

RETAIL TRADE TURNOVER AND VOLUME INDEX

(2021=100.0)

1. Introduction

The compilation of the Retail Trade Turnover and Volume Index is governed by Regulation (EU) 2019/2152 of the European Parliament and of the Council on European business statistics and by the implementing Regulation (EU) 2020/1197 of the Commission. Furthermore, this index is governed by Regulation (EC) No 1893/2006 of the European Parliament and of the Council.

2. Purpose of the index - Input data

The purpose of the Retail Trade Turnover Index is to show the performance of the goods market in retail trade. The index does not cover other activities, such as provision of services. The index is corrected based on the number of working days in each month and as a result it is reduced to a typical month of equal duration.

The turnover comprises the total amounts invoiced by the enterprise per Kind of Activity (KAU) 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 quantum index. It can be calculated as the turnover at current prices, deflated by applying the sales deflator compiled from the Harmonized Index of Consumer Prices at Constant Tax rates (HICP-CT).

3. Revision of the Index – Statistical Classification

Pursuant to the provisions of the Council Regulation (EU) 2019/2152, according to which the short-term indices are revised every five (5) years, in years ending in 0 or 5, in the current revision 2021=100.0 due to the impact of the pandemic, the indices were revised with base year 2021.

The purpose of the revision is to adapt the index to the changes in the structure of retail trade. The revised Retail Trade Turnover Index with base year 2021=100.0 was based on the results of the SBS 2021 and ELSTAT's BR, in accordance with the turnover data of retail trade enterprises in the year 2021.

4. Survey design - Selection of sample of enterprises

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.

The eleven (11) categories of aggregated economic activity classes of the Retail Trade Turnover and Volume Indices are the following:

1. Supermarkets¹
2. Department stores²
3. Food, beverages and tobacco³
4. Automotive fuel-lubricants

¹ Retail sale in non-specialized stores with food, beverages or tobacco predominating

² Other retail sale in non-specialized stores

³ Retail sale of food, beverages and tobacco in specialized stores

5. Pharmaceuticals and cosmetics⁴
6. Clothing and footwear⁵
7. Furniture, electrical goods, household goods⁶
8. Books, stationery and other articles⁷
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 survey for the compilation of the index covers 32,504 retail trade enterprises having an annual turnover (in 2021) equal to or higher than 200,000 euro. Out of these enterprises a representative random sample of 1,861 enterprises was selected across the country with elements 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 on the results of the SBS 2021 and ELSTAT's BR.

The enterprises included in the survey were stratified as follows:

- a. By economic activity with four digit-code Nace Rev 2.
- b. By size H=7 size classes of the enterprise based on their annual turnover in the year 2021, as follows:

Size class	Annual Turnover (€)
1	200.000 – 479.999,9
2	480.000 – 869.999,9
3	870.000 – 1.604.999,9
4	1.605.000 – 3.219.999,9
5	3.220.000 – 8.269.999,9
6	8.270.000 – 26.499.999,9
7	26.500.000 +

In each stratum that is created by crossing the above stratification criteria, a sample of enterprises was selected with equal probabilities and by applying systematic sampling. The enterprises that belong to the 6th and 7th size class are surveyed by census.

The distribution of enterprises of both the population and the sample is appeared by size classes, in the following table.

⁴ Dispensing chemist, medical and orthopaedic goods, cosmetic and toilet articles in specialised stores.

⁵ Textiles, clothing, footwear and leather goods in specialised stores

⁶ 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

⁷ 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

Size class	Number of enterprises	
	Population	Sample
1	18188	609
2	7882	282
3	3981	194
4	1590	146
5	642	409
6	159	159
7	62	62
Total	32504	1861

5. Compilation of the Retail Trade Turnover Index

The turnover index is calculated by applying the chaining method. First, the moving based index is calculated by comparing the estimated turnover value for the current month with the corresponding value of the previous month. 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.

