Single Integrated Metadata Structure (SIMS v2.0)

Country: Greece

Compiling agency: ELSTAT

Domain name: Retail Trade Turnover Index

ELSTAT metadata

Reference metadata

1. Contact	Top
1.1 Contact organisation	Hellenic Statistical Authority (ELSTAT)
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2. **Metadata update**	
2.1 Metadata last certified	15/6/2022
2.2 Metadata last posted	15/6/2022
2.3 Metadata last update	15/6/2022

3. **Statistical presentation**	

3.1 Data description

The Retail Trade Turnover Index refers to the whole country. The General Index is composed of the separate indices for the eleven (11) categories of aggregated economic activity classes. These categories result from the aggregation of the relevant economic activity classes (NACE Rev. 2 codes: 4711-4799).
The eleven (11) categories of aggregated economic activity classes of the Retail Trade Turnover Index are the following:

1. Supermarkets
2. Department stores
3. Food, beverages and tobacco
4. Automotive fuel-lubricants
5. Pharmaceuticals and cosmetics[1]
6. Clothing and footwear[2]
7. Furniture, electrical goods, household goods[3]
8. Books, stationery and other articles[4]
9. Retail sale via mail order houses or via Internet
10. Retail sale of second-hand goods in stores
11. Retail trade not in stores, stalls or markets

The breakdown of the Retail Trade Volume Index is similar, the difference being that for the last three categories, it is not calculated the Volume Index.

3.2 Classification system

NACE Rev.2 statistical classification of economic activities is applied, in conformity with Regulation (EC) 1893/2006 of the Council and the European Parliament.

3.3 Sector coverage

The Retail Trade Turnover Index, according to the NACE Rev.2 classification, covers the economic activity divisions identified by codes 4711 to 4799 inclusive.

3.4 Statistical concepts and definitions

The purpose of the Retail Trade Turnover Index is to show the performance of the goods market. The index is self-weighting and corrected on the basis of the number of working days in each month.
Turnover comprises the total amounts invoiced by the enterprise during the reference period, which correspond to the resale of goods without any further transformation. The data collected each month refer to sales effected (both retail and wholesale), excluding VAT but including other duties and taxes on the goods.

The sales volume represents the turnover value at constant prices and is a quantitative index. It can be calculated as the turnover at current prices, deflated by applying the sales deflator or as a quantitative index derived directly from the quantity of goods sold.

With the revision 2015=100 and from September 2018, the deflators were calculated with fixed taxes of the

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[1] Dispensing chemist, medical and orthopaedic goods, cosmetic and toilet articles in specialised stores.
[2] Textiles, clothing, footwear and leather goods in specialised stores
[3] Furniture, lighting equipment, audio and video equipment, hardware, paints and glass, electrical household appliances and other household articles, music and video recordings in specialised stores
[4] Books, newspapers and stationery, computers, peripheral units and software, telecommunications equipment, carpets, rugs, wall and floor coverings, sporting equipment, games and toys, flowers, plants, seeds, fertilisers, pet animals and pet food, watches and jewellery, other retail sale of new goods in specialised stores

Harmonized Consumer Price Index (HICPI). Therefore, there is a complete coherence of these deflators in consumption with the domestic turnover of retail sales.

3.5 Statistical unit

The reporting unit is the enterprise.

3.6 Statistical population

The index includes 38,444 retail trade enterprises, with an annual turnover (in year 2015) equal or greater than 140,000€.

3.7 Reference area

Geographical level of the data is the whole country.

3.8 Time coverage

The time series of the Retail Trade Turnover index (2015=100.0), which includes the retail trade of fuel in specialized "fuel" stores, is available monthly, with the first reference period in January 2000.

The availability of the Retail Trade Turnover index (2015=100.0), without "fuel" becomes monthly, with the first reference period in January 1995.

