

WHOLESALE TURNOVER INDEX

(2010=100.0)

1. Introduction

The Wholesale Turnover Index is a quarterly index, which was released for the first time in Greece in 2006, based on the year 2005=100.0. It is being compiled pursuant to the provisions of Council Regulation (EC) No 1165/98 concerning short-term statistics (STS) and the requirements of Regulation (EC) No 1158/05 of the European Parliament and Council, amending the original Regulation 1165/98.

The first compilation of the above index was according to NACE Rev.1 classification (Statistical Classification of Economic Activities in the European Community) and covered the period 2005-2008. During the year 2009 the index was recompiled according to the classification NACE Rev.2 and with back data from the first quarter 2000.

During the last revision of the Wholesale Turnover Index, with the year 2010=100.0 as the base period, the recursive on reduction quarterly and annual indices have been calculated based on the average annual indices in 2010, so that backcasting of revised index series has been performed for the period since the first quarter 2000.

The need for the short-term indices arose primarily from the signing of the Treaty of Economic and Monetary Union (EMU), which acknowledged the necessity of having reliable statistics rapidly available for the purpose of analysing the economic performance of each Member State within the framework of implementation of EU economic policy

2. Purpose of the indices – Definitions

The Wholesale Turnover Index is an indicator of an enterprise's business cycle showing the development of the market for goods and services.

The aim of this index is to measure in value terms the activity of wholesale trade in the market. Turnover excludes VAT and comprises the totals invoiced by the enterprise during the reference period (quarter), which correspond to sales of goods or services supplied to third parties.

The definitions used, in accordance with Commission Regulation (EC) No 1503/2006 defining variables and frequency of data compilation, repealing new orders received for building construction and new orders received for civil engineering are as follows:

- Turnover comprises the totals invoiced by the enterprise during the reference period, and this corresponds to market sales of goods and services supplied to third parties.
- Turnover includes all duties and taxes on the services invoiced by the enterprise, with the exception of the VAT passed on by the enterprise to its customers. It also includes all other charges (transport, packaging, etc.) passed on to the customer, even if these charges are listed separately in the invoice.

More specifically, the items generally included in turnover are the following:

- Sales of manufactured products;
- Sales of products manufactured by subcontractors;
- Sales of goods purchased for resale in the same condition as received;
- Sales of by-products;
- Invoiced charges for packaging and transport;
- Hours worked invoiced to third parties for labour-only subcontracting;
- Invoiced mounting, installations and repairs;
- Invoiced installments (stage payments);
- Sales of waste and scrap materials;

Price reductions, rebates and bonuses conceded later to clients, for example at the end of the year, are not taken into account.

Income classified as other operating income, financial income and extraordinary income in company accounts are excluded from turnover. Any operating subsidies received are also excluded.

3. Geographical and population coverage – Statistical classification

The Wholesale Turnover Index covers the whole of the country. The Wholesale Turnover Index includes the activities classified under Division 46 (Wholesale trade, except of motor vehicles and motorcycles) of NACE Rev. 2 classification (Statistical Classification of Economic Activities in the European Community), as required by the Regulation (EC) No 1893/2006 of the European Parliament and the Council.

Division 46 (Wholesale trade) includes the following activities:

- Wholesale on a fee or contract basis
- Wholesale of agricultural raw materials and live animals
- Wholesale of food, beverages and tobacco
- Wholesale of household goods
- Wholesale of information and communication equipment
- Wholesale of other machinery, equipment and supplies
- Other specialized wholesale
- Non-specialized wholesale trade

4. Base period – Updating – Time series

In accordance with the requirements of the article 11 of the Council Regulation (EC) No 1165/98 concerning short-term statistics, the Wholesale Turnover Index is revised every five (5) years, particularly in calendar years ending in 0 or 5. The purpose of the revision of the Wholesale Turnover Index is to adapt the index to structural changes of the wholesale trade sector by renewing both the sample of the surveyed enterprises and the used extrapolation factors of the sample units.

As base period for the Turnover Index in Wholesale Trade has been used the year 2010 (2010 = 100.0). The time series of this index of the period 2005-2008 (division 51 of the classification NACE Rev.1) was adjusted, during 2009, to the classification NACE Rev.2 (division 46). Moreover, as required by Commission Regulation (EC) 472/2008 concerning backcasting, data was estimated for the years 2000-2004, which was based on the annual data of the structural business statistics on Wholesale Trade (SBS) and the seasonal pattern formed by the data of the period 2005-2008.

5. Survey design – Selection of sample of enterprises

The survey for the compilation of the index covers 19,932 wholesale trade enterprises listed in the Business Register having an annual turnover (in 2010) equal to or higher than 300,000 euro. Out of these enterprises a representative random sample of 478 enterprises was selected across the country with elements from 52 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.

