INSTITUTO NACIONAL DE ESTADISTICA

Consumer Price Index. Base 2025

Methodology

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I Introduction

The process of changing the Consumer Price Index (CPI) system primarily involves reviewing and updating each of its components to determine the best options for achieving a representative and accurate indicator that aligns with economic trends.

Until the implementation of base year 2001, the CPI was calculated using what is known as a fixed-base system. The main characteristic of this system is that both the composition of the shopping basket and its weightings remain unalterable throughout the duration of the base year. Baseline changes were carried out every eight or nine years, because that was the periodicity of the Basic Household Budget Survey (BHBS), the source used for the preparation of the weightings and the shopping basket. Therefore, the only way to be able to reflect changes in consumer behaviour and for the CPI to adapt to these trends was to wait until the next base change. Clearly, in some cases the time frame was excessively long.

From 1997 onwards, the two household budget surveys that coexisted (a continuous one, conducted on a quarterly basis, and a basic one, conducted every eight or nine years) were replaced by a single one, conducted quarterly, which provided information closer to the basic survey, in terms of the level of disaggregation. This survey, called the Continuous Household Budget Survey (CHBS), provided the necessary information for updating the weightings as well as renewing the composition of the shopping basket in the CPI 2001 base change. Furthermore, it enabled the permanent updating of these weightings and the review of the shopping basket, which resulted in an improvement in the CPI system changes.

Thus, with the CPI 2001 base, a new calculation system began which, most importantly, was both dynamic and up-to-date. It is a more current and updated CPI because its methodological system is constantly reviewed for the sake of improvement. To this end, direct contact is maintained with various academic forums and national and international production organisations.

But it is also a more dynamic CPI than its predecessors insofar as the weightings for certain levels of functional disaggregation are reviewed annually and it includes, as soon as possible, any changes detected in the market components, whether it be the appearance of new products, changes in the consumption structure or in the sample of municipalities or establishments. In addition, it establishes baseline changes every five years, conducting a complete review of the methodology and sample and the weightings are updated at all levels of disaggregation.

As a result of this operating scheme, subsequent base changes are made, CPI base 2011, base 2016 and base 2021. Base 2016 of the Consumer Price Index (CPI) was the first to pave the way towards a new way of conceiving this indicator. With its implementation, information from supermarket databases (known as scanner data) was incorporated for the first time into the calculation of the CPI. Likewise, this same strategy of taking advantage of the information available in different sources began with the development of applications for obtaining data from the Internet (web scraping). These efforts continued in the 2021 base CPI.

In January 2026, the Consumer Price Index System comes into force, with a reference base of the year 2025. This system replaces the CPI, which, based on 2021, was in effect until December 2025.

The Base 2025 CPI maintains the main features of the Base 2021 CPI and, like the latter, will annually revise the weightings for certain levels of functional disaggregation.

The most significant change in the new database is the adaptation to the new European consumption classification (ECOICOP vers. 2).

In 1999 the CPI Working Group was established within the High Council of Statistics, made up of representatives from the Ministry of Economy and Finance, Bank of Spain, consumer associations, universities, trade unions, the business association (CEOE) and chambers of commerce, among others. The Group meets periodically so that the INE can report on the most relevant aspects in the development of new price systems and in annual updates. The Base 2025 CPI has the support of the Working Group, which guarantees broad backing from the principal economic agents.

Furthermore, the methodology of the new System was analysed by the High Council of Statistics and was studied by its Standing Committee until it was approved in the Plenary of the High Council of Statistics.

Furthermore, since 1997, the INE has also been producing the Harmonised Index of Consumer Prices (HICP) following the standards agreed within the European Union (EU), in order to obtain inflation indicators with a high degree of comparability among all member countries.

The methodology applied in the national CPI is, for the most part, the same as that of the HICP. It only differs in some aspects where the methodology proposed by European regulations, with the objective of comparability between countries, was not suitable to meet the objective of the domestic CPI.

The main characteristics of the Base 2025 Consumer Price Index, as well as those aspects in which it differs from the HICP, are included in this methodology.

The INE appreciates the interest of all the organisations and professionals that have participated in the different working groups that were established for the change of the CPI system and also appreciates the collaboration of all the informants who provide the necessary data to produce the CPI within the established deadlines.

II Definition of the indicator

The Consumer Price Index, published monthly, aims to measure the evolution of the prices on consumer goods and services acquired by households resident in Spain.

The Base 2025 System employs the definition of final monetary consumption expenditure for households, used in the European System of Accounts (ESA), which in turn governs the National Accounts of all EU member states: "*household final monetary consumption expenditure comprises the expenditures made by resident households on goods and services used to directly satisfy their needs or wants, using monetary means, both within the national territory and in the rest of the world.*"

This therefore excludes from the scope of the CPI the consumption value of goods received in kind by households as self-consumption, self-supply, salary in kind, free or subsidised meals and rent imputed from the dwelling in which the household resides when it owns said dwelling or it has been assigned free of charge or at a discount by other households or institutions.

Although the main source for the weightings in the CPI is the National Accounts, the Household Budget Survey (HBS) is also used as a secondary source. However, the conceptual framework of the HBS does not always coincide with the definition of final consumption expenditure of households established in the ESA. The objective of the HBS is to measure the level and evolution of household spending on consumer goods and services, regardless of any monetary compensation they may receive afterwards as a result of that spending (via compensation or subsidies) and the sector in which they have completed the transaction (households or companies)

Therefore, in the Base 2025 CPI, some of the expenditure estimates from the HBS have been adjusted so they could be used in CPI and thus adapt them to the conceptual requirements of the ESA. These adjustments are:

– **Gross spending vs. net spending**. The HBS includes all household expenditure, regardless of any monetary compensation received (except in Health and Education, where expenditure refers to that actually made, after subsidies). However, in accounting terms, the expenditure must be reduced by the amounts received by the household, so that only the net expenditure of subsidies and considerations is taken into account.

  This adjustment affects **insurance policies** in the CPI, as according to the ESA conceptual framework, the amount of consideration must be deducted from gross expenditure.

– **Transactions** between agents belonging to the same economic sector. The HBS considers the expenses made in all transactions carried out by private consumers, regardless of the sector with which the transaction was made. The ESA stresses that the transactions considered in the definition must have occurred between the household sector and the business or other institutional sector. Transactions between households should not be taken into account in the expenditure estimate.

The section that needs to be adjusted due to this conceptual change is that of **used cars**, since spending from the HBS includes purchases made from companies and other households.

The precision of this short-term indicator in measuring the evolution of the price level depends on two qualities that any CPI index must have: representativeness and comparability over time.

The degree of representativeness of the CPI is determined by the adaptation of this indicator to the economic reality of the moment; thus, the rate of change calculated based on the CPI will be closer to the evolution of prices in the economy as a whole the more the components selected for measurement align with the consumer behaviour. To achieve this, the selected items that are part of the shopping basket must be the most consumed by the majority of the population, the establishments in the sample must be the most visited, and the relative importance of each item in the shopping basket must reflect household consumption trends. The better the selection of these elements, the more representative this indicator becomes.

On the other hand, the CPI is an indicator that only makes sense when comparisons are made over time; in fact, an index number has little meaning unless a comparison is made with indices for other periods, in order to obtain the corresponding rates of change (this can be a month, a year, or any other period of time). Therefore, the other quality attributable to a CPI is comparability over time, that is, the need for the elements defining the CPI to remain stable over time, except, logically, for the prices collected monthly. This ensures that any variation in the CPI is only due to changes in the prices of the selected items and not due to any change in the methodological content of this indicator.

There are numerous applications of the CPI which are of great importance in the economic and legal fields. Among them is its use as a measure of inflation. It is also used in the review of real estate lease agreements, as a reference in salary negotiations, in setting pensions, in updating insurance premiums and other types of contracts, as well as a deflator in the National Accounts.

III Scope of the indicator

1 Time scope

1.1 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. Under the new system, the arithmetic mean of the twelve monthly indices published for the year 2025, in base 2021, is set equal to 100. Therefore, the period to which the index refers is the year 2025, so it is usually called the Base 2025 CPI. This means that all indices published will refer to this year.

1.2 PRICE REFERENCE PERIOD

The price reference period is the period against which current prices are compared, in other words, the period chosen for the calculation of the elementary indices.

In the calculation formula used for the Base 2025 CPI —linked Laspeyres— the price reference period changes each year, and it is the month of December of the year immediately prior to the year considered.

1.3 WEIGHTING REFERENCE PERIOD

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

For the year 2026, the weightings have been calculated according to the data from the National Accounts, as the main source, and from the HBS, corresponding to the year 2024.