The distribution of the Retail Trade Volume index (2015=100.0), with the inclusion and without the inclusion of fuels is done monthly, with the first reference period in January 2000.

3.9 Base period

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

4. Unit of measure

Indices, percentage (%) change of rates (monthly and annually).

5. Reference period

Month.

6. Institutional mandate

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 (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

The legal framework concerning Eurostat legislation:

The legal basis for the Retail Trade Turnover Index is the Council Regulation No 1165/98 of 19th 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 6th July 2005 concerning short-term statistics (STS-R). The Regulation (EC) No 1893/2006 of 20th December 2006 of the European Parliament and of the Council establishing the statistical classification of economic activities NACE Rev.2.

The definitions of short-term statistics variables are laid down in Commission Regulation No 1503/2006 of 28th September 2006.

6.2 Data sharing

The Retail Trade Turnover Index is transmitted to Eurostat according to the Council Regulation No 1165/98 concerning short-term statistics as amended by the Regulation (EC) No 1158/2005.

7. Confidentiality

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

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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

8.1 Release calendar

A release calendar is available on the website 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 (www.statistics.gr) under the link: "Announcements Calendar". http://www.statistics.gr/en/calendar

8.3 User access

Data are released simultaneously to all interested parties and users through the Press Release, which is posted on the website of ELSTAT and specifically under the link:
http://www.statistics.gr/en/statistics/-/publication/DKT39/- 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.

9. Frequency of dissemination	

Retail Trade Turnover Index is produced and disseminated monthly.

10. Accessibility and clarity	

10.1 News release

Every month, 60 days after the end of the reference month, at 12.00, a Press Release is published which presents the newly calculated indices in Greek and English. The press release is also available on the website of ELSTAT: http://www.statistics.gr/en/statistics/-/publication/DKT39/-.

10.2 Publications

Data are released in publications of ELSTAT such as specific publications: "The Greek Economy" and "Greece in figures".

- «The Greek Economy» (http://www.statistics.gr/en/the-greek-economy)
- «Greece in figures» (http://www.statistics.gr/en/greece-in-figures)

10.3 On-line database

There are no data concerning the Retail Trade Turnover Index available on the on-line database of ELSTAT.

10.3.1 Data tables - consultations

During 2021, there were 1,403,772 visits to the Turnover Index pages of Retail Trade.

10.4 Micro-data access

Microdata are available on request at:

Statistical Information and Publications Division

Data Dissemination Section
46 Pireos & Eponiton str.
185.10 Piraeus

Tel. (+30) 213-1352022, FAX: (+30) 213-1352312
email: data.dissem@statistics.gr.

Access to microdata is only permitted under strict conditions and always with due process.

More information are available on the website link: http://www.statistics.gr/en/scientific_provision_data

10.5 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 Section of Statistical Dissemination (the Trade and Services Indices Section will be informed), at the following e-mail addresses: data.dissem@statistics.gr, data.supply@statistics.gr και data.source@statistics.gr.

Users can also submit their requests electronically, through the portal at:
http://www.statistics.gr/enl/statistical-data-request

More links for data dissemination:

http://www.statistics.gr/en/statistics/-/publication/DKT39/-

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

10.5.1 Metadata – consultations

During 2021, there were 1,403,772 visits to the Turnover Index pages of Retail Trade. Data and metadata visits cannot be distinguished.

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

The Methodology of Short-term Business Statistics, contains a comprehensive set of recommendations on the compilation of the STS statistics:
➢ Methodology of short-term business statistics - Interpretation and Guidelines

10.6.1 Metadata completeness – rate
Metadata for the compilation of the Retail Trade Turnover Index are available on the website of ELSTAT (http://www.statistics.gr/en/statistics/-/publication/DKT39/-), so the completeness rate is 100%.

10.7 Quality documentation

A user oriented short quality report is available at the link:

http://www.statistics.gr/en/statistics/-/publication/DKT39/-.

