, such as weighting of enterprises, calculations by implementing mathematic formulae, tabulation of results, etc. There are some processing errors, such as errors on account of erroneous information provided by the surveyed enterprises. These errors are usually easy to be identified by means of checks and cross-checks of data with the corresponding data of the previous years after contacting by phone the enterprise. There are no processing errors as regards the use of the relevant software application.

13.3.4 Model assumption error

No model is used for the compilation of the index.

14. Timeliness and punctuality

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14.1 Timeliness

The indices are published approximately 25 days after the end of the reference quarter.

14.2 Punctuality

The indices are published in accordance with the pre-announced release calendar. Any delays in the release of data are due exclusively to extraordinary events.

15. Coherence and comparability

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15.1 Comparability - geographical

The compilation of the index is based on relevant EU legislation and on basic methodology on short-term statistics used throughout EU Member States, thus the survey produces fully comparable results, taking always into consideration specific conditions in each country, which may require minor deviations from methodology.

15.1.1 Assymetry for mirror flows statistics - coefficient

For the indices there are no mirror-flows statistics among EU Member States.

15.2 Comparability over time

The available full time series of the revised indices (2015=100.0) consists of the converted indices for the period 2000-2018 and of the calculated indices using the new weighting scheme after the change of the base year from 1st quarter 2019 onwards.

Therefore, the time series of the Price Indices of Work Categories and the Construction Costs Index of New Residential Buildings with base year 2015=100.0, which are available from January 1st quarter 2000 onwards, are considered fully comparable over time.

15.3 Coherence cross-domain

Checks are carried out regularly on the basis of data from other surveys. More specifically, comparisons are made with the sub-indices of the Consumer Price Index and with the Production Index in Construction.

15.3.1 Coherence – sub annual and annual statistics

The common sample of enterprises used for the index ensures the accurate representation of the evolution of the indices during several time periods.

15.3.2 Coherence - National Accounts

The indices are used by the National Accounts Division for the compilation of their estimations and for converting current prices to constant prices.

15.4 Coherence - internal

The calculated indices are internally coherent. Higher-level aggregates derive from detailed indices according to well-defined procedures.

16. Cost and burden

According to the results of the Cost Assessment Survey covering the production of statistics in the ESS for the year 2021 launch by Eurostat and carried out by ELSTAT, it can be concluded that, regarding the staff of ELSTAT engaged in the compilation of the indices, the annual cost in hours worked amount to 918. According to the results of the Assessment of the Response Burden of the Surveyed Statistical Units which was carried out by ELSTAT for the year 2021, the annual average burden in hours worked is 0.4 hours per enterprise or totally 121 hours for all enterprises.

17. Data revision Top

17.1 Revision policy

The quarterly indices are published 25 days (t+25) after the end of each reference month. Data are final when first released.

The data are revised, in accordance with the Revision Policy of ELSTAT, which is available at the following link:

http://www.statistics.gr/en/policies

Whenever the data are revised, the same revision policy is applied to data released nationally ant to those transmitted to Eurostat, in order to ensure coherence.

17.2 Revision practice

According to the requirements of the Regulation (EU) No 2019/2152 of the European Parliamentand of the Council on European Business Statistics, as well as Commission Implementing Regulation (EU) No 2020/1197, short-term indices are revised every five (5) years, particularly on calendar years ending with a 0 or a 5. In this framework, major revisions of the CSTM take place every five years, with the change of the base year and implementation of the new weighting scheme.

18. Statistical processing

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18.1 Source data

In order to compile the Prices Indices of Work Categories and the Construction Costs Index for New Residential Buildings a survey is carried out.

The observation units for the collection of prices are the construction enterprises and the contractors.

The indices cover Greece-total and prices are collected in the biggest urban centres (Athens and surroundings, Thessaloniki, Patra, Irakleio, Larisa and Volos). The price index of work categories records the changes in the prices of 30 work categories, aggregated into 17 groups and prices are collected from 511 reporting units.

The labour remuneration index records the changes in the prices of 24 job categories, aggregated into 11 groups, and prices are collected from 420 reporting units.

The prices of the other individual works of the price index of work categories for new residential buildings are those actually paid by the building contractors to the sub-contractors-constructors. These prices cover the expenditure on materials and labour, fixed assets depreciation and additionally the profits. Since the contracts for the construction of parts of buildings are based on payment per unit of work, the prices refer to construction work units, such as m2, m3, piecework jobs, depending on the nature of the work. Prices are collected on a quarterly basis and they include all the prices for which contracts were concluded during the reference quarter.