Additionally, in order to correct the discrepancy that occurs between the reference period for the weightings and the reference period for prices (December 2025), the weightings have been updated using information on the evolution of prices and quantities from the CPI and other sources.

Therefore, the reference period for the weightings is December 2025, during the year 2026. And in subsequent years it will be the month of December prior to each year, as the weightings will be updated annually, using the annual information from the National Accounts, the HBS and information from other sources, such as the evolution of CPI prices and information provided by supply sources from the different sectors.

This annual revision of the weightings will be made for certain levels of geographic and functional disaggregation, using the information available closest to the time of the revision.

In addition, every five years a base change will be made, in which the weightings will be updated for all levels of geographic and functional disaggregation.

2 Population scope

The index population or reference stratum is the population group whose consumer spending structure serves as the basis for the selection of the representative items and the calculation of the product weightings.

In the Base 2025 CPI, the reference stratum includes the entire population residing in family homes in Spain; therefore, the expenses of non-residents are excluded.

3 Geographical Scope

The geographical scope of the research is the entire national territory.

4 Consumption field

This is the set of goods and services that households in the reference stratum allocate to consumption; therefore, expenses on investment goods, self-consumption and self-supply, imputed rents, and expenses subsidised by public administrations are not considered. Also excluded from the consumption field are certain taxes that are not considered consumption from the ESA's point of view.

The data from the National Accounts, the HBS, and the Base 2025 CPI have all been adapted to the new international classification of consumption in the European Union (EU), ECOICOP (European Classification of Consumption by Purpose) version 2, which is identical to the United Nations COICOP 2018.

Each consumption category is represented by one or items in the CPI, which means that the evolution of the prices of these items represents all of the elements that comprise said category.

Adapting to ECOICOP version 2 from the ECOICOP used until now involves, in many cases, breaking down subclasses (currently the maximum level of disaggregation) into two or more categories. In some cases, this change means that the new subclasses will contain fewer representative items as a result of the distribution of items that previously jointly represented a subclass, and in other cases it will require incorporating new items to represent previously non-existent subclasses.

4.1 SHOPPING BASKET

This is the set of goods and services selected in the CPI, whose price evolution represents all those that comprise the ECOICOP category to which they belong.

The selection of the items that make up the shopping basket that has been assembled from the Base 2021 CPI, and the data from the National Accounts and the 2024 HBS. The criterion for determining which categories should be included means taking into account all those that exceed a minimum threshold of total expenditure. Once the spending categories represented in the index are determined, the items that made up the Base 2021 shopping basket were reviewed, increasing, decreasing or maintaining

the items in each category, depending on its weighting, the number of representative items and prices, and the variability of the prices of these items.

As a result of these adjustments, the Base 2025 CPI shopping basket now has 487 items for traditional collection and 263 in scanner data.

For each item, a description or specification is created in order to make it easier to identify by the interviewer and allow for the correct collection of prices. These specifications take into account the specific characteristics of each region.

5 Functional disaggregation of the indices

Base 2025 CPI is fully adapted to the ECOICOP international consumption classification, version 2. Shopping basket items are aggregated into subclasses, these into classes, then into subgroups, and finally, the subgroups into groups.

The functional structure of the CPI is expanded at all levels compared to that of the Base 2021 CPI, due to the implementation of the new ECOICOP. This structure, from the Base 2025 CPI, consists of 13 groups, 45 subgroups, 108 classes and 196 subclasses, starting from January 2026.

In addition, 55 headings and 32 special groups are published.

The items in the 2025 CPI are distributed across the 13 groups as follows:

Number of items Base 2025 CPI

Groups	Number of items	
	Traditional harvest	***Scanner data***
Food and non-alcoholic beverages	170	180
Alcoholic beverages and tobacco	13	18
Clothes and footwear	68	
Housing, water, electricity, gas and other fuels	18	
Furniture, household equipment and items for the common household maintenance	52	28
Health care	22	4
Transportation	31	
Information and Communications	10	
Recreational activities, sport, and culture	36	6
Education services	8	
Restaurants and accommodation services	22	
Insurance and financial services	5	
Personal care, social protection, and miscellaneous goods and services	32	27
Total	**487**	**263**

6 Geographical disaggregation of the indices

The Base 2025 CPI publishes the indices for the same levels of geographical disaggregation as were published in the Base 2021 CPI.

The following table shows the breakdown for which data are published monthly.

INDEX	Nationwide	Autonomous Community	Province
General	X	X	X
Groups	X	X	X
Subgroups	X	X	X
Classes	X		
Subclasses	X		
Headings	X	X	
Special Groups	X	X	

IV Sample Design

As in most European Union (EU) countries, the design of the price sample used in the calculation of the CPI is intentional and therefore a non-probabilistic design, given the characteristics of the population under study.

In order to obtain meaningful indicators at the all functional and geographical disaggregation levels, the sample selection process has been structured into three main sections, each of which aims to select the different components of the sample. These are as follows:

– Selection of municipalities.

– Selection of commercial areas and establishments.

– Selection of items.

1 Selection of municipalities

The municipalities that are part of the CPI System are selected according to both demographic criteria and their geographical representativeness. The official population data used to select the municipalities were obtained from the review of the Municipal Register of Inhabitants as of 1 January 2024.

The geographical coverage criterion is based primarily on the population of the selected municipalities. In this way, the selected municipalities must cover 30% of the population of the province and 40% of the population of the autonomous community. Using this criterion, municipalities are selected by size until the requirement is met, without taking into account their geographical distribution within the province.

Furthermore, this starting criterion is completed as follows:

– **geographical representativeness**: it is important for the municipalities in the sample to be spread throughout the province, avoiding concentration in certain population centres.

– **population representativeness**: special emphasis is placed on the representativeness of small municipalities; in previous bases, when the selection criterion was exclusively population-based, part of the population residing in smaller municipalities would get excluded from the sample.

– **representativeness of the basket**: all the municipalities must contain items from all groups; this is why a small basket has been assembled, based on the total basket, in which basic consumer items have been included. This significantly increases the representativeness of the CPI.

Thus, the sample of municipalities obtained with the criteria mentioned above consists of 177 (the 52 provincial capitals and 125 non-capital municipalities).

It is important to note that in practice, higher percentages of the population are covered than indicated, since some establishments included in the sample, such as hypermarkets, shopping centres, repair shops or furniture stores, are located on the outskirts of the municipalities or in neighbouring municipalities, so the actual population represented in the index is greater than the theoretical one.

2 Selection of establishments

For the selection of the number of establishments, the Base 2025 CPI used as a starting point the sample from the Base 2021 CPI, and the existing network of establishments available in each province was studied, paying close attention to the different types and characteristics of said establishments. Furthermore, the representation of commercial reality and the evolution of prices in all areas has always been taken into account.

In this process of selecting the establishments, the participation of the staff of the provincial delegations of the INE is fundamental, since they are the most knowledgeable about commercial relations in their province.

As a general rule, the number of establishments that report the prices of an item every month is calculated according to the weighting the item has in the index and the variability of its prices: the higher the weighting and/or price variability, the greater the number of establishments that should be selected.

Furthermore, for the calculation of the number of establishments, a minimum number is established for each item in each province, depending on the type of item and the type of collection of the same.

For the selection of establishment types, the distribution of sales percentages by type of establishment (hypermarkets, supermarkets, markets and specialty stores) is taken into account, depending on each item. This is done using information from various sources, including the Annual Trade Survey (INE), the Ministry of Agriculture, Food and the Environment and data sources from the private sector.

Special attention is given to shopping centres, hypermarkets and supermarkets, given their importance in terms of sales volume. Furthermore, the selection of establishments is done in accordance with the objective of representativeness: the sample of establishments must represent, with the evolution of the prices of the items sold in them, all the establishments in the locality.

Based on the above premises, the staff of the provincial delegations of the INE make the selection of the reporting establishments, so that the following basic rules are met:

- The sample must include all commercial areas and the different types of establishments that exist.
- The establishments must be the most frequented and those with the highest public traffic in the locality, and/or those with the highest sales volume.
- The establishments must be representative of the type of item for which information is collected.
- In each establishment, more than one price for the same item cannot be collected on the same day.
- An establishment should not concentrate a significant number of price observations for different items. The aim is to prevent the pricing policy of a single establishment from influencing the evolution of the index.
- Establishments with restricted access to a sector of the population, such as cooperatives, commissaries, or similar establishments, are not part of the sample. Street vending and door-to-door sales are also not considered.