11. Quality management

11.1 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/en/quality-asurance-framework and http://www.statistics.gr/en/policies.

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.
The 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 of the data as to their correctness, 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 measurement or data entry errors. The detection of these errors is done in data of the enterprises, by examining whether these data are within a certain range of values, based on the size of the enterprises, as well as the seasonality of the data. 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 on comparing the percentage changes of the corresponding quarters.

11.2 Quality assessment

Turnover Index in Retail Trade is considered to be a credible and sufficiently accurate index. It is an index that is being compiled in Greece since 1963, so it contains experience of many years. Moreover, its concepts and methodology have been developed according to international standards.

12. Relevance

12.1 User needs

The index 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 as follows:

• The government and other public agencies,

- The Central Bank of Greece and other Hellenic banks
- Scientific community (Academic / Researcher, Student)
- Press and other Media
- Commercial Business
- National Confederation of Hellenic Commerce

At international level, the Index is used by Eurostat, International Monetary Fund (IMF), the United Nations (UN), the European Central Bank (ECB), the Organisation for Economic Co-operation and Development (OECD), the International Labour Organization (ILO) etc.

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

12.2 User satisfaction

a.User satisfaction survey:

ELSTAT conducts an annual user satisfaction survey. The comments on the media are positive. More information about the latest results of user research, for the annual periods per semester, is available in the Library Information Bulletin, on the website of ELSTAT (www.statistics.gr), "Products and Services" at the link:

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

b.Conference of statistical data users

According to its annual statistical program, ELSTAT has been conducting a user conference since 2010 on an annual basis, attended by representatives of private and public sector bodies, as well as educational and research institutions. Information about user conferences at the link:

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

12.3 Data completeness

Data are in full compliance with the relevant European Regulations.

13. Accuracy and reliability

13.1 Overall accuracy

The sources of errors that affect the accuracy of the index are a) sampling errors and b) non-sampling errors.
Sampling errors are due to the fact that not all target population businesses are surveyed to compile the index, but a sample of them. The size of the index's business sample provides high-precision estimates for the general index, as well as for most categories of grouped sectors of economic activity.
The non-sample errors of the index mainly concern the data measurement errors and the non-response errors of the companies in the sample. The measurement errors made when collecting the data are detected by performing quality checks and then corrected. With regard to non-response errors, every effort is made to communicate by telephone or other communication with the companies that did not send data, in order to cooperate and provide the requested information.

Therefore, Retail Trade Turnover Index is generally considered high.

13.2 Sampling error

The research in Retail Trade Turnover and Volume Indices are sampled surveys and therefore the estimates of the general Retail Trade Turnover Index shows sampling errors.

Retail Trade Turnover Index

The sample error in the form of a coefficient of variability of the monthly change of the general index for

September 2021 is shown below:

% Monthly Ratio of Coefficient Variation (SEPT 2020 - AUG 2020) General Retail Trade Turnover Index				
Numerator / denominator		Ratio Estimate	Coefficient of Variation	**% CV**
Current month- SEPT 2021	Previous month- AUG 2021	1,72	0,0073	**0,73**

Retail Trade Volume Index

The Retail Trade Volume Index is derived from the Retail Turnover Index if it is deflated by the Consumer Price Index (CPI). As for the CPI a purposal (or directional) survey is used (without random sampling of collected data), it is not possible to calculate the sampling error of the CPI which are used as deflators to convert the turnover index to a volume index. Therefore the sampling error of the turnover index provides approximately the degree of accuracy and the volume index.

13.3 Non-sampling error

a. Unit non – response

The non-response of the enterprises is addressed by telephone communication, sending a reminder via fax or e-mail and by personal visits, in order to achieve the collection of the requested data. There are also non-response of enterprises, where the procedure for handling the missing data is to evaluate them due to the trend of the administrative data of these enterprises.

b. Item 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 in Retail Trade was designed.

