Single Integrated Metadata Structure (SIMS)

Country: Greece

Compiling agency: ELSTAT

Domain name: **Turnover index in Accommodation and Food Service Activities sector**

ELSTAT metadata

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1. Contact

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2. Introduction

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The Turnover Index in Accommodation and Food Service Activities sector is compiled, on a quarterly basis in the framework of the implementation of Regulation (EC) No 1165/98 of 19 May 1998 concerning short-term statistics (STS) as amended by Regulation (EC) No 1158/2005 of the European Parliament and of the Council of 6 July 2005 concerning short-term statistics. More specifically, it refers to the groups 55, 56 of Nace Rev.2. The Turnover Index in Accommodation and Food Service Activities sector is being compiled since 2005. The Index was revised with new base year 2010=100,0 and all time series up to the 1st quarter 2000 were backasted and dully adjusted.

Turnover excludes VAT and other similar deductible taxes directly linked to turnover as well as all duties and taxes on the goods or services invoiced by the unit.

3. Metadata update

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3.1 Metadata last certified	June 2018
3.2 Metadata last posted	June 2018
3.3 Metadata last update	June 2018

4. Statistical presentation

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4.1 Data description

The Turnover Index in Accommodation and Food Service Activities sector, covers Greece total, for the activities of Section I of the statistical classification NACE Rev 2 “Accommodation and Food Service Activities”. It includes the following groups: 55.1 (Hotels and similar accommodation), 55.2 (Holiday and other short-stay accommodation), 55.3 (Camping grounds, recreational vehicle parks and trailer parks), 55.9 (Other accommodation), 56.1(Restaurants and mobile food service activities), 56.2 (Event catering and other food service activities), 56.3 (Beverage serving activities).

4.2 Classification system

NACE Rev.2 is used in compliance with Regulation (EC) 1893/2006 of the European Parliament and of the Council.

4.3 Sector coverage

The Turnover Index in Accommodation and Food Service Activities sector, covers Greece total , for the activities of Section I of the statistical classification NACE Rev 2 “Accommodation and Food Service Activities” and more specifically the following groups: 55 and 56.

4.4 Statistical concepts and definitions

The turnover indices in services are important business indicators, which show the evolution of the services market. The objective of these indices is to calculate the activity of the surveyed sector in value terms. Turnover includes the total amounts invoiced by the observation unit during the reference period (quarter) and corresponds to the market sales of goods and services supplied to third parties. It also counts any additional subsidies of products/services. Turnover excludes VAT and other similar deductible taxes directly linked to turnover, as well as all duties and taxes on the goods or services invoiced by the observation unit. It doesn’t include other operating income, financial income and extraordinary income in business.

4.5 Statistical unit

The sampling unit for the collection of data of the survey is the enterprise.

4.6 Statistical population

The compilation of this index encompasses enterprises of NACE Rev. 2 groups 55 and 56 with annual turnovers equal to or higher than 250,000 euros.

4.7 Reference area

All enterprises of the groups 55 and 56 of the statistical classification NACE Rev 2 “Accommodation and Food Service Activities” in Greece are covered.

4.7_01 Coverage of the full national territory and exceptions

The survey covers the whole national territory.

4.7_02 Coverage of activities performed outside the national territory

No activities outside the national territory are covered.

4.8 Time coverage

The time series of the Accommodation and Food Service Activities sector with base year 2010=100.0 are released on a quarterly basis since the first quarter 2,000 onwards.

4.9 Base period

The base year is the year 2010 (2010=100,0)

5. Unit of measure

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Index. Percentage changes (%) (quarterly).

6. Reference period

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The reference period is the quarter.