– The selected establishments must offer sufficient guarantees of continuity in the sale of items for which prices are collected, since this sample will remain fixed over time, unless there is a closure, a change of activity, a loss of representativeness in terms of consumption or the item for which prices were collected is no longer marketed. In these cases, the establishment will be replaced by another that meets the necessary requirements to belong to the sample.

All these criteria are subject to other aspects, such as collection costs, the informant's willingness to collaborate, and the reliability of the data provided. However, Law 4/1990 establishes the obligation to provide the data necessary for the compilation of this statistic.

The Base 2025 CPI includes prices from approximately 33,000 establishments, spread throughout the national territory.

3 Selection of items

Different organisations, business associations, manufacturers, retailers and establishments are consulted to select representative items for the expenditure categories, providing information on those items that best represent the different categories, according to the following selection criteria:

– The price evolution of the selected items should be similar to that of the rest of the items in the category they represent.

– The items should be those commonly consumed by the population.

– They must have prices that are easily observable.

– They must offer reasonable guarantees of remaining in the market.

Thus, in the Base 2025 CPI, the shopping basket is made up of 487 items.

3.1 ITEM SPECIFICATIONS

Once the items have been selected, it is necessary to determine the specifications that define them. The development of these specifications allows for the comparison over time of identical or equivalent quality items, in order to measure real price variations and not those motivated by the different quality of the items. Therefore, for each item, the determining factors of its prices must be specified, including, for example: the unit of measure, the type of packaging, the size, the composition, the shape or the dimensions.

To determine the characteristics of each item and its specifications, information is obtained from numerous organisations, professional associations and companies; in this way generic specifications are developed which are subsequently adapted, in each province, to the specific products selected in each establishment. Thus, when the information is collected by the agents, the items are identified in detail.

The specifications for each item remain fixed over time as long as they are representative of the consumption in the area, and are therefore changed when the item is no longer marketed or ceases to be representative of consumption in a locality.

When a product change is necessary, provincial delegations must provide detailed specifications of the new product selected as a replacement for the previous one; this will allow the calculation of a link coefficient that ensures variations in the index are motivated exclusively by price variations and not by changes in the item characteristics.

4 Number of observations

As previously stated, the number of observations used to calculate the index depends on the type of item in question, as well as the establishments selected in each province.

Sections 6 and 7 on "Types of items" and "Price collection" indicate the frequency of price collection which ultimately determines the sample size of prices collected each month.

Approximately 200,000 prices are collected monthly; this number does not include prices for centralised items or those for scanner data or web scraping.

V General calculation method

The formula used to calculate the indices of the CPI, in base year 2025, is the chain-linked Laspeyres formula, which has been used in the CPI since base year 2001.

The general index corresponding to month *m* of year *t* is mathematically expressed as follows:

$$ {}_0I^t_{LE} = \prod_{k=1}^{t} \frac{\sum_i p_i^k q_i^{k-1}}{\sum_i p_i^{k-1} q_i^{k-1}} $$

Similarly, it can be expressed as:

$$ {}_0I^t_{LE} = \prod_{k=1}^{t} \frac{\sum_i \frac{p_i^k}{p_i^{k-1}} p_i^{k-1} q_i^{k-1}}{\sum_i p_i^{k-1} q_i^{k-1}} = \prod_{k=1}^{t} \sum_i {}_{k-1}I_i^k W_i^{k-1} $$

where:

$$ {}_{k-1}I_i^k = \frac{p_i^k}{p_i^{k-1}} \quad \text{and} \quad W_i^{k-1} = \frac{p_i^{k-1} q_i^{k-1}}{\sum_i p_i^{k-1} q_i^{k-1}} $$

As can be seen, a chained index establishes the comparisons between the current period (*t*) and the base period (*0*) based on intermediate situations (*k*).

In the Base 2025 CPI, the intermediate situations considered correspond to the months of December of all years. Thus, the base year 2025 index for month *m* of year *t* is obtained as a product of indices as follows:

$$ {}_{25}I_G^{mt} = {}_{25}I_G^{dic(t-1)} * \left(\frac{{}_{dic(t-1)}I_G^{mt}}{100} \right) = $$

$$ = {}_{25}I_G^{dic25} * \left(\frac{{}_{dic25}I_G^{dic26}}{100} \right) * \dots * \left(\frac{{}_{dic(t-2)}I_G^{dic(t-1)}}{100} \right) * \left(\frac{{}_{dic(t-1)}I_G^{mt}}{100} \right) $$

where:

${}_{25}I_G^{mt}$ is the general index, in base 2025, for month *m* of year *t*.

${}_{dic(t-1)}I_G^{mt}$ is the general index, referenced to December of year (*t-1*), for month *m* of year *t*.

The main drawback of chain indices is the lack of additivity. This means that it is not possible to obtain the index of any aggregate as a weighted average of the indices of the aggregates that comprise it. Thus, for example, the overall index cannot be calculated as a weighted average of the indices of the twelve groups.

1 Elementary indices

An elementary aggregate is the consumption component with the lowest level of aggregation for which indices are obtained and whose calculation does not involve weightings; the indices of these aggregates are known as elemental indices. In the Spanish CPI, an elemental index is calculated for each item in the shopping baskets for each province, which means the elemental aggregation is the item-province.

The index of elementary aggregate *i* is obtained as the ratio of the average price of this elementary aggregate in the current period and the average price in the price reference period, that is, December of the previous year:

$$_{dic(t-1)}I_i^{mt} = \frac{\overline{P}_i^{mt}}{\overline{P}_i^{dic(t-1)}} \times 100$$

where:

$_{dic(t-1)}I_i^{mt}$ is the index, referenced to December of year *(t-1)*, of elementary aggregate *i* in month *m* of year *t*.

$\overline{P}_i^{mt}$ is the average price of elementary aggregate *i*, in month *m* of year *t*.

$\overline{P}_i^{dic(t-1)}$ is the average price of elementary aggregate *i*, in December of year *(t-1)*.

Similarly, the average price of aggregate *i* in period (*m, t*), $\overline{P}_i^{mt}$, is the simple geometric mean of the prices collected during that period.

$$\overline{P}_i^{mt} = \sqrt[n_i^{mt}]{\prod_{j=1}^{n_i^{mt}} P_{i,j}^{mt}} \qquad (1)$$

where:

$P_{i,j}^{mt}$ is the price of elementary aggregate *i* collected in establishment *j*, in period *(m,t)*.

n_i^{mt} is the number of prices processed for elementary aggregate *i*, in period *(m,t)*.

The geometric mean assigns equal significance to changes in all prices, regardless of their level.

2 Weightings

The weights involved in the calculation of the aggregate indices come from the Final Monetary Consumption Expenditure of Households in the National Accounts. This structure is complemented by data from the Household Budget Survey (HBS), which continues to be used to drill down to more detailed functional and geographical levels, and by information from the supply side of some sectors.

The consumption classification used by the HBS (ECOICOP vers.2) consists of a series of expenditure categories, most of which include goods and services included in the CPI consumption field.

The data used in the calculation of the weightings, used during the year 2026, correspond to the year 2024.

Additionally, in order to correct the discrepancy that occurs between the reference period for the weightings and the reference period for prices (December 2025), the weightings are updated using information on the evolution of prices and quantities from the CPI and other sources. Thus, the reference period for the weightings used during 2026 is the fourth quarter of 2025.

The weightings for each item represent the relationship between the expenditure in the categories represented by that item and the total expenditure on all categories covered by the index:

$$W_i = \frac{\text{gasto realizado en las parcelas representadas por el artículo } i}{\text{gasto total}}$$

These weightings are different in each geographic aggregation (provinces, autonomous communities, Spain as a whole) and based on these the weightings of the different functional aggregations are obtained. Thus, the weighting of functional aggregation *A* is obtained from the sum of the weightings of the items that make up that aggregation:

$$W_A = \sum_{i \in A} W_i$$

The annual updates of weightings, to be carried out in the CPI, base 2025, will use the latest available annual information from the National Accounts and the HBS.

3 Aggregate indices

As previously mentioned, elementary indices refer to December of the immediately previous year. Moreover, the weightings used for the calculation of the aggregates also refer to December of the previous year, thus maintaining consistency with the reference prices.

The calculation of the aggregate indices is described below.

Functional aggregations within a province

The index, referring to December of the previous year, any functional aggregation *A* of province *p* is obtained by aggregating the elemental indices of the items belonging to that aggregation with the current weightings in year *t*.