The enterprises included in the survey were stratified by the size class of enterprises that was determined by their annual turnover (in 2010) in BR as follows:

Size class	Annual Turnover (€)
1	300,000 – 700,000
2	700,001 – 1,300,000
3	1,300,001 – 2,600,000
4	2,600,001 – 4,700,000
5	4,700,001 – 8,700,000
6	8,700,001 – 15,000,000
7	15,000,001 – 30,000,000
8	30,000,001 – 50,000,000
9	50,000,001 – 100,000,000
10	100,000,001+

In each stratum that is created by the size class of enterprises, a sample of enterprises was selected with equal probabilities and by applying the systematic sampling. The enterprises that belong to the 10th size class are surveyed exhaustively.

6. Compilation of the Index

The turnover index is calculated by the chaining method. First, the moving based index is calculated by comparing the estimated turnover value \widehat{Y}_q for the current quarter q with the corresponding value \widehat{Y}_{q-1} of the previous quarter. Afterwards, the fixed-based index for the current quarter I_{Y_q} is calculated by multiplying the moving-based index by the fix-based index of the previous quarter.

6.1 Turnover value

a. Symbolisms

h : size class of enterprises ($h = 1, \dots, 10$)

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

n_h : number of enterprises of the sample in the size class h (sample size)

m_h : the number of the enterprises of the sample that responded in the size class h
(respondents)

r_h : response rate in the size class h , that is: $r_h = \frac{m_h}{n_h}$

a_h : extrapolation factor of the respondents in the size class h ,

$$\text{that is: } a_h = \frac{N_h}{n_h \cdot r_h}$$

y_{qhi} : turnover value of the current quarter q of the enterprise of order i in the size class h

Y_{qh} : turnover value of the current quarter q of all enterprise that belong to the size class h

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

Y_q : turnover value of the current quarter q of all enterprises that belong to the target population (division 46)

$$\text{that is: } Y_q = \sum_{h=1}^{10} Y_{qh}$$

b. Estimation of the turnover value

The estimation \widehat{Y}_q of the turnover value Y_q of the current quarter q is calculated by applying the following relations:

$$\widehat{Y}_{qh} = \sum_{i=1}^{m_h} a_h \cdot y_{qhi} \quad (1)$$

$$\widehat{Y}_q = \sum_{h=1}^{10} \widehat{Y}_{qh} \quad (2)$$

From the relations (1) and (2) we have:

$$\widehat{Y}_q = \sum_{h=1}^{10} \sum_{i=1}^{m_h} a_h \cdot y_{qhi} \quad (3)$$

c. Reduction of turnover values to a typical quarter

The initial turnover value estimates for the division 46 refer to calendar quarters which do not all have the same number of working days and therefore all the compiled indices are not comparable. The quarterly indices are made comparable by adjusting the indices in order to make them of equal duration.

To this end, the turnover estimates are multiplied by a special correction factor which is different for each quarter of the year. The correction factor is calculated by dividing the mean quarterly number of working days in the given year by the number of regular working days in the quarter under consideration, as follows:

$$c_q = \frac{\bar{x}_t}{x_{tq}} \quad (4)$$

where:

\bar{x}_t : mean quarterly number of working days in the given year t

x_{tq} : number of regular working days in the quarter q in the given year t

6.2 Turnover index

a. Moving base index

Firstly, the moving-base index is calculated by comparing the 'estimated' turnover value for the current quarter q with the corresponding value of the previous quarter, as follows:

$$I_{q,q-1} = \frac{\widehat{Y}_q}{\widehat{Y}_{q-1}} \quad (5)$$

where:

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

\widehat{Y}_q : turnover estimate of the current quarter q

\widehat{Y}_{q-1} : turnover estimate of previous quarter ($q-1$)

b. Fixed-base index

The fixed-base index for the current quarter q is obtained by multiplying the moving-base index by the fixed-base index of the previous quarter, as follows:

$$I_{Yq} = I_{q,q-1} \cdot I_{Y_{q-1}} \quad (6)$$

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

$I_{Y_{q-1}}$: fixed-base index for the previous quarter ($q-1$)

The index is reduced to a typical quarter indices by multiplying the turnover estimates of the moving base in the relation (5) by the appropriate correction factor according to the relation (4).

7. Releasing and publishing the index data

Data of the Wholesale Turnover Index are released quarterly within specified deadlines, 52-55 days after the end of the reference quarter.

The data are presented in a Press Release and published in the ELSTAT's regular publications:

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

The data pertaining to the Wholesale Turnover Index from the 1st quarter 2000 are also available on the ELSTAT website: <http://www.statistics.gr/en/statistics/-/publication/DKT42/>