Single Integrated Metadata Structure (SIMS)

Country: Greece

Compiling agency: ELSTAT

Domain name: Turnover index in Transport Sector

ELSTAT metadata

Reference metadata

1. Contact
2. Introduction
3. Metadata update
4. Statistical presentation
5. Unit of measure
6. Reference period
7. Institutional mandate
8. Confidentiality
9. Release policy
10. Frequency of dissemination
11. Dissemination format
12. Accessibility of documentation
13. Quality management
14. Relevance
15. Accuracy and reliability
16. Timeliness and punctuality
17. Comparability
18. Coherence
19. Cost and burden
20. Data revision
21. Statistical processing

22. Comment

1.	Contact	
1.1 Contact organisation	HELLENIC STATISTICAL AUTHORITY (ELSTAT)	
1.2 Contact organisation unit	Division of Statistics on Trade and Services	
1.3 Contact names	Argyro Dalli (div.49,51,52,79), Anastasia Likou (div. 50)	
1.4 Contact person function	Employees	
1.5 Contact mail address	Pireos 46 & Eponiton, 185 10 Piraeus, Greece	
1.6 Contact email address	transport@statistics.gr, trade.services@statistics.gr, a.ntalli@statistics.gr, a.lykou@statistics.gr	
1.7 Contact phone number	Argyro Ntalli, tel. (0030) 213 1352499 Anastasia Lykou, tel. (0030) 213 1352275	
1.8 Contact fax number	(0030) 213 135 2496, (0030) 213 135 2398	

2. Introduction

The Turnover Index in Transport Sector sector is compiled on a quarterly basis in the framework of the implementation of the Regulation (EC) No 1165/98 of 19 May 1998, concerning short-term statistics (STS-R) 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. More specifically, it refers to the divisions 49, 50, 51, 52, 79 of Nace Rev.2. The Turnover Index in Transport Sector is being compiled since 2005. The Index was revised with new base year 2010=100,0 and all timeseries up to the 1st quarter 2000 were backasted and duly adjusted.

3. Metadata update

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

4. Statistical presentation

4.1 Data description

The Turnover Indices in Transport Sector cover the whole country and are compiled for divisions 49 – land transport and transport via pipelines, 50 – water transport, 51 – air transport, 52 – warehousing and support activities for transportation and 79 – travel agency, tour operator reservation services and related activities of NACE – Rev.2 statistical classification.

4.2 Classification system

NACE Rev.2 classification (Statistical Classification of Economic Activities in the European Community) is used for the STS indicators (in compliance with the Regulation EC-1893/2006).

4.3 Sector coverage

The Turnover Index in Transport Sector covers the whole country, for the activities of Section I of the statistical classification NACE Rev. 2 "Transport". It covers the divisions 49, 50, 51, 52

and 79.

4.4 Statistical concepts and definitions

The turnover indices in Transport 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 sectors in value terms.

Turnover comprises the totals invoiced by the observation unit during the reference period (quarter) and corresponds to the market sales of goods and services supplied to third parties. Any subsidies on goods or services are also included. 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. Income classified as other operating income, financial income and extraordinary income in company accounts is also excluded from turnover.

4.5 Statistical unit

The sampling unit is the enterprise.

4.6 Statistical population

The compilation of this index encompasses enterprises with annual turnover equal to, or higher than, 250,000 euros. Enterprises surveyed under divisions 50 and 52 have an annual turnover exceeding 600,000 euros, while the turnover for enterprises under division 51 exceeds 350,000,000 euros. The sample comprises of 423 enterprises from all surveyed divisions for the whole country.

4.7 Reference area

All regions of Greece.

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 Transport sector with base year 2010=100.0 is being released on a quarterly basis from the first quarter of 2000 onwards.

4.9 Base period

The base year is 2010 (2010=100.0).

5. Unit of measure	Top

Index. Percentage changes (%) (quarterly and annual).

6. Reference period	Top

The reference period is the quarter.