Its mathematical expression is as follows:

$$ {}_{dic(t-1)}I^{mt}_{A,p} = \sum_{i \in A} {}_{dic(t-1)}I^{mt}_{i,p} \times {}_{dic(t-1)}W_{i,p} $$

where:

${}_{dic(t-1)}I^{mt}_{i,p}$ is the index, referring to December of *t-1*, from item *i* in province *p*, in month *m* of year *t,*

${}_{dic(t-1)}W_{i,p}$ is the weighting (as a decimal), referring to December of *(t-1)*, of item *i* in province *p*, within aggregation A, that is:

$$ {}_{dic(t-1)}W_{i,p} = \frac{\text{gasto realizado en el artículo } i \text{ dentro de la provincia } p}{\text{gasto realizado en la agregación funcional } A \text{ dentro de la provincia } p} $$

Once the aggregate indices have been calculated as detailed above, it is necessary to chain them. These indices are the ones that are finally disseminated and provide continuity to the series published based on 2021.

For any functional aggregation *A*, the index in base year 2025 in province *p* is calculated as follows:

$$ {}_{25}I^{mt}_{A,p} = {}_{25}I^{dic(t-1)}_{A,p} * \left(\frac{{}_{dic(t-1)}I^{mt}_{A,p}}{100} \right) $$

Geographic aggregations from a functional aggregation

In the same way as the previous case, the index for a geographical aggregation *R* above the province level for a specific functional grouping *A* is calculated as follows:

$$_{dic(t-1)}I^{mt}_{A,R} = \sum_{p \in R} {}_{dic(t-1)}I^{mt}_{A,p} \times {}_{dic(t-1)}W_{A,p}$$

where:

$_{dic(t-1)}I^{mt}_{A,p}$ is the index referenced to December of year *(t-1)* for functional aggregation *A* in province *p*, in quarter *m* of year *t*.

$_{dic(t-1)}W_{A,p}$ is the weighting (as a decimal) referring to December of *(t-1)* of functional aggregation *A* in province *p*, that is,

$$_{dic(t-1)}W_{Ap} = \frac{\text{gasto realizado en la agregación funcional } A \text{ dentro de la provincia } p}{\text{gasto realizado en la agregación funcional } A \text{ dentro de la agregación geográfica } R}$$

As with functional aggregations, once the aggregated indices have been calculated, they need to be chained together.

For any functional aggregation A, the chained index, in base 2025, in region R, in month m of year t, is:

$$_{25}I^{mt}_{A,R} = {}_{25}I^{dic(t-1)}_{A,R} * \left(\frac{{}_{dic(t-1)}I^{mt}_{A,R}}{100} \right)$$

4 Calculation of variation rates

4.1 MONTHLY RATE OF CHANGE

The monthly rate of change of an index in the period *(m, t)* is calculated as the ratio of the index of the current month *m* to the index of the previous month*(m-1)*, according to the following formula:

$$V^{mt/(m-1)t} = \left(\frac{{}_{25}I^{mt}}{{}_{25}I^{(m-1)t}} - 1 \right) * 100 = \left(\frac{{}_{dic(t-1)}I^{mt}}{{}_{dic(t-1)}I^{(m-1)t}} - 1 \right) * 100$$

where:

$V^{mt/(m-1)t}$ is the monthly variation rate for month *m* of year *t*.

${}_{25}I^{mt}$ is the index, in base 2016, for month *m* of year *t*.

${}_{dic(t-1)}I^{mt}$ is the index, referenced to December of the previous year, for month *m* of year *t*

In other words, the monthly rates of change may be calculated with the published indices, in base year 2016, or with the unchained indices (referring to December of the previous year).

4.2 CUMULATIVE RATE OF CHANGE

The cumulative rate of change (or year-to-date) is calculated as the ratio between the index of the current month and the index on December of the previous year:

$$V^{mt/dic(t-1)} = \left(\frac{{}_{25}I^{mt}}{{}_{25}I^{dic(t-1)}} - 1\right) * 100 = \left(\frac{{}_{dic(t-1)}I^{mt}}{{}_{dic(t-1)}I^{dic(t-1)}} - 1\right) * 100$$
$$= \left(\frac{{}_{dic(t-1)}I^{mt}}{100} - 1\right) * 100$$

where:

$V^{mt/dic(t-1)}$ is the cumulative variation rate in month *m* of year *t*.

${}_{25}I^{mt}$ is the index, in base 2016, in month *m* of year *t*.

${}_{dic(t-1)}I^{mt}$ is the index, referenced to December of the previous year, for month *m* of year *t*

In other words, the cumulative rates of change may be calculated with the published indices, in base year 2025, or with the unchained indices (referring to December of the previous year).

4.3 ANNUAL RATE OF CHANGE

The annual rate of change is calculated as the ratio between the published indices of the current quarter and the same quarter of the previous year, both in base 2025:

$$V^{\frac{mt}{m(t-1)}} = \left(\frac{{}_{25}I^{mt}}{{}_{25}I^{m(t-1)}} - 1\right) * 100$$

where:

$V^{mt/m(t-1)}$ is the annual variation rate in month *m* of year *t*

${}_{25}I^{mt}$ is the index, in base 2025, in month *m* of year *t*.

In the case of annual variations, these cannot be calculated with the indices referring to December of the previous year, as is the case with the quarterly and cumulative rates of change.

5 Calculation of Contributions

5.1 MONTHLY CONTRIBUTIONS

The contribution of the monthly variation of an item or an aggregate on the general index is defined as the portion of the monthly variation of the general index that corresponds to that item or aggregate. Therefore, the sum of the monthly contributions of all the items in the shopping basket is equal to the monthly variation of the general index.

In other words, the contribution that the monthly price variation of an item or aggregate has on the monthly variation of the general index is the variation that the latter would have undergone if all the prices of all the other items had remained stable in that month.

The formula for the monthly contribution of a specific item (or aggregate) *i* in month *m* of year *t* is as follows:

$$R_i^{mt/(m-1)t} = \frac{{}_{dic(t-1)}I_i^{mt} - {}_{dic(t-1)}I_i^{(m-1)t}}{{}_{dic(t-1)}I_G^{(m-1)t}} \times {}_{dic(t-1)}W_i \times 100$$

where:

${}_{dic(t-1)}I_i^{mt}$ is the index, referenced to December of year *(t-1)*, of product *i*, in month *m* of year *t*.

${}_{dic(t-1)}I_G^{(m-1)t}$ is the general index, referenced to December of year *(t-1)*, in month *(m-1)* of year *t*.

${}_{dic(t-1)}W_i$ is the weighting, referenced to December of year *(t-1)*, of product *i*, expressed as a decimal.

Expanding the previous formula provides an alternative method to calculate the contributions through variation rates:

$$R_i^{mt/(m-1)t} = \frac{{}_{dic(t-1)}I_i^{mt} - {}_{dic(t-1)}I_i^{(m-1)t}}{{}_{dic(t-1)}I_G^{(m-1)t}} \times {}_{dic(t-1)}W_i \times 100 =$$

$$= \frac{{}_{dic(t-1)}I_i^{mt} - {}_{dic(t-1)}I_i^{(m-1)t}}{{}_{dic(t-1)}I_G^{(m-1)t}} \times \frac{{}_{dic(t-1)}I_i^{(m-1)t}}{{}_{dic(t-1)}I_i^{(m-1)t}} \times {}_{dic(t-1)}W_i \times 100 =$$

$$= \frac{{}_{dic(t-1)}I_i^{mt} - {}_{dic(t-1)}I_i^{(m-1)t}}{{}_{dic(t-1)}I_i^{(m-1)t}} \times 100 \times {}_{dic(t-1)}W_i \times \frac{{}_{dic(t-1)}I_i^{(m-1)t}}{{}_{dic(t-1)}I_G^{(m-1)t}}$$

$$= V_i^{mt/(m-1)t} \times {}_{dic(t-1)}W_i \times \frac{{}_{dic(t-1)}I_i^{(m-1)t}}{{}_{dic(t-1)}I_G^{(m-1)t}}$$

Therefore, the monthly contribution of a specific product *i* is the product of its monthly rate of change ($V_i^{m,t/(m-1)t}$), times its weighting (${}_{dic(t-1)}W_i$), and the ratio between the item index and the general index from the previous month (${}_{dic(t-1)}I_i^{(m-1)t} / {}_{dic(t-1)}I_G^{(m-1)t}$).