7. Institutional mandate

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7.1 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 (EC) No 223/2009 of the European Parliament and of the Council**, on the European statistics (Official Journal of the European Union L 87/164).
- **Article 14 of the Law 3470/2006** (Government Gazette No 132, Issue A): *"National Export Council, tax regulations and other provisions"*.
- **Article 3, paragraph 1c, of the Law 3448/2006** (Government Gazette No 57, Issue A): *"For the further use of information coming from the public sector and the settlement of matters falling within the responsibility of the Ministry of Interior, Public Administration and Decentralization"*.
- **European Statistics Code of Practice**, adopted by the Statistical Programme Committee on 24 February 2005 and promulgated in the Commission Recommendation of 25 May 2005 on the independence, integrity and accountability of the national and Community statistical Authorities, after its revision, which was adopted on 28 September 2011 by the European Statistical System Committee.
- **Presidential Decree 226/2000** (Government Gazette No 195, Issue A): *"Organization of the General Secretariat of the National Statistical Service of Greece"*.
- **Articles 4, 12 , 13, 14, 15 and 16 of the Law 2392/1996** (Government Gazette No 60, Issue A): *"Access of the General Secretariat of the National Statistical Service of Greece to administrative sources and administrative files, Statistical Confidentiality Committee, settlement of matters concerning the conduct of censuses and statistical works, as well as of matters of the General Secretariat of the National Statistical Service of Greece".*

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

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Eurostat legislation:

The legal basis for the index in Accommodation and Food Service Activities sector is the Council Regulation No 1165/98 of 19 May 1998 concerning short-term statistics (STS) as amended by the Regulation (EC) No 1158/2005 of the European Parliament and of the Council of 6 July 2005 concerning short-term statistics.

The definitions of short-term statistics variables are laid down in Commission Regulation No 1503/2006 of September 2006.

7.2 Data sharing

There are not any international agreements.

8. Confidentiality

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8.1 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

8.2 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.

9. Release policy

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9.1 Release calendar

In September of each year ELSTAT publishes a release calendar which includes the exact dates for the release of all the statistical data for the following year.

9.2 Release calendar access

The calendar is disseminated to the press and is available to all interested parties free of charge.
This calendar is also posted on the website of the ELSTAT (www.statistics.gr) at the link: "Press Releases Calendar".
http://www.statistics.gr/en/calendar

9.3 User access

In line 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 Press Release on the The Turnover Index in Accommodation and Food Service Activities sector, which is posted on the website of ELSTAT (www.statistics.gr) and specifically under the link: http://www.statistics.gr/en/statistics/-/publication/DKT51/- according to the release calendar. This press release is also available by fax or e-mail to all interested parties. 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. In compliance with Community legislation and the European Statistics Code of Practice, ELSTAT releases all national statistical data on its webpage, fully observing professional independence and with a view to ensuring the simultaneous, equal and timely access of all users to statistical data.

10. Frequency of dissemination

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The index in Accommodation and Food Service Activities sector is disseminated on a quarterly basis.

11. Dissemination format

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11.1 News release

Every month, about 67 days after the end of the reference month, at 12:00, a Press Release is published which presents the newly calculated Index in Accommodation and Food Service Activities sector in Greek and English. The press release is sent, free-of-charge, and mostly by email to the press and to other interested parties. The press release is also available on the website of ELSTAT (www.statistics.gr).

11.2 Publications

Data on the index in Accommodation and Food Service Activities sector are published in several publications of ELSTAT such as "The Greek Economy" and in the special edition issued for the "International Fair of Thessaloniki".

11.3 On-line database

Data on the index have not published on the on- line database. However, there are available data at the following link: http://www.statistics.gr/en/statistics/-/publication/DKT51/-

11.3.1 Data tables - consultations

Users' consultation as regards the survey on the index in Accommodation and Food Service Activities sector, for the year 2016, amounts to 14,458 webpage hits. There is no possibility to make a distinction between user's consultations on

data tables and user's consultation on metadata.

11.4 Micro-data access

Data are available after submitting a request to ELSTAT, Division of Statistical Information and Publications, Peiraios 46 & Eponiton , 18510, Piraeus (tel. (+30) 213 135 2022, Fax: (+30) 213 135 2312, e-mail: (data.dissem@statistics.gr). For confidentiality reasons, users can have access to micro-data, only under strict conditions and with respect to the relevant process.