7. Institutional mandate	Top

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

Eurostat legislation:

The legal basis for the index in Transport sector is the Council Regulation No 1165/98 of 19 May 1998 concerning short-term statistics (STS-R) 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 Top

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/documents/20181/1609796/ELSTAT_Statistical_Confidentiality_Policy_EN.pdf/c79e5ac8-469c-433d-b4e6-8433319b21d2

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

9.1 Release calendar

A release calendar is available on the website with the precise release dates of statistics for the following year.

9.2 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 (www.statistics.gr) under the link: "Announcements Calendar".

http://www.statistics.gr/documents/20181/5346500/elstat_press_releases_calendar_2018_en.pdf/9db7341f-d544-4db6-9401-3a52df9b43d4

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 Transport sector, which is posted on the website of ELSTAT (www.statistics.gr) and specifically under the link:

http://www.statistics.gr/en/statistics/-/publication/DKT48/-

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	Top

The index in Transport sector is disseminated on a quarterly basis.

11. Dissemination format	Top

11.1 News release

Every quarter, 67 days after the end of the reference month, at 12.00, a Press Release is published which presents the newly calculated Index in Transport 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 of the index in Transport sector are used in several publications of ELSTAT such as specific publications, "The Greek Economy", " Greece in figures", special edition "International Fair of Thessaloniki".

11.3 On-line database

Data of the index have not been published at the on-line database.

Data are available at the website of ELSTAT.

11.3.1 Data tables - consultations

Users' consultation regarding the survey on the index in Transport sector amounts to **3,205** webpages hits for the year 2017. It is not possible to distinguish between users' consultations on data tables and users' consultation on metadata.

11.4 Micro-data access

Data are available after submitting a request to ELSTAT, Division of Statistical Information and Publications, Pireos 46 & Eponiton, 18510, Piraeus (τηλ. (+30) 213 135 2022, Fax: (+30) 213 135 2312, e-mail: data.dissem@statistics.gr

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 Transport Section or to the Section of Statistical Dissemination, at the following e-mail addresses:
Trade.Services@statistics.gr, transport@statistics.gr, data.dissem@statistics.gr and data.supply@statistics.gr.

11.5.1 Metadata – consultations

The metadata were published for the first time in 2014.

12. Accessibility of documentation	Top

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.
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 Transport sector are available on the website of ELSTAT (www.statistics.gr), so the completeness rate is 100%.

12.2 Quality documentation

A user oriented short quality report is available at the link :
http://www.statistics.gr/en/statistics/-/publication/DKT48/2014-Q1

13. Quality management   Top

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 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 deals with all the stages of the compilation of the indices, that is: 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 long-standing experience with the enterprises under survey.

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 looked into, 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 Transport Index 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   Top

14.1 User needs

The index in Transport 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.

Generally, there is a good 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 Tranasport sector and the data provided are in line with the relevant EU Regulations.

15. Accuracy and reliability   Top

15.1 Overall accuracy

The index is characterised by high accuracy because sampling errors do not exceed 3%. As regards non-sampling errors, these are mostly due to erroneous counting and to the non-response of some enterprises. The efforts are mostly focused in identifying and correcting as many errors as possible during the revision of data. The compilation of this index encompasses enterprises with annual turnovers equal to or higher than 250,000 euros and more than 75% of the total turnover is represented.

15.2 Sampling error

The enterprises of the sample were selected on the basis of the single random stratified sampling. The sampling error is <6%. More specifically the sampling rate, per quarter of the year 2017, ranges as follows:

The sampling errors, expressed as coefficient of variation (%):

Quarters   %CV

1st   2.4

2nd   3.7

3rd   4.4

4th   5.7

15.3 Non-sampling error

There are no errors, which have to do with inconsistent use of definitions. Some counting 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 accountants.

15.3.1 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 in Transport sector was designed.

15.3.1.1 Over-coverage – rate

No over-coverage errors are observed.