As mentioned above, the sum of the monthly contributions of all the items in the CPI basket is equal to the monthly variation of the general index. This is demonstrated as follows:

$$\sum_i R_i^{mt/(m-1)t} = \sum_i \frac{{}_{dic(t-1)}I_i^{mt} - {}_{dic(t-1)}I_i^{(m-1)t}}{{}_{dic(t-1)}I_G^{(m-1)t}} \times {}_{dic(t-1)}W_i \times 100 =$$

$$= \frac{\left(\sum_i {}_{dic(t-1)}I_i^{mt} \times {}_{dic(t-1)}W_i - \sum_i {}_{dic(t-1)}I_i^{(m-1)t} \times {}_{dic(t-1)}W_i \right)}{{}_{dic(t-1)}I_G^{(m-1)t}} \times 100 =$$

$$= \frac{{}_{dic(t-1)}I_G^{mt} - {}_{dic(t-1)}I_G^{(m-1)t}}{{}_{dic(t-1)}I_G^{(m-1)t}} \times 100 = V_G^{mt/(m-1)t}$$

5.2 CUMULATIVE CONTRIBUTIONS

The contribution of the year-to-date variation (or cumulative rate of change) of an item or aggregate on the general index represents the cumulative variation that the general index would experience if the rest of the items had not undergone any price variation so far this year. In other words, it is the portion of the cumulative rate of change attributed to that specific item or aggregate.

The formula for the cumulative contribution of a specific item (or aggregate) *i* in month *m* of year *t* is as follows:

$$R_i^{mt/dic(t-1)} = \frac{{}_{dic(t-1)}I_i^{mt} - {}_{dic(t-1)}I_i^{dic(t-1)}}{{}_{dic(t-1)}I_G^{dic(t-1)}} \times {}_{dic(t-1)}W_i \times 100 =$$

$$= \frac{{}_{dic(t-1)}I_i^{mt} - 100}{100} \times {}_{dic(t-1)}W_i \times 100 = \left({}_{dic(t-1)}I_i^{mt} - 100\right) \times {}_{dic(t-1)}W_i$$

where:

${}_{dic(t-1)}I_i^{mt}$ is the index, referenced to December of year *(t-1)*, of product *i*, in month *m* of year *t*.

${}_{dic(t-1)}W_i$ is the weighting, referenced to December of year *(t-1)*, of product *i*, expressed as a decimal.

Using the alternative formula for calculating contributions developed in the previous section, it is found that the cumulative impact is equal to the product of the year-to-date variation and the weighting:

$$R_i^{mt/dic(t-1)} = \frac{{}_{dic(t-1)}I_i^{mt} - {}_{dic(t-1)}I_i^{dic(t-1)}}{{}_{dic(t-1)}I_G^{dic(t-1)}} \times {}_{dic(t-1)}W_i \times 100 =$$

$$= V_i^{mt/dic(t-1)} \times {}_{dic(t-1)}W_i \times \frac{{}_{dic(t-1)}I_i^{dic(t-1)}}{{}_{dic(t-1)}I_G^{dic(t-1)}} =$$

$$= V_i^{mt/dic(t-1)} \times {}_{dic(t-1)}W_i \times \frac{100}{100} = V_i^{mt/dic(t-1)} \times {}_{dic(t-1)}W_i$$

For cumulative contributions, it is also verified that the sum of these impacts equals the cumulative variation rate, following the same steps as in the previous section.

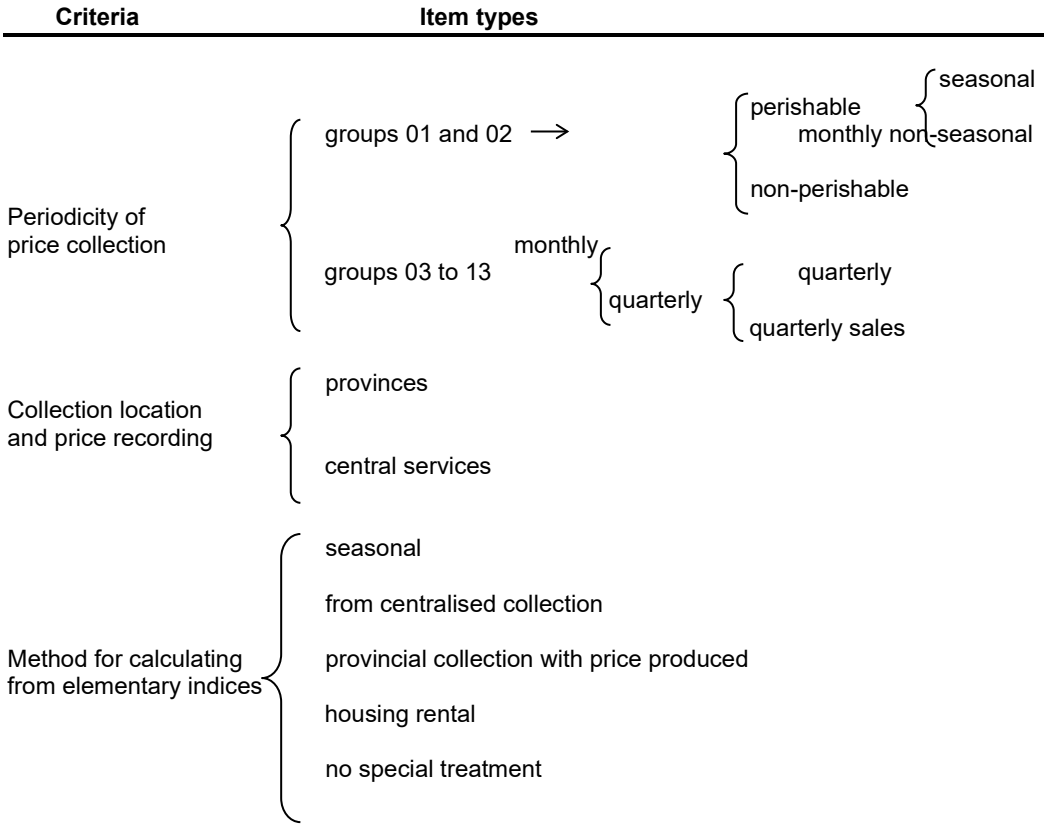
VI Item types

1 Criteria for item classification

The operations included in the CPI calculation process, from price collection to the calculation of the indices, are different depending on the specific characteristics of each item in the shopping basket.

Thus, the frequency of price collection depends on how frequency in which these change. The way they are collected also differs depending on the geographical homogeneity of prices and their availability. Finally, depending on the characteristics of each item, the method for calculating the indices is different.

The following table shows the different item types according to the criteria used in their classification:



Frequency of price collection

A first way of classifying the items is established from the periodicity and frequency of price collection. In this way, two types of articles are considered: monthly and quarterly.

Items collected monthly

Monthly item prices are observed every month in all establishments in the sample, through personal visits in most cases.

In general, each establishment is visited once a month, except for those where prices of perishable items are collected, which, due to the greater frequency of price variation, the interviewer visits two or three times a month, depending on the municipality. This category includes fresh, unprocessed foods, which experience periodic price

fluctuations and constant changes in quality. These include seasonal items (certain fresh fruits and vegetables) which are only marketed during certain months of the year; for these items, price collection is only carried out in the months when they are available.

Seasonal items stand out among the items collected monthly, which are those only consumed during certain periods throughout the year, since they are not sold the rest of the year. Furthermore, these items are characterised by the fact that, unlike fresh fruits and vegetables, all those belonging to the same season are all marketed in the same way. Therefore, in the CPI, clothing and footwear items are considered seasonal, as they have two defined seasons (spring-summer and autumn-winter). The prices for these items are collected once a month during the season in which they are marketed; and for the months that the item is no longer on the market, the last price collected is repeated so that there is no price variation while the item is not available.

Items collected quarterly

Quarterly items are those whose prices have a fairly stable behaviour, that is, they do not usually experience many price variations over time (appliances, furniture, repair services, restoration, etc.). Quarterly collection allows for an increased number of prices to be collected at the same cost.

These prices are treated by dividing the sample of selected establishments into three subsamples, so that each month only one of these establishments is visited and the last price collected is repeated for the establishments in the other two subsamples. This ensures that every month there are establishments that provide information on the prices of these items. Furthermore, if more than half of the prices collected in the month change, information will be requested from the remaining establishments the following month.

With the inclusion of discounted prices, a new category of items was established within the quarterly items: the quarterly sales. These are those that, despite meeting the price stability requirement typical of quarterly items, show significant variations in typical discount periods (appliances, furniture, bedding, etc.). Therefore, price collection during sales months is carried out by visiting all establishments in the sample and not just those in the subsample corresponding to that month.

Price collection and recording location

Taking into account the location where prices are collected and recorded, a distinction can be made between provincially collected items and centrally collected items.

The prices of the former are collected in each province by means of personal visits, by telephone, fax or Internet, or from the official bulletins of the autonomous communities or provinces, and are recorded in the provincial delegations.

