

## Single Integrated Metadata Structure (SIMS v2.0)

**Country:** Greece

**Compiling agency:** ELSTAT

**Domain name:** Material Costs Index for the Construction  
of New Residential Buildings (CSTM)

### ELSTAT metadata

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### 1. Contact

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<b>1.1 Contact organisation</b>	HELLENIC STATISTICAL AUTHORITY (ELSTAT)
<b>1.2 Contact organisation unit</b>	Business Statistics Division (B3) Manufacture – Construction Indices and Industrial Products Section (B33)
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<b>2. Metadata update</b> <a href="#">Top</a>	
<b>2.1 Metadata last certified</b>	14/06/2023
<b>2.2 Metadata last posted</b>	14/06/2023
<b>2.3 Metadata last update</b>	14/06/2023

<b>3. Statistical presentation</b> <a href="#">Top</a>	
<b>3.1 Data description</b>	
<p>The Material Costs Index for the Construction of New Residential Buildings measures the changes in the prices of construction materials used in the construction of new residential buildings.</p> <p>The data are monthly when they are collected and refer to Greece total and are presented as indices and rates of change. The index is compiled on a monthly basis and is released as follows:</p> <ul style="list-style-type: none"> <li>- Index with base year <b>2015=100.0</b></li> <li>- Monthly rates of change</li> <li>- Annual rates of change</li> </ul>	
<b>3.2 Classification system</b>	
<p>For the compilation of the index the following classifications are used:</p> <ul style="list-style-type: none"> <li>• Statistical classification of economic activities NACE Rev.2 of EU (pursuant to Regulation (EC) No 1893/2006 of the European Parliament and of the Council).</li> <li>• Classification of types in Construction – CC Classification.</li> </ul> <p>Moreover, a national classification is followed, which includes 91 categories of materials, aggregated in 15 groups.</p>	
<b>3.3 Sector coverage</b>	
<p>The Index covers the F - Construction sector of NACE Rev.2 and specifically group 41.2, which concerns the construction of residential buildings.</p>	
<b>3.4 Statistical concepts and definitions</b>	
<p>The Material Costs Index for the Construction of New Residential Buildings is a monthly index and it is one of the sub-indices of the construction costs index. It is an input index and it reflects the purchase prices of materials paid by the constructors of new residential buildings.</p>	
<b>3.5 Statistical unit</b>	
<p>The reporting unit for the collection of prices is the enterprise.</p>	
<b>3.6 Statistical population</b>	
<p>The statistical population refers to construction enterprises involved in the construction of new residential buildings. The selection of the enterprises was made in the biggest urban cities, based on their turnover and the ability to provide continuous pricing.</p>	
<b>3.7 Reference area</b>	
<p>The geographical coverage refers to the whole of the country. The prices are collected only from the biggest cities of Greece, as the: Greater Athens, Thessaloniki, Patras, Herakleion, Larisa and Volos.</p>	
<b>3.8 Time coverage</b>	
<p>From January 2000 onwards, the time series for the Material Costs Index, with base year 2015 (2015=100.0), are available on a monthly basis.</p>	

### 3.9 Base period

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

## 4. Unit of measure

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Indices, percentage changes (%).

## 5. Reference period

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The reference period is the month.

## 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

No data is exchanged.

## 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 this content, data are released simultaneously to all interested parties and users through the Announcement on the Material Cost Index, which is released on the official website of ELSTAT ([www.statistics.gr](http://www.statistics.gr)) according to the releases calendar. The Announcement is also available by e-mail.

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

## 9. Frequency of dissemination

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The Material Costs Index for the Construction of New Residential Buildings is disseminated on a monthly basis.

## 10. Accessibility and clarity

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### 10.1 Announcements

Every month, approximately 25 days after the end of the reference month, 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](http://www.statistics.gr)) at:

<http://www.statistics.gr/en/statistics/-/publication/DKT60/->

### 10.2 Publications

The Material Costs Index for the Construction of New Residential Buildings is 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 Material Costs Index for the Construction 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 CSTM amounted to 18,445 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](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](mailto:data.dissem@statistics.gr) and [data.supply@statistics.gr](mailto:data.supply@statistics.gr).

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

<http://www.statistics.gr/en/statistical-data-request>

More links for data dissemination:

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

<http://www.statistics.gr/en/statistics/-/publication/DKT60/->

<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 Material Costs Index 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/DKT60/->

#### 10.6.1 Metadata completeness – rate

The metadata of the CSTM are posted on the webpage of ELSTAT: [www.statistics.gr](http://www.statistics.gr)

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/DKT60/->

## 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 index: from the data collection stage to the final compilation of the index.

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 index is 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

The Material Costs Index for the Construction of New Residential Buildings is considered as a highly reliable index. It is being compiled in Greece since 1971; therefore, the personnel have acquired a lot of experience in its compilation. However, European and international standards and guidelines are strictly observed as regards both the concepts and definitions and the methodology.