The prices on labour remuneration of the overall costs index in construction of new residential buildings, are the rates actually paid by construction enterprises to the groups of technicians that they employ. The remuneration is usually agreed by the construction enterprise and by the specialized technicians group and the technicians are paid at piecework rates. These are the rates that are quarterly collected and refer to the contracts signed during the reference quarter.

18.2 Frequency of data collection

The data are collected on a quarterly basis.

18.3 Data collection

Data are collected by specialized employees—price collectors and for this purpose specially designed questionnaires are used for this purpose, adapted to each enterprise. The questionnaires are sent in electronic format to the competent Regional Statistics Services which are responsible to collect the relevant data by means of :

- -personal visits of price collectors to the enterprises
- -telephone contacts

The questionnaires are sent:

-via e-mail.

Non-response is treated by telephone contacts, e-mails and personal visits of interviewers to the enterprises.

18.4 Data validation

Data are validated by means of logical checks. Data processing encompasses investigation of data in order to identify and duly correct any errors. Special emphasis is put on the errors that have significant impact on the results. After identifying errors, further investigation takes place in cooperation with the enterprise in order to confirm that it is an error or just an unusual price. Moreover, completeness checks are carried out in order to confirm that the values are within given ranges and that values for related variables are coherent. The data processing and data validation takes place either during or after data entry.

The data are compared with the data of the previous quarters and inconsistencies or major deviations lead to more

thorough investigation.

18.5 Data compilation

For the calculation of all the general indices - work categories, labour remuneration and overall cost – the variation of the Laspeyres formula was used, as follows:

$$I^{(t)} = \sum_{i=1}^n R_i^{(t)} * w_i$$

where:

 $I^{(t)}$: is the general price index of the current period (quarter, year t),

 $R_{i}^{(t)}$: is the individual price index of the work category, the labour remuneration or the overall cost i in the current period t and

 $^{W_{i}}\,$: is the weight of the work category, the labour remuneration or the overall cost i,

$$w_i = \frac{x_i}{\sum_{i=1}^n x_i}$$

 x_i : the value of the work category, the labour remuneration or the overall cost i in 2015, i = 1,2,3...n, where n number of work category, labour remuneration or overall cost.

The individual indices $R_i^{(t)}$ of work categories i are the geometric means of the relative labour remuneration prices from all the reporting units, i.e.:

$$R_{i}^{(t)} = \left(\prod_{j=1}^{N_{i}} \frac{P_{ij}^{(t)}}{P_{ij}^{(0)}}\right)^{1/N_{i}}$$

whereas, the individual indices $R_i^{(t)}$ of labour remuneration categories i are the simple arithmetic means of the relative labour remuneration prices from all the reporting units, that is:

$$R_i^{(t)} = \frac{1}{N_i} \sum_{j=1}^{N_i} \frac{P_{ij}^{(t)}}{P_{ij}^{(0)}}$$

where:

 N_i : is the count of work category or labour remuneration prices i from all reporting units,

 $P_{ij}^{(t)}$: is price j of the reporting unit of the work category or the labour remuneration i for the current period t,

 $P_{ij}^{(0)}$: is the average annual price j of the reporting unit of the work category or the labour remuneration i in base year 0, the year 2015.

Backdated calculations (rescaled) of the quarterly and annual individual indices for the period: 1^{st} quarter of 2000 – 4^{th} quarter of 2018, were adjusted calculated using the annual index of every individual work, labour category or overall cost index in the year 2015, according to the following type:

$$R_{i\,(2015)}^{(t)} = R_{i\,(2010)}^{(t)} * \frac{100}{\bar{R}_{i\,(2015)}^{(2015)}}$$

where:

 $R_{i\,(2015)}^{(t)}$: is the individual work, labour category or overall cost index i in the current period (quarter, year) t with 2015 as base year,

 $R_{i\,(2010)}^{(t)}$: is the individual work, labour category or overall cost index i in the current period (quarter, year) t with 2010 as base year and

 $\overline{R}_{i(2010)}^{(2015)}$: is the individual mean annual index of the work, labour category or overall cost index i in 2015, with 2010 as base year.

18.5.1 Imputation - rate

No imputed values are used to substitute price collection in sample enterprises. Missing values are treated by estimating them by "repeating the last prices" during the period of non-response.

18.6 Adjustment

No quality adjustment methods are used.

18.6.1 Seasonal adjustment

The data are not seasonally adjusted.

19. Comment	<u>Top</u>
None.	