On the other hand, the monitoring of prices for centrally collected items is carried out from INE Central Services. This type of item includes goods and services that have one or more of the following characteristics:

– their prices are the same across a broad geographical area,
– their prices are subject to rates published in the BOE (Official State Gazette),
– there are few companies that market the item,
– a precisely defined directory of informants is available,

– these are items whose quality changes frequently (such as technological items), which makes it difficult to make quality adjustments; by collecting them centrally, there is standardised treatment for these adjustments.

Method for calculating elementary indices

Regarding the calculation method, there are certain item groups whose elementary indices are obtained differently from the general formula described in section 5.1.

According to the general calculation formula, the elementary index of any item in the shopping basket is obtained as a simple average of the collected prices, without taking into account any type of weighting. The exception to this general rule is the calculation formula for centrally collected items and items with a set price; in both cases, the elementary index is calculated according to a set of representative varieties or modalities of the item, weighted appropriately by the expenditure made on each.

The weighting of each modality is obtained from the expenditure made by consumers. In this way, consistency is maintained within the general weighting structure of the shopping basket.

Another item group that receives special treatment due to their characteristics are seasonal items. Because of the periodic fluctuations in their prices and quantities, the indices for seasonal fruits, vegetables and greens are calculated using a different method that takes into account the production and marketing schedules of each item.

Finally, and due to the special characteristics of the market, housing rentals also receive a different treatment from the general CPI formula.

These special calculation methods are described in detail in the following sections.

2 Seasonal items

2.1 DEFINITION

Seasonal items are considered to be those that undergo periodic fluctuations in both price and quantity consumed throughout the year, even disappearing from the market at some point.

Seasonal items are included in the index for most countries. However, there are notable differences in the treatment methods as well as in the criteria for cataloguing certain items as seasonal. Products that exhibit a more seasonal profile in all countries are fresh fruits and vegetables, although in some countries fresh fish, certain meats, soft drinks, ice cream, clothing and footwear, plants, flowers and sporting goods are also included.

In the 2021 base CPI, seasonal items are considered only those fresh fruits and vegetables that are not available for sale at any given time

2.2 METHODOLOGY

In the 2011 database, the calculation of the indices for the seasonal item subclasses was carried out in two stages, where one index was obtained in each: elementary indices for each seasonal item; direct indices for each seasonal subclass.

With the entry into force of the new base 2016 CPI, the calculation formula was changed to assimilate it to that of the rest of the items in the basket, and the price of out-of-season products is estimated with the average variation of the prices of the rest of the products of the subclass that are available, thus proceeding in the same way as with the rest of the items in the shopping basket when there is a lack of price.

Thus, these items have prices every month of the year, as well as fixed annual weightings, and their basic indices can be calculated just like those of the rest of the items in the shopping basket.

3 Provincially collected items with produced prices

Provincially collected items with a produced price are those whose final prices are made up of the prices of different concepts (rates, subscription fees, consumption tiers, etc.), and information is also available on both their prices and their weightings.

Provincially collected items with produced prices include: water, garbage collection service, urban transport and education.

Calculation method

The final price of these items is obtained as an average of the different concepts weighted according to the expenditure made on each. The weightings involved in calculating the final price of these items are updated every year.

4 Housing rental

Unlike other items, most of the informants regarding the price of rented dwellings are not always the establishments that market the service (which, in this case, would be the landlords), but the consumers themselves, that is, the tenants.

The dwelling sample is geographically distributed according to the population in each province, the number of rented dwellings and the spending of families on rent; in addition, a minimum number of provincial and single-province Autonomous Communities has been set.

To determine and locate the informants, among other sources, a module of the Economically Active Population Survey (EAPS) is used, which is carried out in the fourth quarter of the year, and where households are asked if they rent or own their dwelling and, in the first case, some questions about the characteristics of the dwelling itself.

To obtain the monthly information on the rental prices necessary for calculating the index, the selected sample is divided into three subsamples, so that each dwelling provides information once per quarter, either by personal visit or telephone interview. In

any case, the personal visit is carried out at least once a year, or when there has been a change of tenant in the property.

The basic information collected in each interview is the rent of the dwelling, excluding community expenses.

Calculation method

The price of rented dwellings in each province is calculated in the same way as for any other item collected quarterly, as the geometric mean of the rental prices of the dwellings in the subsample corresponding to the current month and the subsamples of the two previous months:

$$\overline{P}_p^{m,t} = \sqrt[N]{\prod_{i=1}^{N_{m-2,t}} P_{i,p}^{m-2,t} * \prod_{i=1}^{N_{m-1,t}} P_{i,p}^{m-1,t} * \prod_{i=1}^{N_{m,t}} P_{i,p}^{m,t}}$$

where:

$\overline{P}_p^{m,t}$ the geometric mean price of rent in the province *p*, corresponding to month *m* of the year *t*;

$P_{i,p}^{m,t}$ the price collected from the rental of dwelling *i*-th of province *p* of the subsample corresponding to the month *m* of the year *t* ($P_{i,p}^{m-1,t}$ and $P_{i,p}^{m-2,t}$ These are the prices collected in the previous months *m-1* and *m-2*);

$N_{m,t}$ the number of dwellings in the subsample corresponding to the month *m* of the year *t*; and

$N = N_{m-2,t} + N_{m-1,t} + N_{m,t}$ the total number of rented dwellings in province *p*.

5 Centrally collected items

Items with centralised collection not only have a special calculation method, but also, as mentioned above, the type of collection is different from the rest of the items in the shopping basket.

Collection of information

The collection of information and the monitoring of centrally collected items is carried out at the INE Central Services, unlike the other items in the basket whose collection is carried out in the provincial delegations.

For this type of item, a provincial collection is not necessary because, in general, there are few companies that market them and/or there is a precisely defined directory of reporting companies or the different rates are published in official bulletins.

Furthermore, for most items, even if collection is centralised, if prices differ between regions, they are collected in all of them. On the other hand, when the companies that market the items are the same, it is advisable for the INE Central Services to request the information only once.

For each item, a sample of the most representative varieties (brands, models, consumption ranges, etc.) and reporting units is produced.

The selection of reporting units is based on their market share, while the choice of representative varieties of the item is based on the expenditure on each.

There are two types of information used to calculate the price of these items:

– Information relating to consumption, which is necessary to calculate the weightings of each company in the sample (market share), as well as the weightings of each item's modalities. To keep the CPI up-to-date, these weightings are reviewed once a year.

– Information regarding the prices or rates of each modality and/or each concept that makes up the final price of the item. It is collected monthly.

Price variations are reflected in the month in which they occurred, and in the case of rates that change as of a specific day of the month, an average price weighted by the number of days the price has been in effect is calculated.

Items subject to centralised collection include, among others, tobacco, electricity, medicines, vehicles, air and rail transport, fuels and lubricants, telephone service and package holidays.

The calculation of the price of these items involves all those concepts and/or modalities that determine it. Thus, for items such as tobacco, vehicles and medicines, the different brands are considered; for others such as electricity, the different consumption tiers, fixed fees, etc., are taken into account. And in all of them, the final price is calculated as the average price of each concept or variety weighted by their degree of importance. These weightings are calculated based on the expenditure made on each variety.

5.1 COMPUTERIZED COLLECTION

Over the last few years, the information used by the CPI from company databases or collected by telematic methods has been increasing. This avoids having to visit the establishments to collect the prices and the main characteristics of the products in the sample.

To capture price movements more accurately, work is underway to develop automated data collection methods for centrally collected items, through the development of the method called *Scanner Data*, which consists of using company databases and automated internet data collection (*web scraping*), as has been done in most of our neighbouring countries.

Scanner Data

Scanner data is the process of obtaining and using information from companies' databases for the calculation of the CPI. These databases contain the record of sales of each product made in the check-out line of every establishment. It is common for this information to consist of the number of units sold and the revenue from each of the products sold, codified according to the classification system used by each company.

This collection method was implemented in the CPI in 2020 and has been gradually expanded as information from different chain stores has become available.

For the time being, in the Base 2025 CPI, the information incorporated in the CPI is related to consumer products (packaged food, beverages, household cleaning and maintenance products, over-the counter health products, pet food and pet products, and personal care items), but work is still being done to add more sectors to this collection method.

The implementation phases of this method are as follows:

– **Adaptation of the classification to the ECOICOP**

  The great challenge of scanner data is obtaining price indices which are compatible with those of the CPI based on the information contained in the company databases, as these indices must be integrated with the functional groupings that are already structured in the CPI, which are based on ECOICOP.