Confidentiality of data is always ensured. More details on this issue are availiable on the website of ELSTAT at the following link: http://www.statistics.gr/en/scientific_provision_data

11.5 Other

Users can be given data or further analysis, usually by fax or e-mail after submitting a request, describing the requested data, to the Division of Statistics on Trade and Services/ Tourism Section or to the Section of Statistical Dissemination, at the following e-mail addresses: Trade-Servises@statistics.gr, tourism.sector@statistics.gr, data.dissem@statistics.gr and data.supply@statistics.gr.

11.5.1 Metadata – consultations

See 11.3.1 above.

12. Accessibility of documentation

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12.1 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 Methodology of Short-term Business Statistics, Interpretation and guidelines, 2006, contains a comprehensive set of recommendations on the compilation of the STS statistics.
The relevant methodological document is available at the following link:

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

12.1.1 Metadata completeness - rate

Metadata for the compilation of the index in Accommodation and Food Service Activities sector are available on the website of ELSTAT www.statistics.gr , with metadata completeness accounts to 100%.

12.2 Quality documentation

A user oriented quality report is available on the website of ELSTAT at the link :
http://www.statistics.gr/en/statistics/-/publication/DKT51/-

13. Quality management

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13.1 Quality assurance

The Hellenic Statistical Authority (ELSTAT) aims to ensure and further improve the quality of statistics produced and maintain the confidence of users in them. This is achieved through the Quality Policy of ELSTAT which is posted on the website of ELSTAT and is available at the following link:

http://www.statistics.gr/documents/20181/2571f853-1e37-46da-9387-595bbe2a162b .

Quality control 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 which are 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 value. 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 to the final results, mainly by means of comparing the percentage changes of the corresponding quarters.

13.2 Quality assessment

The index in Accommodation and Food Service Activities sector is considered to be a highly reliable index. It is an index that is being compiled in Greece since 2005, so the personnel have acquired a lot of experience in its compilation. Moreover, its concepts and methodology have been developed according to international standards and guidelines.

14. Relevance

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14.1 User needs

The index in Accommodation and Food Service Activities sector meets national needs and the needs of European users. Generally, the index provides statistical information necessary to improve the competitiveness and performance of the business community.

The main national users of the Index are the government, other public agencies, the Central Bank of Greece, other Hellenic banks and private researchers, etc., while at international level, the Index is used by Eurostat and other international organizations (ECB, IMF, OECD), etc.

14.2 User satisfaction

Generally, there is a smooth cooperation, through prompt response to users' requests. Users' comments are positive.

Moreover, ELSTAT conducts a user satisfaction survey every year. Comments on media are also positive. More information about the results of the survey is available on the Library Newsletter at:

http://www.statistics.gr/en/user-satisfaction-survey .

14.3 Completeness

The compilation of The Turnover Index in Accommodation and Food Service Activities sector and the data provided are in line with the relevant EU Regulations.

15. Accuracy and reliability

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15.1 Overall accuracy

The index is characterised by very good accuracy. The compilation of this index encompasses enterprises with annual turnovers equal to or higher than 250.000 euros. (See also 21.1 Source data). The common sample of enterprises used in the index ensures accurate presentation of the evolution of the Index over several time periods.

The sources of errors that impact on the accuracy of the index are sampling and non-sampling errors.

Efforts are made in order to reduce as far as possible errors during the collection process, monitoring and control response rate of editing and subsequent allocation of the lack of response. The sampling errors of the index arise from the fact that not all units of the target population are enumerated, but only a sample of them. The sample size of the survey ensures accurate estimates for the overall index.

As regards non-sampling errors, these are mostly due to measurement errors and to the non-response of some enterprises. Any measurement errors are detected by means of quality checks and are duly corrected. Concerning the non response, telephone contacts and field visits are conducted in order to increase the response rate and to reduce the impact of non response on the accuracy of the index.

15.2 Sampling error

The enterprises of the sample were selected on the basis of the single random stratified sampling. (See also 21.1 Source data). The sampling error is < 8%.