## 12. Relevance

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### 12.1 User needs

The Material Costs Index for the Construction of New Residential Buildings covers national needs, as well as needs of European and other users. The main national users of the CSTM are the government, other public agencies, the Central Bank of Greece, other Hellenic banks, the Hellenic Federation of Enterprises (SEV), the Foundation for Economic and Industrial Research (IOBE), the Centre for Planning and Economic Research, chambers, etc., while at international level, the indices are used by Eurostat, the International Monetary Fund (IMF), the United Nations (UN), etc.

Users' needs vary. 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, so as the government is able to define the monetary policy, and the enterprises or other institutions to facilitate the decision-making for undertaking initiatives in order to enhance growth. At European level, there is the need for comparable statistics at all levels, in order to define the European monetary 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 months, 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 presents 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, absolute 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/en/user-conference>

### 12.3 Data completeness

The compilation of the Material Costs Index for the Construction of New Residential Buildings 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 CSTM 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 Parliament and 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 Material Costs Index for the Construction of New Residential Buildings is 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 CSTM because the purposive sampling technique is applied.

About 280 commercial or industrial enterprises, supplying materials to constructors or construction enterprises are used as the reporting units for monthly prices collection. For electricity (mainly the construction electricity), prices are collected from the Public Power Corporation, while for water; data are provided by water supplies companies.

The geographical coverage of the index includes the country as a whole, while the prices are collected only in the biggest cities of the country (Greater Athens, Thessaloniki, Patra, Herakleion, Larisa and Volos). The index calculates the price changes of 91 categories of materials aggregated in 15 groups, by recording price data of 1,512 varieties of that kind of materials.

### 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.

#### **13.3.1.1 Over-coverage – rate**

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 index is published approximately 25 days (t+25) after the end of the reference month.

### **14.2 Punctuality**

The index is 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 CSTM there are no mirror-flows statistics among EU Member States.

### **15.2 Comparability over time**

The available full time series of the revised index (2015=100.0) consists of the backcasted indices for the period January 2000 - February 2019 and of the calculated indices using the new weighting scheme after the change of the base year from March 2019 onwards.

Therefore, the time series of the Material Costs Index for the Construction of New Residential Buildings with base year 2015=100.0, which is available from January 2000 onwards, is 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 Price Indices of Work Categories for the Construction of New Residential Buildings.

#### **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 index during several time periods.

#### **15.4 Coherence - internal**

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

### **16. Cost and burden**

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According to the results of the Cost Assessment Survey covering the production of statistics in the ESS for the year 2022 launch by Eurostat and carried out by ELSTAT, it can be concluded that, regarding the staff of ELSTAT engaged in the compilation of the index, the annual cost in hours worked amount to 2,252. 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 2022, the annual average burden in hours worked is 1.6 hours per enterprise or totally 446 hours for all enterprises.

### **17. Data revision**

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#### **17.1 Revision policy**

The Material Costs Index for the Construction of New Residential Buildings 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 and 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 Parliament and 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 Material Costs Index for the Construction of 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 price collection takes place in the biggest urban centres (Greater Athens Area, Thessaloniki, Patra, Irakleio, Larisa and Volos). 280 commercial or industrial enterprises, supplying materials to constructors or construction enterprises are used as the reporting units. For electricity, prices are collected from the Public Power Corporation, while as regards water; data are provided by water supply companies. The index calculates the price changes in 91 categories of materials aggregated in 15 groups, by recording price data of 1,512 varieties of that kind of materials.

The prices of these materials are those which are actually paid by the construction enterprises for materials supplied at the site and do not include VAT or other taxes. Prices are collected on a monthly basis and usually refer to the middle period of the reference month.

#### **18.2 Frequency of data collection**

The data are collected on a monthly 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 price data for materials provided by each enterprise are pre-printed in the questionnaires and the prices charged for these materials are requested, during the reference

month. The prices are collected by means of the following ways:

- with personal visits of price collectors to the enterprises
- via 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 index a 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 index for the current period ( month ) t and

$R_i^{(t)}$  : the individual index of the material i during the current period (month) t and

$w_i$  : the corresponding weight of product i ,

with

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

$x_i$ : value of product i in 2015 year, i = 1, 2, ... n, number of products.

The individual index  $R_i^{(t)}$  of the material i is the simple arithmetic mean of the relevant prices of this material's varieties obtained from all reporting units, i.e.:

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

where :

$N_i$  : the count of materials varieties i from all reporting units,

$p_{ij}^{(t)}$  : the price j of the material's variety i in the current period t and

$p_{ij}^{(0)}$  : the average price j of the variety of the material i during base year 2015.

Backdated calculations for the monthly and annual materials price indices in the period January 2000 - February

2019, were adjusted calculated using the individual annual index of every material in the year 2015, according to the following type:

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

where:

$R_{i(2015)}^{(t)}$  : is the individual index of material i in the current period (month, year) t with 2015 as the base year,

$R_{i(2010)}^{(t)}$  : is the individual index of material i in the current period (month, year) t with 2010 as the base year and

$\bar{R}_{i(2010)}^{(2015)}$  : is the individual annual index of material 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 adjustment for data correction is used.

#### **18.6.1 Seasonal adjustment**

No seasonal adjustment is used.

## **19. Comment**

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None.