  Consequently, the first step needed in order to use scanner data is to match up the product classification used internally by the collaborating company and the ECOICOP item classification used in the CPI. This allocation is essential in order to automatically associate the varieties with the items they refer to solely through the product family in which they are included.

– **Selection of items**

  Much like traditional CPI data collection, the sample of representative items within each ECOICOP section must be selected, whose changing price will represent the changes experienced by that section.

  In the case of Scanner Data, this basket of items is created according to the revenue from the previous year, discarding those items whose consumption is not representational. The basket of items will remain stable for an entire year and be reviewed at the end of each year to include items whose consumption began during the year and exclude those no longer being consumed.

– **Calculation of variations and indices**

  Processes are being designed to measure the evolution of Scanner Data items through common varieties between two consecutive months.

  Analogously to the elementary index of the traditional CPI shopping basket, an elemental aggregate of scanner data represents an item in certain shop format and in a specific province, that is, item-format-province. Therefore, this is the lowest level of aggregation for which indices are obtained in this method.

– **Integration of a traditional collection CPI with the Scanner Data CPI**

  The integration of a Scanner Data CPI with a traditional collection CPI is done at the subclass/provincial level of the CPI. as it is the minimum common aggregation

between the traditional collection basket and the scanner data basket. In order to aggregate these sets of indices, the relative weights of each must be available.

Web scraping

The 2025 database uses two different *web scraping*techniques, depending on the characteristics of the product and the market where it is sold:

– **Complete extraction**. The aim is to obtain all the information from the informant's website, without discriminating the products based on their characteristics. In this way, all the information on prices and characteristics of the products is available and not only that of those contained in the limited sample of the CPI.

– **Selective extraction.** It is a question of locating and extracting only those products whose characteristics are adapted to those of the CPI sample. It is, therefore, a full comparison of the collection on the web to the collection in establishments.

The web scraping implementation process in the CPI entails a set of tasks whose objective is to adapt the characteristics of the databases thus obtained to the CPI calculation structure. The phases of the adaptation process are common in all cases, however, for each web page from which the information is extracted, the work within each phase must be unique, given the exclusivity of each one of them.

The implementation phases are as follows:

– **Information extraction programming.** The information extraction engine must be programmed so that it is obtained automatically with a frequency that will usually be weekly. Its design must take into account the characteristics of each web page, the classification and hierarchy of the products and the information available for each one.

– **Adaptation of the classification to the ECOICOP**

  This is one of the crucial issues in any method of automated information gathering. Each marketing company has its own classification, which requires meticulous assignment of the products to the ECOICOP version 2 categories. This adaptation can be direct, if each product is related to a specific category, or it can require a detailed analysis of the content of both classifications before establishing the correspondence.

  On the other hand, although the classification is not normally modified too frequently, it is possible that with the passage of time the company decides to make some change in it, for which reason one of the quality controls of the information obtained by this method should focus on checking the classifications.

– **Information quality control**

  A quality control system for the information obtained will be designed. In essence, this should be based on checking the number of records, common elements between two consecutive periods, analysis of non-common elements, checking the stability of the classification used, etc.

– **Calculation of average prices and indices**

  The calculation is made for each web page independently. This means that the integration with the CPI is not done by incorporating the prices collected by web scraping into the calculation of the indicator, but rather the average prices for each

product will be previously calculated, followed by the respective indices and their aggregations, and these will be the ones that are incorporated. to their respective ECOICOP version 2 aggregation, which may be at a different level depending on each case.

In the Base 2025 CPI, the categories where web scraping is used are tourist apartments, passenger transport, gambling and self-drive vehicle rental.

VII Price Collection

Item prices are collected both in the provinces and in Central Services, through personal visits by INE agents to the establishments on the corresponding dates, with the exception of some whose special characteristics require the collection of information be done by telephone, fax, email, catalogue or Internet.

The data collection is done using an electronic device where the interviewer records the prices and incidents related to the items that appear on it. Each establishment is visited by a single interviewer, except for hypermarkets and large stores.

The prices collected are the actual retail prices paid in cash.

The Base 2025 CPI does not include prices corresponding to defective goods, clearances or overstock. However, prices for discounted and sale items are included.

1 Collection schedule and frequency

In general, the price collection period runs approximately from the 1st to the 22nd of each month, both inclusive. However, for centrally collected items, this period is extended, whenever possible, until the end of the corresponding month.

The collection of prices for the same item in the different reporting establishments has been distributed throughout that period to capture as many price fluctuations as possible. The selected establishments are visited every month on approximately the same day; this is intended to ensure that the variation reflected by the index corresponds to a monthly variation.

As perishable items are subject to significant price fluctuations, they are collected three times throughout the month from each of the selected establishments in all provincial capitals, maintaining a gap of at least seven days between the three visits to the establishment. In the other municipalities, the prices of these items are collected twice in each establishment that belong to the sample.

For all other items, each establishment is visited only once a month, except for quarterly items, for which price collection at each establishment is carried out once every three months.

2 Inclusion of discounted prices and offers

The Base 2025 CPI includes prices that have been reduced for reasons such as offers and promotions, as well as those whose discounts are due to seasonal sales periods. This affects most of the items that make up the CPI, although discounts due to sales occur more markedly in the items of *Clothes and footwear* and *Furnishing, household equipment and routine maintenance of the home*, where these are more common.

2.1 CRITERIA AND TYPES OF DISCOUNT CONSIDERED

The criteria followed in the 2025 database for collecting discounted prices are as follows:

- that the discount is applied to items that are expected to be available again at their usual prices, that is, it is not a discount for clearances or overstock;
- that the discount is applied to items that can be purchased by all consumers, not just a portion of them (for example, discounts given for having loyalty cards from the establishment or for meeting certain conditions will not be taken into account, unless information is available on the portion of the population likely to receive that discount);
- and that these discounts are effective at the time of purchase (for example, refunds after purchase are not considered).

Therefore, discounts are collected due to:

- Seasonal sales.
- Offers of any kind (provided they are not clearance sales or overstock).

3 Fieldwork organisation

Most of the information is collected by the staff assigned to the survey in each of the 52 provincial delegations of the INE: a team of interviewers-surveyors, interviewer inspectors, a survey inspector and, at the head of each delegation, a provincial delegate who is ultimately responsible for the collection of information in each province.

Technical responsibility lies with the survey inspector. This figure is in charge of organising and distributing the work, analysing the price series, planning the inspection visits and, in general, solving any problems that may arise during the price collection. To do this, he or she relies on the help of interviewer inspectors, who must accompany new interviewers on their first visits, check the suitability and representativeness of the items and establishments, advise them on the proper manner to collect prices, and control and inspect the work done by the interviewers under their charge.

Finally, the interviewer or surveyor's missions include collecting prices, verifying that the specifications of the chosen items are met, proposing the replacement of items and establishments that they do not consider suitable, and transmitting to the interviewer inspector any incidents that may occur.

To control the quality of the information collected, there is a plan of inspection visits to the reporting establishments.

In the delegations, the inspection work corresponds to the interviewer inspector and the survey inspector. As a basic criterion, every establishment that provides information for the first time should be visited, as well as those that the interviewer has found to be reluctant to cooperate.

During the visits, the establishments are checked for their suitability and representativeness, whether the items for which prices are collected meet the specifications and whether these prices are correct. The degree of cooperation of the

informants is also checked, as well as whether the interviewer's visits are carried out appropriately and on the scheduled dates.

In addition, there is another systematic inspection established by the INE Central Services that requires the inspection of a certain percentage of establishments each month. The survey inspector must send a report on said inspection indicating the establishments, items and interviewers inspected, as well as the discrepancies observed.

Also, when deemed necessary, visits are made to the delegations by technicians from the Central Services and from the CPI Unit and those responsible for overseeing the prices collected in the delegations, in which the suitability of the selected sample and the task mechanics carried out every month are verified. In addition, these visits help to resolve any doubts raised by the delegation's working team and propose any changes that are considered pertinent to improve the quality of the survey.

Finally, it should be noted that repeated interviews are continuously conducted by agents deployed from the Central Services to verify the quality of the data obtained.

VIII Information Processing

1 Information reception

As previously mentioned, the direct collection of prices of the items that make up the shopping basket in the corresponding establishments is done with an electronic device, where the interviewer notes the prices and incidents relating to the items that appear in it. The use of this device results in faster availability of the recorded information, a reduction in potential recording errors and greater efficiency in the processing of the additional information collected.

Not only does said device collect the item prices, but it also records additional information that is of vital importance for correct follow-up, such as any alteration that has occurred in the product since the previous visit, or proposals for a change of product or establishment if these have ceased to be representative or have disappeared from the market.