5.1. Turnover value

a. Symbolisms

For each economic activity classes stands for:

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

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

m_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 ,

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

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 estimation of the turnover value \hat{Y}_m of the current month m is calculated as follows:

$$\hat{Y}_m = \sum_{h=1}^7 \frac{N_h}{m_h} \sum_{i=1}^{m_h} y_{mhi}$$

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

5.2. Turnover index

a. Moving base index

For each of the eleven (11) above categories, first the moving-base index is calculated of the current month m , as follows:

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

where:

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

$\hat{Y}_{k,m}$: Turnover estimate of the category k for the current month m

$\hat{Y}_{k,m-1}$: Turnover estimate of the category k for the previous month ($m-1$)

b. Fixed-base index (2021=100.0)

For each of the eleven (11) retail categories, the fixed-base index of the current month is obtained by multiplying the moving-base index by the fixed-base index of the previous month, as follows: $\omega\varsigma$ $\epsilon\xi\eta\zeta$:

$$I_{Y_{k,m}} = I_{m,m-1} \cdot I_{Y_{k,m-1}}$$

where:

$I_{Y_{k,m}}$: Fixed-base index of the category k for current month, m

$I_{Y_{k,m-1}}$: Fixed-base index for the category k for the previous month, $m-1$

The fixed base indices at a level that is composed from one or more retail categories (eg overall, food sector index, etc.) is calculated by putting to the numerator and the denominator of the moving base index the sum of the turnover estimates of the retail categories that compose the survey level for the current and the previous month, respectively. Next, we multiply this moving base index with the fixed base index of the previous month of this survey level.

c. Reduction of turnover values to a typical month

The initial turnover value estimates for the 11 retail categories refer to calendar months, which do not all have the same number of working days (e.g. February, March, etc.), and therefore all the compiled indices are not comparable. So, to comparisons, the indices are adjusted on the basis of the number of working days. This is achieved by reducing the indices

to a typical month indices of equal duration, multiplying the estimated turnover values by a specific correction factor, which is different for each month of the year.

The correction factor is calculated by dividing the mean monthly number of working days in the given year by the number of regular working days in the month under consideration, as follows:

$$C_{tm} = \frac{\bar{x}_t}{x_{tm}}$$

where:

C_m : correction factor of the month m

\bar{x} : the mean monthly number of working days in the given year

x_m : the number of regular working days in the month m

6. Retail trade 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 at constant tax rates (HICP-CT).

The deflators based on HICP-CT data are compiled for the overall index, overall index except automotive fuel, food sector, non-food sector except automotive fuel, and for 9 of the 11 retail categories. It should be noted that no deflators are calculated for the 'Retail sale of second-hand goods in stores' and 'Retail trade not in stores, stalls or markets', because data on the sales prices of the products of these stores is not collected.

In order to deflate the turnover index and to convert it to a Volume index, the individual turnover indices are divided by the appropriate deflators.

7. Breakdown of the Retail Trade Turnover and Volume Indices

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 published nine categories of aggregated economic activity classes of the Retail Trade Turnover and Volume Indices are as follows:

1. Supermarkets
2. Department stores
3. Food, beverages and tobacco
4. Automotive fuel-lubricants
5. Pharmaceuticals and cosmetics
6. Clothing and footwear
7. Furniture, electrical goods, household goods
8. Books, stationery and other articles
9. Sales not in stores⁸

⁸ Retail sale via mail order houses or via Internet and retail trade not in stores, stalls or markets

The breakdown of the Retail Trade Volume Index is similar, the difference being that the last category ('Sales not in stores') of the Volume Index is not published.

8. Seasonal adjustment

Seasonal adjustment is the procedure followed to remove the impact of seasonality on the time series (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 method applied is the TRAMO-SEATS with the use of JDemetra+ 2.0.0. The whole series with seasonally adjusted indices is *recalculated* every time a *new* observation is added in time series.

9. Compiled index series

For the last revision (2021=100.0), as well as the previous one (2015=100.0) of the Retail Trade Turnover and Volume Indices, it was deemed necessary to calculate parallel series for those indices including and not including fuel. This was due to the inclusion of fuel in retail trade in order to maintain comparability with the previous series of the Retail Trade Turnover and Volume indices (2000=100.0).

Due to the implementation of the classification NACE Rev. 2, parallel time-series for the indices including and not including the automotive fuels are provided. These timeseries data are also compiled seasonally adjusted.

10. Release and publication of data of the Retail Trade Turnover and Volume indices

The time series of the revised Retail Trade Turnover and Volume Indices (2021=100.0), which include fuels are published since 2000, whereas the time series of the same indices, which do not include fuel are published since 1995.

The data of the Retail Trade Turnover and Volume Indices are announced monthly, on specified dates, sixty (60) days after the end of the data reference month.

The data are presented in a Press Release and published in the ELSTAT's regular publications:
a) The Greek Economy and b) GREECE in figures.

The data pertaining to the Retail Trade Turnover and Volume Indices are also available on the ELSTAT website: <http://www.statistics.gr/en/statistics/-/publication/DKT39/>