More specifically the sampling rate, per quarter of the year 2017, ranges as follows:

Quarters	%CV
1st	6.8
2nd	4.9
3rd	6.8
4th	4,6

15.3 Non-sampling error

There are no errors, which have to do with inconsistent use of definitions. Some measurement errors may occur, such as errors in the data provided by the surveyed enterprises. Theses errors are usually easy to identify, through checks and cross-checks with the data provided by the enterprises during the previous years and these errors are corrected after telephone communication with the stakeholders.

15.3.1 Coverage error

Due to the lack of recent information from administrative sources regarding the new enterprises the coverage of the sampling frame cannot be fully assessed. However with the expected transmission to ELSTAT of data from administrative sources the impact of coverage errors will be assessed and revisions might follow.

15.3.1.1 Over-coverage – rate

Due to the lack of recent information from administrative sources regarding the new enterprises the coverage of the sampling frame cannot be fully assessed. However with the expected transmission to ELSTAT of data from administrative sources the impact of coverage errors will be assessed and revisions might follow.

15.3.1.2 Common units – proportion

Not applicable. Only survey.

15.3.2 Measurement error

Any measurement errors during the process of data collection are detected by means of quality checks and are duly corrected.

15.3.3 Non response error

The compilation of the index encompasses enterprises with annual turnovers equal to or higher than 250.000 euros.

In the case of non response, the surveyed enterprise is contacted by telephone, or is sent a reminder by fax or e-mail. In addition, in the estimation process of the index, the base weights of the respondent enterprises are adjusted to compensate for non-response and to make weighted sample totals conform to known population totals by categories of aggregated economic activity classes and by the size of enterprises.

15.3.4 Processing error

Processing errors are minimized because all the relevant tasks are performed by using a special software application and logical controls are performed.

15.3.5 Model assumption error

No model is used for the compilation of the Index.

16. Timeliness and punctuality

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16.1 Timeliness

The index is published about 67 days after the end of the reference quarter.

16.2 Punctuality

The turnover Index in Accommodation and Food Service Activities sector is published according to the pre-announced release calendar.

17. Comparability

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17.1 Comparability - geographical

The STS Regulations and the STS methodological guidelines are applied for the compilation of the index, thus ensuring a good comparability between the Index and the other national and European statistics, taking always into account any special conditions prevailing in each country, which may dictate minor methodological deviations.

17.1.1 Assymetry for mirror flows statistics – coefficient

There are no mirror flows statistics among EU Member States in the turnover Index in Accommodation and Food Service Activities sector.

17.2 Comparability over time

The time series of the index with base year 2010=100.0, which is available from the 1st quarter 2,000 onwards, is considered fully comparable over time.

18. Coherence

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18.1 Coherence cross-domain

Regular checks are carried out on the basis of information from the other surveys. The results coming from the survey of the Index are compared with the annual results of the survey of the "Structural Business Statistics in Accommodation and Food services Activities sector" and no problems on coherence have been observed.

18.1.1 Coherence – sub annual and annual statistics

SBS and STS data (change rates) are considered coherent taking into account the following :

1. There is a differece in the European definition of turnover between STS and SBS.

2. Furthemore, any small differences observed in the growth rates between the index and the turnover of the survey "Structural Business Statistics in Accommodation and Food services Activities sector" are mostly due to the fact that the index is compiled on the basis of a common sample of enterprises used for every quarter, which is updated when the Index is revised with a new base year. The survey of the index is conducted just after the end of the reference quarter. On the other hand, in the SBS survey the sample of enterprises is updated on a yearly basis, (except for the very big enterprise) and the survey is conducted at a later stage, after the end of the reference year.

18.1.2 Coherence – National Accounts

The index is used for the computation of quarterly GDP data in Accommodation and Food Services Activities sector. Differences on change rates have been observed due to the fact that the definition of the variables between of the surveys STS and National Accounts are not identical.

18.1.3 Completeness of the metadata on cross domain

All the STS requirements, coming from the relevant legislation which covers the index, are fulfilled. All the necessary checks are carried out in order to eliminate any measurement errors. Quality checks of data are conducted throughout the whole process of the production of statistics. Moreover, the coherence of STS with other surveys is also checked.