13.3.1.1 Over-coverage – rate

No over-coverage errors are observed.

13.3.1.2 Common units – proportion

The same (common) sample of enterprises is used every month 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. Therefore, the percentage of common enterprises in the sample between the months is 100%.

13.3.2 Measurement error

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

13.3.3 Non response error

The weighted variable used is turnover, where the size-weighed response rate for October 2021 is Rrsw=97.868%.

13.3.4 Processing error

After collecting the data, a series of procedures are performed before the index calculation (eg. business weighting, calculations with the application of mathematical formulas, tabulation of results, etc). Errors in the data processing process do not occur, because all this work is performed using special software.

13.3.5 Model assumption error

No model is used to compile the index.

14. Timeliness and punctuality

14.1 Timeliness

The Retail Trade Turnover and Volume indices are published through a press release 60 days after the end

of the reference month.

The Retail Trade Turnover index and Volume index are published on the pre-announced release dates.

15. Coherence and comparability

15.1 Comparability – geographical

The STS Regulations and 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.

15.1.1 Assymetry for mirror flows statistics – coefficient

There are no mirror flows statistics among EU Member States in the Retail Trade Turnover Index.

15.2 Comparability over time

With the implementation of NACE Rev.2, retail trade of fuel in specialty stores "fuels" became part of retail trade. Therefore, in the revision 2005 of the Retail Trade Turnover index with base year 2005=100.0, it was deemed necessary to calculate parallel series for the revised index, with and without the inclusion of fuels. In this way, it is possible to maintain comparability with the previous series of the indices, in which the "fuels" were not included in the retail trade.

Therefore, the retrospective calculation and adjustment of the revised series with base year 2015=100.0 that include "fuels", is possible and has been done since January 2000, while for the corresponding series, which do not include "fuels", the adjustment has been made since January 1995.

15.3 Coherence cross-domain

15.3.1 Coherence – sub annual and annual statistics

Coherence of the index with the structural statistics in the retail trade

According to Regulations (EC) No 58/97 of the Council and No 295/2008 of the European Parliament and of the Council, the structural statistics of enterprises cover, among other sectors in economic activity, also the retail trade sector. As the structural statistics are annual, a comparison is made on the coherence of the rate of change of the average annual index in retail trade with the corresponding rate of the annual turnover of the structural statistics of the enterprises in retail trade.

The small differences in the rate of change between the index and the turnover of structural statistics are mainly due to the fact that for the compilation of the index a common enterprises sample is used every month (which is updated when a revision happens, with the change of the base year of the index), while for the compilation of the structural statistics, the enterprises sample changes every year (with the exception of the very large enterprises). The common enterprises sample used by the index ensures accurate recording of the change of the index among different time periods.

15.3.2 Coherence – National Accounts

The index is used in the calculation of the quarterly and provisional annual data of the Gross Domestic Product (GDP) in retail trade. Therefore, there is coherence of the rate of change of the index with the corresponding rate of change of retail trade in the National Accounts.

15.4 Coherence – internal

The estimates of the index in the categories of groups of economic activity have a high internal coherence, because a single database is used and their calculation is done by the same method.

16. Cost and burden

a) Regarding the staff of ELSTAT that is involved in the compilation of the index, the annual cost, in working hours in 2020, amounts to 9,267 hours.
b) With regard to the surveyed enterprises, the average annual charge, in working hours required to provide a response in 2020, is 8.6 minutes per enterprise.

17. Data revision

17.1 Revision policy

According to Regulation No 1165/98 (art.11), the Retail Trade Turnover Index, like other short-term statistics variables, is revised every five years in years ending in 0 or 5. The purpose of these revisions is to adjust the index to the current developments in the retail trade structure, where in addition to the change of the base year, both, the survey sample and the reduction factors (weights) of the enterprises are updated.
This practice follows ELSTAT's revision policy: http://www.statistics.gr/en/policies.

