

Conjunctural Stock and Inventory Survey (ECSE)

Base 2021

Methodological Manual

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1 Introduction

The Conjunctural Stock and Inventory Survey (ECSE) was approved at the meeting of the Permanent Commission of the Higher Council of Statistics on 26 June 2013 and currently follows the guidelines set out in the National Statistical Plan 2021-2024.

The objective of the Conjunctural Stock and Inventory Survey is twofold. On the one hand, it provides the information necessary to obtain a short-term indicator that measures the evolution of the value of the stock level in the short term and, on the other hand, it provides information on the variation in the stock level as input for National Accounting.

To measure the evolution of the level of stocks in commerce, value indices are calculated for the level of merchandise at the end of the month and, in the case of the manufacturing industry, value indices are calculated for the level of stocks at the end of the month, whether they be 'raw materials, other supplies and merchandise' or 'products'.

Monthly and quarterly indices of the level of stocks in trade are published on a quarterly basis. Stock level indices in the industry will be published later.

In compliance with the provisions of Royal Decree 1085/2014 of 19 December, which approves the 2015 Annual Program of the National Statistical Plan 2013-2016, the INE published in December 2015, for the first time, the results corresponding to the statistical operation Conjunctural Stock and Inventory Survey (ECSE) disseminating at that time the indices, based on 2010, of the level of stocks in commerce, with January 2013 being the first month available.

In June 2024, the indices begin to be published based on 2021, the first data published in this base is January 2021. To avoid breaking the series, all published series have been linked back.

2 Areas of the survey

The scope of application is defined with respect to the population investigated, time and space.

2.1 POPULATION SCOPE

The population scope of the Conjunctural Stock and Inventory Survey (ECSE) is made up of the economic units whose main activity, according to the National Classification of Economic Activities CNAE-2009, is included in Section G: *'Wholesale and Retail; repair of motor vehicles and motorcycles'* except group 46.1: *"Trade intermediaries"*.

Annex I presents the list of activities that make up the population scope, coded according to groups (three-digit codes) of the National Classification of Economic Activities CNAE-2009.

2.2 TIME SCOPE

Stock level indices are prepared on a monthly basis.

In the questionnaires in which information related to the value of the stock level is collected, its value at the end of the month is requested.

Three periods can be distinguished within the time scope:

2.2.1 Base period

The base period of the index, or reference period, is the one in which all indices are adjusted to be equal to 100. Normally this consists of an annual period. In the new system, the arithmetic mean of the twelve monthly indices for the year 2021 published, based on 2021, becomes equal to 100 (in the quarterly data the arithmetic mean of the four indices for the year 2021 published is 100); Therefore, the reference period of the index is the year 2021 (or in other words, the base is 2021). This means that all indices published will refer to this year.

2.2.2 Stock level value reference period

It is the period with which the values of the variables (stock level of 'merchandise' in Commerce) of the reference month are compared. In other words, the period that is selected for calculating the elementary indices.

With the calculation formula used to estimate the indices relative to the value of the stock level – chained Laspeyres – the reference period of the variables varies each year, this being the month of December of the year immediately preceding the one considered.

2.2.3 Weightings reference period

The weightings reference period is the ones that the weightings used to structure the system refer to.

The weightings reference period varies each year and it is month of December of the year immediately prior to the year considered.

The calculation of the weightings has been carried out based on data from the Structural Business Statistics: Industrial Sector and Commerce Sector for the year 2021 that provides information on the stock variable at the beginning and end of the year. To correct the gap that occurs between this period and the weighting period (December of the year immediately preceding the one considered), these are updated using information obtained from the indices calculated in the Conjunctural Stock and Inventory Survey itself.

Furthermore, every five years, when the base change is made, the weightings of the new base year will be updated with the structural information from the Structural Business Statistics (former Annual Commerce Survey and Industrial Business Survey).

2.3 GEOGRAPHICAL SCOPE

The statistical units investigated in the Conjunctural Stock and Inventory Survey are those located in the national territory except Ceuta and Melilla. However, for statistical units whose main activity is included in division 47 of the CNAE-2009: 'Retail trade, except for motor vehicles and motorcycles', the units located in the autonomous cities of Ceuta and Melilla are also the subject of study.