15.3.1.2 Common units – proportion

The same –common– sample of enterprises is used every quarter for the compilation of the Index. The sample is revised when the base year changes and remains the same for as long as the base year is the same.

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

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

15.3.4 Processing error

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

15.3.5 Model assumption error

No model is used for the compilation of the Index.

16. Timeliness and punctuality Top

16.1 Timeliness

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

16.2 Punctuality

The turnover Index in Transport sector is published according to the pre-announced release calendar.

17. Comparability Top

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 Transport sector.

17.2 Comparability over time

From the 3rd quarter 2013 onwards, the time series of the revised turnover index in Transport sector, with base year 2010 (2010=100.0) was backasted and duly adjusted. Therefore, the time series of the index with base year 2010=100.0, which is available from January 2000 onwards, is considered fully comparable over time.

18. Coherence	

18.1 Coherence cross-domain

Regular controls are carried out on the basis of information from other surveys. The results of the Index are compared with results from the survey of the "Structural Business Survey on transport, storage and communications" and no problems on coherence have been observed.

18.1.1 Coherence – sub annual and annual statistics

Any small differences observed in the growth rates between the index and the turnover of the survey "Structural Business Survey on transport, storage and communications" are mostly due to the fact that for the compilation of the index a common sample of enterprises is used for every quarter, which is updated when the Index is revised with a new base year, while in the SBS survey the sample of enterprises is updated on a yearly basis, except for very big enterprises. The common sample of enterprises used in the index ensures accurate presentation of the evolution of the Index over several time periods.

18.1.2 Coherence – National Accounts

The index is used for the computation of quarterly GDP data in Transport sector. Therefore, there is a coherence.

18.2 Coherence - internal

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

19. Cost and burden	

There are not available data concerning cost and burden of enterprises of the survey. Given the fact that only an amount is collected, the burden is considered rather low.

20. Data revision	

20.1 Revision policy

The index is published 67 days after the end of the reference quarter. The index is published 67 after the end of the reference 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 implementation of new weighting scheme. The latest revision of the index, with base year 2010=100.0, was completed in the 3rd quarter 2013.

20.2 Revision practice

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

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

21. Statistical processing	

21.1 Source data

For the purposes of the survey, regarding the compilation of the revised turnover Index in Transport (2010=100.0), a representative sample of 423 enterprises from the whole country that belong to branches of economic activities of the divisions 49, 50, 51, 52 and 79 of the statistical classification NACE Rev.2 "Transport", was selected.

The enterprises of the sample were selected on the basis of one-stage stratified random sampling. For each of the 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 euros

2nd class: 600,000 – 1,299,999.9 euros

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

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

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

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

7th class: 20,000,000 euro and more

21.2 Frequency of data collection

Data are collected on a quartely 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:

- post
- fax
- 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

Tabular data are validated through logical checks by both ELSTAT and Eurostat. During data processing, the data are checked in order to identify and duly correct any errors. Efforts are oriented towards detecting all errors that may have a major impact on the results. Once identified, they are further looked into, in cooperation with the enterprise, in order to confirm that it is a simple mistake or just an unusual value.

21.5 Data compilation

The Turnover Index in Transport Sector is compiled on the basis of the chain-linking method and 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 records kept by the

enterprises in 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 estimate for the current quarter is obtained by reduction from the entire set of relevant data supplied by the enterprises in the sample. This is achieved by multiplying the quarterly turnover value of each enterprise by an appropriate reduction factor and then adding the partial products. This reduction factor for each turnover 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 reduction 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 reduction 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 ith enterprise in stratum h.

The index is calculated by the chaining 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 for 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_{Y_q} 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, in calculating the first fixed-base index I_{Y1} of the base year, that is the index for the first quarter of 2010 (q=1), the following equation applies:

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

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.

$$\frac{100}{\bar{I}_{05}^{10}}$$

where $\bar{I}$ is the average of the indices of the year 2010 with base year 2005=100.0

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.

21.6.1 Seasonal adjustment

The index is not seasonally adjusted.

22. Comment