17.2 Revision practice

The index is published 60 days after the end of the reference month. The data are provisional according to the first announcement. The data is revised once, simultaneously with the publication of the next month. After this revision the data is considered final.
This monthly correction is made due to late reporting of some surveyed enterprises.

18. Statistical processing

18.1 Source data

The survey for the compilation of the index covers 38,444 retail trade enterprises with an annual turnover in 2015, equal to or higher than 140,000 euros. From these enterprises a representative random sample of 1,674 enterprises was selected across the country, with data from 72 Regional Units.

The single stratified random sampling method was applied, employing the enterprise as a surveyed unit. The sampling frame used for the sample design was based on the Business Register (BR) of the ELSTAT. Layering criteria are:
a) 11 categories of grouped branches of economic activity
b) 7 size classes of enterprises, based on their annual turnover in year 2015, as follows:

Size classes	Annual turnover in 2015 (euros)
1	140,000 – 414,999,9
2	415,000 – 889,999,9
3	890,000 – 1,984,999,9
4	1,985,000 – 5,304,999,9
5	5,305,000 – 18,849,999,9
6	18,850,000 – 73,949,999,9
7	73,950,000 +

In each stratum (class) created by the intersection of the two layering criteria (activity and class), an enterprises sample is selected with equal probabilities and with the application of systematic sampling. All the enterprises which included in the (6th) and (7th) class of turnover are researched.

18.2 Frequency of data collection

Data collection is carried out monthly.

18.3 Data collection

A specially designed questionnaire is used to collect the data. The questionnaires are sent to enterprises with trained private partners by email or by fax and then the data are collected in the following ways:
- through trained private partners.
- by fax
- by email (email)
Non-response is addressed by telephone, fax or email reminder and personal visits in the enterprises. Also, the administrative data of the enterprises are collected.

18.4 Data validation

Data validation is done by comparing the current values with those of the previous month and of the same month of the previous year. Communication with respondents follows in case of outliers.

18.5 Data compilation

The turnover index is calculated by applying the chaining method. First, the moving based index is calculated by comparing the estimated turnover value $\widehat{Y}_m$ for the current month m with the corresponding value $\widehat{Y}_{m-1}$ of the previous month (moving based index). Afterwards, the fixed-base index for the current month is calculated by multiplying the moving-based index by the fixed base index of the previous month.

1. Value of Turnover

a. Symbolisms
For each branch of economic activity with 4-digit level of NACE Rev.2, stands for:

h : Size class (stratum) of enterprises ($h = 1,2\,...,7$)

N_h : Number of enterprises in the size class h (population size)

n_h : Number of sample enterprises that responded in the size class h (respondents)

y_{mhi} : Turnover value of current month $m,$ of the enterprise of order i , in the size class h

Y_{mh} : Turnover value of current month $m,$ of all enterprise that belong to the size class h ,

that is: $$Y_{mh} = \sum_{i=1}^{N_h} y_{mhi}$$

Y_m : Turnover value of the current month $m,$ of all enterprise that belong to economic activity class, that is:

$$Y_m = \sum_{h=1}^{7} Y_{mh}$$

b. Estimation of turnover value
The estimate of turnover value in current month is based on a reduction in all relevant data from the enterprises sample. This is achieved by multiplying the monthly turnover value of each enterprtise, with a suitable reduction factor and then summing up of the products. This factor, for each stratum h (intersection of activity and class of enterprises turnover size) is defined as the quotient of the total number of N_h enterprises, by the number of enterprises of the n_h sample, which corresponded.

The reduction factor a_h for each enterprise in stratum (class) 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 that responded in stratum h of the sample.

The estimation of the turnover value $\widehat{Y}_m$ of the current month m is calculated as follows:
$$\hat{Y}_m = \sum_{h=1}^{7} \alpha_h \sum_{i=1}^{n_h} y_{mhi}$$

where y_{qmi} is the turnover value for the current month m of the ith enterprise in stratum *h*=1.2.3,…7.