3 Statistical unit

The two INE situation surveys whose questionnaires collect information related to the value of the level of stocks (Service Sector Activity Indicators (IASS) and Retail Trade Indices (ICM)) are designed with appropriate methodologies to measure, in each case, the variables required by the Current Statistics Regulation No. 1165/98. That is why they have different observation units: establishments in the case of Industry and companies in the case of Commerce.

For economic units whose main activity is within the activities of **section G** of the CNAE-2009: *Wholesale and Retail; repair of motor vehicles and motorcycles*, except group 46.1: *Trade intermediaries*, is used as a statistical unit and the **company** as an information unit.

The company, which carries out one or more activities in one or more places, corresponds to an organizational unit for the production of goods and services that enjoys a certain decision-making autonomy, mainly when it comes to using the current resources available to it.

4 Concepts and definitions

4.1 CLASSIFICATION VARIABLES OF STATISTICAL UNITS

The statistical units are classified by their main activity coded according to the National Classification of Economic Activities CNAE-2009.

Economic activity

The economic activity carried out by a company or establishment is defined as the generation of added value through the production of goods and services.

Each of the statistical units studied (companies in commerce and establishments in industry) frequently carries out diverse activities that should be classified in separate classes of the National Classification of Economic Activities CNAE-2009. In general, the activities carried out by an economic unit can be of three types: main, secondary and auxiliary activity. The primary activity is different from secondary ones as it is the one generating greater added value; as for auxiliary activities, these are ones that generate services which are not traded in the market and are only used by the unit which so requires them (administration, transport services or warehousing).

Given the difficulty for companies in calculating the added value when they carry out several activities, the main activity is considered to be that which generates the greatest volume of turnover or the one that generates a greater volume of production and, failing that, the one that uses the largest number of employed people.

The information requested from the reporting units refers not only to the activity considered main but also to all secondary and auxiliary activities carried out.

4.2 VARIABLES STUDIED

To economic units whose main activity is included in any of the classes of **section G** of the CNAE-2009: Wholesale and retail trade; repair of motor vehicles and motorcycles, except for group 46.1: Trade intermediaries are asked for the value of **merchandise** stocks at the end of each month.

Inventory

The General Accounting Plan (approved by Royal Decree 1514/2007, of November 16) defines inventories as assets held to be sold in the normal course of exploitation, in the production process or in the form of materials or supplies for be consumed in the production process or in the provision of services.

They are classified into merchandise, raw materials, other supplies, products in progress, semi-finished products, finished products and by-products, waste and recovered materials:

- **Merchandise:** goods acquired by the company and intended for sale without transformation
- **Raw materials:** goods that, through processing or transformation, are destined to form part of the manufactured products.
- **Other supplies.** Classified in:
 - Incorporable elements and assemblies: those normally manufactured outside the company and acquired by it to incorporate them into its production without subjecting them to transformation.
 - Fuels: energy materials that can be stored.
 - Spare parts: parts intended to be assembled in facilities, equipment or machines to replace similar ones with a storage cycle of less than one year.
 - Miscellaneous materials: other consumer materials that must not be incorporated into the manufactured product.
 - Packaging: covers or wrappings, generally irretrievable, intended to protect products or merchandise that must be transported.
 - Packaging: containers or vessels, normally intended for sale together with the product they contain.
 - Office supplies: the material dedicated to this purpose that is not consumed in the year in which it is acquired.

- **Products in progress:** goods or services that are in the formation or transformation phase.
- **Semi-finished products:** goods manufactured by the company and not normally intended for sale until they are subsequently processed, incorporated or transformed.
- **Finished products:** goods manufactured by the company and intended for final consumption or use by other companies.
- **By-products, waste and recovered materials:**
 - By-products: goods of a secondary or accessory nature to the main manufacturing.
 - Waste: those obtained inevitably and at the same time as products and by-products, as long as they have intrinsic value and can be used or sold.
 - Recovered materials: Those that, due to having intrinsic value, enter the warehouse again after having been used in the production process.

Goods included in inventories are valued at their cost, whether the acquisition price or the production cost.