18.2 Coherence - internal

There is internal coherence among the variables and the definitions of the survey.

19. Cost and burden

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There are not available data concerning cost and burden of enterprises of the survey.

20. Data revision

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20.1 Revision policy

The index is published about 67 days after the end of the reference quarter. Data is provisional when first released. The index is revised simultaneously with the publication of the next quarter.
Moreover, in accordance with the requirements of the Council Regulation (EC) No 1165/98 concerning short-term statistics, short-term indices are revised every five (5) years, particularly in calendar years ending in 0 or 5. In this framework, the index in fully revised every five years, with the revision of the base year, the renewal of the sample of the enterprises and the estimation of new weighting factor. The latest revision of the index, with base year 2010=100.0, was completed in the 3rd quarter 2013.

Generally, the same revision policy is applied to data released nationally and to data transmitted to Eurostat, in order to assure consistency.

20.2 Revision practice

The revision Policy of ELSTAT, which is implemented and is available at the following link:

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

21. Statistical processing

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21.1 Source data

For the purposes of the survey for the compilation of the revised turnover Index in Accommodation and Food Service Activities sector (2010=100.0), a representative sample of 249 enterprises was selected from the whole country that belong to branches of economic activities of the groups 55 and 56 of the statistical classification NACE Rev 2 "Accommodation and Food Service Activities".

The enterprises of the sample were selected on the basis of the single random stratified sampling. For each of he 2-digit branches of economic activity the surveyed enterprises were further stratified into 7 size classes (strata) on the basis of their annual turnover for the year 2010 as follows:

1st class: 250,000 – 599,999.9 euro

2nd class: 600,000 – 1,299,999.9 euro

3rd class: 1,300,000 – 2,699,999.9 euro

4th class: 2,700,000 – 5,299,999.9 euro

5th class: 5,300,000 – 9,999,999.9 euro

6th class: 10,000,000 – 19,999,999.9 euro

7thclass: 20,000.000 – and over euro

21.2 Frequency of data collection

Data are collected on a quarterly basis.

21.3 Data collection

Data are collected through a specially designed questionnaire.The questionnaires are sent by post and they are collected by means of the following ways:

-via post

-via fax

-via e-mail.

In case of non-response, the surveyed enterprise is contacted by telephone, or is sent a reminder by fax or e-mail.

21.4 Data validation

Tabulated data are validated through logical checks both by ELSTAT and Eurostat. During data processing, the data are checked in order to identify and duly correct any errors. It is obvious that it is not possible to detect all the errors but emphasis is put on those having a major impact on the results. Once identified, they are further investigated in cooperation with the enterprise in order to confirm that it is an error or just an unusual value.

21.5 Data compilation

The Turnover Index in Accommodation and Food Service Activities Sector is compiled on the basis of the chain-linking method and is in full compliance with the methods and guidelines stipulated in Eurostat's Manual *"Methodology of short – term business statistics, October 2005 Edition*". At a first stage, the moving-base index was calculated, by comparing the "estimated" turnover value of the data of the sample enterprises of the current quarter with the corresponding value of the previous quarter. The fixed-base index at each 2-digit level of economic activity of the current quarter is calculated by multiplying the moving-base index by the fixed-base index of the previous quarter.

The first step in compiling the index shall be to estimate, from the enterprises of the sample, the turnover value $\hat{Y}q$ for the current quarter q, which then has to be compared with the corresponding estimate for the previous quarter $\hat{Y}_{q-1}$ (moving-base index).

The turnover estimation for the current quarter is obtained by multiplying the quarterly turnover value of each enterprise by an appropriate weighting factor and then adding the partial products. This weighting factor for each turnover of stratum h (cross-linking the division and the turnover stratum) is defined as the quotient obtained by dividing the total number of enterprises N_h by the number of enterprises in sample n_h.

The weighting factor a_h for each enterprise in stratum h is given by the equation

$$\alpha_h = \frac{N_h}{n_h}$$

where

N_h is the total number of enterprises in stratum h

n_h is the number of enterprises in stratum h included in the sample.