The estimate of the turnover value for each of the above 11 retail categories is obtained by summing the individual estimates of the turnover value of the four-digit classes that make up the category. Finally, the turnover value estimate of more than 11 retail categories (e.g. overall index, food sector index, etc.) is summed up by the individual estimates of the turnover value of the four-digit sectors that constitute the estimated level.

2.Turnover index
The fixed-base index for the current month m is calculated by multiplying the moving-based index by the fixed base index of the previous month m-1.

The above is a consequence of the types:

$$I_{Y_m} = I_{m,m-1} \cdot I_{Y_{m-1}} \quad \text{και}$$

$$I_{m,m-1} = \frac{\hat{Y}_m}{\hat{Y}_{m-1}}$$

where,

$I_{m,m-1}$: moving-base index of the current month m , in relation to the previous month (m-1),

I_{Ym} : fixed-base index for the current month, m ,

$I_{Y_{m-1}}$: fixed-base index for the previous month, $m-1$ and

$\hat{Y}_m$, $\hat{Y}_{m-1}$: turnover estimates of the current month and of the previous month.

The time series of the indices was revised with base year 2015=100,0 by multiplying the indices calculated with base year 2010=100,0 by the following weighting coefficient: $\frac{100}{\bar{I}_{10}^{15}}$, where: $\bar{I}_{10}^{15}$,is the average of the indices of the year 2015 with base year 2010=100.0

3.Volume index
The Retail Trade Volume Index is obtained from the Retail Trade Turnover Index if the latter is deflated by the Harmonized Index of Consumer Price Index (HICPI) with constant taxes.
The deflators based on HICPI data are compiled for the Overall Index, Overall Index except automotive fuel, food sector, non-food sector except auyomotive fuel and for 9 of the 11 retail categories. It should be noted that no deflators are calculated for the categories: 'Retail sale of second-hand goods in stores' and 'Retail trade not in stores, stalls or markets', because data on the sale prices of the products of these stores are not collected.
In order to deflate the Turnover index and convert it to a Volume index, the individual turnover indices are divided by the appropriate deflators.

18.5.1 Imputation – rate
Usually, imputed values are not used to substitute turnover values in the enterprises sample. However, in very few cases, imputed prices are used, the percentage of which does not exceed 0.5%. The procedure for handling missing values is to estimate them (imputed values), based on the turnover of the enterprises in previous years, taking into account the evolution of the rate of changes of the value of turnover in the economic activity sector; the class of size of the enterprise and the trend of the administrative data of the enterprise.

18.6 Adjustment

The initial estimates of the turnover value of the economic sectors refer to calendar months, which are unequal in terms of the number of working days (eg. February and March, etc.), with the result the indices are not comparable. For the comparability of the indices, due to the different number of working days of the quarters, the index is adjusted to the working days of the months of the quarters.

The indices are reduced to a typical quarter by multiplying the estimated turnover values by a specific correction factor according to the number of working days of each quarter. The typical quarter refers to the actual number of working days.

The correction factor c_t is obtained by dividing the average quarterly number of working days of the current

year by the number of working days of the surveyed quarter as follows: $c_t = \dfrac{\overline{x}}{x_t}$, where:

$\overline{x}$: the average quarterly number of working days, of the current year,

x_t: the number of working days in quarter t.

These weighting coefficient are reviewed annually.

18.6.1 Seasonal adjustment

Seasonal adjustment is the procedure followed to remove the impact of seasonality on the timeseries (that is eliminating the monthly effects, e.g: the beginning of the school year, holidays, tourist period, etc) in order to improve the comparability over time. The seasonal adjustment is performed with the application of TRAMO-SEATS method with the use of JDemetra+ 2.0.0. The whole series with seasonally adjusted indices is *recalculated* every time a new observation is added into the timeseries.

19. Comment Top

None.