The **acquisition price** includes the amount invoiced by the seller after deducting any discount, reduction in price or other similar items as well as interest incorporated into the face of the debits, and all additional expenses that occur until the goods are located for sale, such as transportation, customs duties, insurance and others directly attributable to the acquisition of the stocks.

Notwithstanding the above, interest incorporated into debits with a maturity of no more than one year that do not have a contractual interest rate may be included, when the effect of not updating cash flows is not significant.

The **production cost** is determined by adding to the acquisition price of raw materials and other consumables, the costs directly attributable to the product. The reasonably corresponding part of the costs indirectly attributable to the products in question must also be added, to the extent that such costs correspond to the period of manufacturing, processing or construction, which have been incurred when locating them for sale and are based on the level of utilization of the normal work capacity of the means of production.

Indirect taxes levied on inventories are only included in the acquisition price or production cost when they are not recoverable directly from the Public Treasury.

Furthermore, when value must be assigned to specific goods that are part of an inventory of interchangeable goods, the average price or weighted average cost method will generally be adopted. The FIFO method is acceptable and can be adopted if the company considers it more convenient for its management. A single value allocation method should be used for all inventory having a similar nature and use.

5 Sample Design

5.1 SAMPLING FRAME

The sampling frame for Commerce companies is the Central Business Directory (DIRCE), a list of companies that is updated once a year with administrative sources, mainly tax and Social Security. It is also updated with information from the statistical operations of INE.

The CBD contains information on the main economic activity and on the number of employees, variables that are used in the sample design, and on identification and location data, which are necessary for proper information collection.

5.2 SAMPLE DESIGN

The sample for this statistical operation comes from two current situation surveys prepared by the INE:

- Service Sector Activity Indicators (IASS)
- Retail Trade Indices (ICM)

Each of them has its own sample design, which can be consulted in the corresponding methodology published on the INE website. The links to these methodologies appear in **Annex II**.

The part of the sample made up of the units with main trading activity (section G of the CNAE-2009), comes from IASS and ICM and, therefore, is a stratified random sample.

Information on the value of inventories is requested from the sampling units of these surveys that meet the following requirements:

- Companies in the IASS sample, whose main activity is within divisions 45 and 46 (except group 46.1) of the CNAE-2009, with 10 or more employees.
- Companies in the ICM sample with 10 or more employees, except for groups 47.4, 47.5, 47.6 and 47.7 (not including, of the latter, class 47.79) where companies with between 3 and 9 employees also respond.

5.3 ROTATION OF SAMPLING UNITS

Every five years a base change is made, carrying out, at that time, a sample renewal that allows the new population distribution to be reflected.

However, in January of each year, a part of the sample of companies dedicated to commerce is renewed. The objective of this annual rotation is, firstly, to avoid fatigue among the reporting units and, secondly, to renew the sample to reflect the changes that occur in the population.

The criterion used for rotation is to replace companies that have been collaborating in the calculation of the Index for approximately 5 years and also all those that have been removed, cannot be located, erroneously included and merged or absorbed.

In the case of the sample of industrial establishments, a gradual renewal is also carried out, replacing establishments that were erroneously included or deregistered.

6 Base year

The base year of the indices of the stock level variable is consistent with the base year of the short-term statistics through which the data for this variable is collected. These statistics (Retail Trade Indices and Service Sector Activity Indicators) determine the base year as established in the Regulation of short-term statistics No. 1165/98, which states that the indices must change base every five years, in the years ending in 0 and 5. All indices must be adapted to the new base year within three years from the end of the new base year.

Since 2024, the base year is 2021, which is an exception set out in Regulation 2019/2152.

To comply with said Regulation, the current indicators have changed bases, going from the 2015 base to the 2021 base, which is why the indices of the Current Survey on Stocks and Inventories are also transferred to the new 2021 base. It should be noted that base changes are used to update the indices, so that they adapt to the changes that have occurred in recent years in the different sectors and their evolution is measured more precisely.

January 2024 is the first month that is published in the new 2021 base, in this change the years 2021, 2022 and 2023 have been recalculated (division 45, 46 and 47 due to sample updates. In addition, new weightings have been used to obtain aggregate G. The series have been linked to obtain comparable indices since their inception.