It should be noted that in the last stratum (stratum 7) the weighting factor is a_h=1, since all the enterprises in the stratum are surveyed on a census basis (N_h=n_h).

The estimate $\hat{Y}q$ of the turnover value Yq for the current quarter q, in any two-digit division of economic activity, is given by the equation

$$\hat{Y}_q = \sum_{h=1}^{7} \sum_{i=1}^{n_h} \alpha_h * y_{qhi}$$

where y_{qhi} is the turnover value for the current quarter q of the i^{th} enterprise in stratum h.

The index is calculated by the chain-linking method.

First the moving-base index is calculated by comparing the 'estimated' turnover value for the current quarter with the corresponding value for the previous quarter.

The fixed-base index for the two-digit division of economic activity for the current quarter q is thus obtained by multiplying the moving-base index by the fixed-base index of the previous quarter.

The above is the product of the equations:

$$I_{Y_q} = I_{q,q-1} * I_{Y_{q-1}}$$

and

$$I_{q,q-1} = \frac{\hat{Y}_q}{\hat{Y}_{q-1}}$$

where

I_{Yq} is the fixed-base index for the current quarter q,

$I_{q,q-1}$ is the moving-base index for the current quarter q, in relation to the previous quarter q-1,

$I_{Y_{q-1}}$ is the fixed-base index for the previous quarter q-1, and

$\hat{Y}_q$, $\hat{Y}_{q-1}$ are the corresponding turnover estimates for the current and previous quarters.

It should be noted that, the first fixed-base index I_{Y1} of the base year, that is the index for the first quarter of 2010 (q=1), is approximated by the following equation:

$$I_{Y_1} = \frac{\hat{Y}_1}{\hat{Y}_0} * 100$$

where

$\hat{Y}_1$ is the turnover estimate for the first quarter of 2010, and

$\hat{Y}_0$ is the mean quarterly turnover estimate for the year 2010.

That is to say:

$$\hat{Y}_0 = \frac{\sum_{q=1}^{4} \hat{Y}_q}{4},$$

where

$\hat{Y}_q$ is the turnover estimate for the quarter q of the year 2010.

If the fixed-base index for the reference quarter is compared with the fixed-base index for the same quarter of the

previous year, the percentage changes (+ or –) are calculated and we thus have:

$$\left[\frac{I_{Y_q}^{t}}{I_{Y_q}^{t-1}} - 1\right] * 100$$

where

$I_{Y_q}^{t}$, $I_{Y_q}^{t-1}$ are the fixed-base indices for the quarter q of the current year t and the previous year t-1, respectively.

The time series of the indices was revised with base year 2010=100,0 by multiplying the indices calculated with base year 2005=100,0 by the following weighting coefficient.

$$R_{k(2010)}^{(t)} = R_{k(2005)}^{(t)} \cdot b_k$$

where:

$$b_k = \frac{100}{\bar{R}_{k(2005)}^{(2010)}}$$

$R_{k(2010)}^{(t)}$: the index of the section k during the current period (quarter, year) t with base year 2010,

$R_{k(2005)}^{(t)}$: the index of the section k during the current period (quarter, year) t with base year 2005 and

$\bar{R}_{k(2005)}^{(2010)}$: the average annual index of the section k in the year 2010 with the base year 2005.

21.5.1 Imputation – rate

No imputation is used to replace turnover values in the sample enterprises.

21.6 Adjustment

The index is adjusted to the working days of the months of the quarters.

The initial data refer to calendar months, which do not all have the same number of working days (e.g. February, March, etc.), and therefore the compiled indices are not comparable. In order to overcome this default, an adjustment of the indices takes place in order to make them of equal duration.

The adjustment is made by multiplying the indices of four-digit level with appropriate weighting coefficient α_t calculated as follows:

$$a_t = \frac{\bar{x}}{x_t}$$

where:

$\bar{x}$: the average monthly number of working days, of the current year,

x_t : the number of working days in month t.

These weighting coefficient are reviewed annually.

21.6.1 Seasonal adjustment

No seasonal adjustment.

22. Comment

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