Series linking

The series link is carried out from December 2021 to the beginning, that is, January 2013, thereby maintaining the variation rates published based on 2015 in all years, except in the recalculated years, that is, except in the years 2021, 2022 and 2023.

The structural link is used that makes the average of the indices for the year 2021 100. The values of each of the months until December 2021 of each of the series based on 2015 are divided by the average of the indices for the year 2021 based on 2015. Alternatively, they are multiplied by the structural link coefficient in order to pass them to base 2021:

$$\text{Coeficiente de enlace} = \frac{1200}{\sum_{m=1}^{12} {}_{15}I^{m,21}}$$

Being:

${}_{15}I^{m,21}$ the index for month m for the year 2021 in base 2015.

Thus, the linked index based on 2021 for month m of year t is:

$${}_{21}I^{m,21} = {}_{15}I^{m,t} \times \frac{1200}{\sum_{m=1}^{12} {}_{15}I^{m,21}}$$

7 Elemental Aggregates

An elementary aggregate is the component with the lowest level of aggregation for which indices are obtained and in whose calculation no weightings are involved. The indices of these aggregates are called elementary indices.

In commerce, an elementary index is calculated for the following divisions (two digits) of the CNAE-09

Elemental index	CNAE-2009
- Sale and repair of motor vehicles and motorcycles	45
- Wholesale trade and trade intermediaries, except for motor vehicles and motorcycles (except group 46.1: Trade intermediaries)	46 (except 46.1)
- Retail trade, except motor vehicles and motorcycles	47

8 Formulation of the indices

The indices obtained in the Conjunctural Stock and Inventory Survey are value indices in which the information is presented in current (nominal) terms, that is, without adjusting the effects on price variations therein.

They are calculated according to a chained Laspeyres index based on the year 2021. A chain-linked index measures accumulative index movements in the short term in different base periods. That is, it establishes comparisons between the current period (t) and the base period (0) but considering the intermediate situations (k). In the base 2021 ECSE indices, the intermediate situations considered correspond to the months of December of all years.

A chain-linked index is used because, although this is a value index, where it is equivalent to using fixed base indexes or chain-linked indexes, the fact of performing an annual rotation of between 20% and 25% of the sample units means that these linked indexes are considered as methodologically more suitable.

To obtain the indexes that are chained, which are the publishable indexes, we must first calculate the indexes that we call non-publishable.

The formulation used to calculate the indices that allow measuring the evolution of the stock level in the two areas separately (manufacturing industry and commerce) is described below, obtaining stock level value indices for:

Trade:

- Merchandise stock level indices

Non-publishable elementary indices:

Elementary (non-publishable) indices are built for the elementary aggregates:

$${}_{dic(t-1)}INP_A^{m,t} = \frac{\hat{E}_A^{m,t}}{\hat{E}_A^{dic(t-1)}} \times 100$$

where:

$\hat{E}_A^{m,t}$ is the estimated value of the inventories of economic activity A, in month 'm' of year t. When this value corresponds to trading companies, the estimator is the simple expansion one, given by the following expression:

$$\hat{E}_A^{m,t} = \sum_{h \in A} \frac{N_h}{n_h} \sum_{i \in h} y_i$$

Where h indicates the stratum, y_i the value of the stocks in company i, N_h the number of companies in the population of stratum h and n_h the number of sample companies that respond in h.

When the value corresponds to industrial establishments, it is calculated simply by adding the inventories of the sampled establishments. Here, the expression reduces to:

$$\hat{E}_A^{m,t} = \sum_{h \in A} \sum_{i \in h} y_i$$

Non-publishable aggregate indices:

$${}_{dic,t-1}INP_S^{m,t} = \sum_{A \in S} {}_{dic,t-1}INP_A^{m,t} \times \hat{W}_A^{dic,t-1}$$

- Calculation of weightings:

The weightings involved in the calculation of the aggregate indices come from the Structural Business Statistics: Commerce Sector and Industrial Sector of the year 2021. This survey provides estimates of the value of the level of inventories of merchandise and raw materials and other supplies at the end of 2021.

The reference period of the weightings (the one to which they are referred) varies each year and is the month of December of the year immediately preceding the one considered.

The weightings obtained from the Structural Statistics of Companies for the year 2021, present a gap with the period of the weights, to correct this gap they are updated using information on the evolution of the level of stocks from the Conjunctural Stock and Inventory Survey itself.

In addition, every five years a base change will be made, in which the weightings will be updated (with a new structural survey) for all levels of disaggregation.

Based on the information from the Structural Business Statistics for the year 2021, the weights are calculated as a product of those of the previous year by a quotient of indices from the survey itself.

Thus, the general equation used to calculate them will be the following:

$$\widehat{W}_A^{dic,t} = \widehat{W}_A^{dic,t-1} \times \frac{dic,t-1 INP_A^{dic,t}}{dic,t-1 INP_S^{dic,t}}$$

For both the year 2021 and the year 2022, the weightings are used based on the information from the EEE for the year 2021. In this way, to calculate the year 2021, the stock data provided by the EEE at the beginning of the year ($\widehat{W}_A^{ene,2021}$) are used and to the calculation for the year 2022 the stock data provided by the EEE at the end of the year ($\widehat{W}_A^{dic,2021}$). To calculate the indices for 2023, the weightings are updated by applying the previous formula:

$$\widehat{W}_A^{dic,2022} = \widehat{W}_A^{dic,2021} \times \frac{dic,2021 INP_A^{dic,2022}}{dic,2021 INP_S^{dic,2022}}$$

And so on, for all base years 2021.

Publishable indices:

Once the non-publishable indices have been calculated, both the elementary indices (A) and the aggregate indices (S), they must be chained. These indices are the ones that are finally disseminated and provide continuity to the series published based on 2021.

These publishable indices are obtained:

$${}_{2021}IP_{AoS}^{m,t} = {}_{2021}IP_{AoS}^{dic,t-1} \times \frac{dic,t-1 INP_{AoS}^{m,t}}{100}$$

The publishable, elementary and aggregate **quarterly indices**, are calculated as the average of the monthly publishable indices of the three months of the corresponding quarter.

Annex I. Groups of the CNAE-2009 that make up the population scope

The population scope of the Conjunctural Stock and Inventory Survey (ECSE) is made up of the economic units whose main activity, according to the National Classification of Economic Activities CNAE-2009, is included in Section G: *'Wholesale and Retail; repair of motor vehicles and motorcycles'* except group 46.1: *'Trade intermediaries'*.

The activities that make up the population scope of the Conjunctural Stock and Inventory Survey are those corresponding to the groups (three-digit codes) of the National Classification of Economic Activities CNAE-2009 that appear below.

Section G: Wholesale and retail trade; repair of motor vehicles and motorcycles

45.1	Sale of motor vehicles
45.2	Maintenance and repair of motor vehicles
45.3	Sale of motor vehicle parts and accessories
45.4	Sale, maintenance and repair of motorcycles and related parts and accessories
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46.2	Wholesale of agricultural raw materials and live animals
46.3	Wholesale of food, beverages and tobacco
46.4	Wholesale of household goods
46.5	Wholesale of information and communication equipment
46.6	Wholesale of other machinery, equipment and supplies
46.7	Other specialised wholesale
46.9	Non-specialised wholesale trade
<hr/>	
47.1	Retail sale in non-specialised stores
47.2	Retail sale of food, beverages and tobacco in specialised stores
47.3	Retail sale of automotive fuel in specialised stores
47.4	Retail sale of information and communication equipment in specialised stores
47.5	Retail sale of other household equipment in specialised stores
47.6	Retail sale of cultural and recreation goods in specialised stores
47.7	Retail sale of other goods in specialised stores
47.8	Retail sale via stalls and markets
47.9	Retail trade not in stores, stalls or markets

Annex II. Links to the different statistical operations whose questionnaires include questions related to stock

1. Service Sector Activity Indicators (IASS) Methodology:

<https://www.ine.es/metodologia/t37/notaiass21.pdf>

2. Retail Trade Indices Methodology (ICM):

<https://www.ine.es/daco/daco43/notaccm21.pdf>