The interviewer inspector is also responsible for checking for atypical prices before proceeding to the next stage of the process. This system allows for the detection and resolution of any data collection errors without undue delay from the moment the information is collected.

The final phase, prior to sending the information to Central Services, is the analysis of the price series by the survey inspector.

Once the previous phases have been completed, the monthly information is sent to Central Services on the scheduled dates, so that the index can be produced in the shortest possible time and allow the indicator to be published on the established day.

At Central Services, the data sent by the provinces and the prices that are produced in these services are processed together.

The total number of prices processed each month, approximately 200,000, are analysed by requesting, when necessary, confirmation from the delegations regarding atypical variations. Once the prices have been cleansed and analysed, the indices and their corresponding rates of change are obtained, which are published during the first half of the month following the month to which said data refers.

In addition, by applying macro-cleansing techniques and estimating those prices that are not available until the beginning of the following month, an advance CPI indicator is published on the penultimate day of the reference month.

2 Price review

As mentioned in the previous section, all prices collected monthly are received, cleansed and analysed at INE's Central Services.

In general, all variations greater than 25% or less than -20% are reviewed for *Food* items, and those above 10% and below -10%, for the remaining items.

Additionally, missing prices are addressed by estimating the prices of items that were not available at the time of completing the questionnaire.

The method for estimating missing prices consists of applying the average variation of the other prices collected for the same item.

This price estimation process is especially relevant in the case of perishable items, where the price of the item is collected in the same establishment several times throughout the month.

3 Quality changes

The accuracy with which the CPI measures the evolution of prices depends, among other factors, on the stability of the characteristics that define the selected products. The goal is to track prices of a shopping basket whose products remain unchanged over time, so that the measurement of price variation does not depend on changes in the characteristics of those products.

Evidently, the ideal situation of product stability does not always occur, so adjustments are required to correct for changes occurring in the product sample and enable the price variation to be estimated without it being affected by these changes. These adjustments are known as quality change adjustments.

Quality changes are a problem that all countries face and that in recent years has been accentuated by the rapid technical progress that certain items have experienced. Therefore, it is one of the issues that EUROSTAT deals with as a top priority in the field of harmonising the CPIs of EU countries.

In the production of the Spanish CPI, in the different bases, several procedures have been used to estimate the quality changes. The choice of these methods has been determined by the availability of information at any given time and by the type of item in question.

3.1 DEFINITION

As stated, a quality change adjustment is necessary when an item (product, variety or modality), whose price is part of the calculation of the CPI, is replaced by another and at that moment it is necessary to determine what part of the price difference between the substitute item and the replaced item is due to a difference in quality between them.

Items may be substituted for several reasons:

– the item ceases to be representative and another, more representative one emerges in the market;

– the item is no longer on the market;

– the establishment where the item price is collected ceases to be representative, closes, or changes its economic activity.

Whenever an establishment in the sample ceases to be representative, it must be replaced by another. A good selection of establishments, with a significant sales volume and/or customer traffic, implies that the items that the establishment has are the most representative and that when they are required by the clientèle, when they disappear they will be replaced by others of similar quality.

Quality changes occur when the specifications of representative items change, and this leads to a difference in usefulness to the consumer.

The specifications of each item that makes up the shopping basket remain fixed over time as they define the most representative variety of consumption in the area, but they must be replaced when they are no longer marketed or are no longer representative in the establishment.

In general terms, the replacement product must be of similar quality to the one being replaced, but when for some reason the quality between the two items is different (different variety, different brand, etc.), those responsible for its collection inform the Central Services of this, detailing all the characteristics of the new variety and its price in the current period and, if possible, in the previous period, as well as an adjustment coefficient that guarantees variations in the index motivated exclusively by price variations.

However, there is not always an overlap period between items, nor is there an exact match between one model and its replacement. It is then necessary to estimate what portion of the price difference is due to technical improvement, changes in material, etc. and what portion is purely a price variation.

To make these estimates, the specifications of the replacement and replaced items are studied, analysing the differences and similarities, and the opinions of experts on the evolution of prices and costs are taken into account, juxtaposing the variations in prices and qualities.

The ideal situation for estimating quality changes is one in which there is sufficient information about the characteristics that determine the price of an item in the market (brand, technical characteristics, place of purchase, etc.).

In many items it is not possible to obtain the necessary information, and even if such information is available, sometimes its use is complex.

3.2 QUALITY ADJUSTMENT METHODS

The most commonly used quality adjustment methods in Base 2025 CPI are the following:

1. **Total quality adjustment.**

   This method assumes that the difference between the price of the replaced item and the replacement item is entirely driven by the difference in quality between the two, or that the items are so different that they cannot be compared. It is then assumed that the price difference between the two item is only due to their different quality, so that the index will not reflect a price variation. This adjustment assumes that had the substituted item remained on sale, its price would have remained unchanged.

2. **Adjustment for same quality.**

   It is assumed that the replacement item is of the same quality as the replaced product, in other words, that the price difference between the two is due to a real price variation. This adjustment assumes that had the replaced item remained on sale, its price would have been the same as that of the replacement item.

3. Other adjustment methods.

This section includes all adjustment methods to estimate the value of the difference in quality between an item and its replacement. The most common practices are:

- Option prices:

  The price of the replacement item is reduced by the selling price of the specific features that the previous item did not have, but which could be purchased as an option.

- Production costs:

  The manufacturer provides information on how much it costs to produce an extra feature, and this cost is deducted from the price of the replacement item that has that extra feature.

- Imputation prices:

  The variation in the average price of a larger aggregate to which the item belongs is imputed.

- Information provided by experts:

  Experts or specialists in the product are asked about how much of the difference between the prices of the items (substitute and substituted) is due to the difference in quality between the two.

- Price overlapping:

  The quality difference value between the replaced and replacement products is the price difference between them during the overlap period when both products are on sale.

- Hedonic regression methods:

  This method is based on the hypothesis that the price of an item can be expressed as a function of a set of characteristics using a regression model (linear or non-linear).

  In the case of a linear model, the price of item *j* would be:

$$P_j = a_0 + \sum_{i=1}^{N} a_i \times x_{ij} + u_j$$

where,

$i = 1, 2 \ldots N$	the number of explanatory variables,
a_0	the independent term,
x_i	the explanatory variables (characteristics of the item),
a_i	the regression coefficients,

u_j the disturbances $\approx N(0, \sigma^2)$.

The model estimation provides the regression coefficients, and allows us to determine what part of the variation in the item's price is due to a change in quality and, therefore, what part is a pure price variation.

There are several ways to calculate a hedonic price index, depending on the shape of the function and the variables selected for the model.

To make the adjustment of the regression model, a large number of observations are needed, which include most of the specific characteristics of each observation. Furthermore, highly specialised knowledge about the product is required.

Of all the methods described above, the Spanish CPI mainly uses the methods of "overlap pricing", "information provided by experts", "imputation pricing" and "adjustment for identical quality".

The following section details how changes in quality are treated, depending on the item type in question.

Items of mass consumer goods (food, drugstore and perfumery)

Changes in quality for perishable items (meats, fish, fruits, vegetables, and eggs) are difficult to quantify, as quality usually has a significant subjective component.

In these items, the notes collected by the agents along with the prices are very important in determining whether or not there is a change in quality, as well as the evolution of the rest of the prices of that same item in other establishments in the municipality.

In non-perishable items, the most common item changes are caused by a change of brand (either in the same establishment or when changing establishments) and the most common adjustments, in the lack of relevant information, are usually "imputation prices" or the "adjustment for identical quality", if the substitute and the replaced product belong to the same "quality range".

This type of item also usually involves a change in format. In this case, an adjustment coefficient for format change must be calculated, which will eliminate the price change due to the format change:

$$Coef = \left(\frac{formato\ anterior}{formato\ actual}\right)$$

Centrally collected items

Centrally collected items have different characteristics than the rest of the items in the CPI, which facilitates adjustments for changes in quality.

The prices of these items are collected by Central Services and the final price is usually calculated by designing representative samples by modality, with overall information obtained from the various informants. Therefore, the necessary information is usually obtained directly from the service providers or regulatory body.

Problems with quality changes in these items are usually: the appearance of new modalities, new regulatory provisions, rate changes due to shifts in the application times of each rate, etc.

The most commonly used methods to resolve discontinuities in price evolution are based on information provided by experts, price overlapping, and option prices.

The annual renewal of samples and internal weightings of modalities of these items reduces the number of quality adjustments.

Other item

Among the other items that make up the shopping basket, the following adjustments can be highlighted:

– In most of the items in the group *Clothes and footwear*, quality changes are made periodically twice a year, coinciding with seasonal changes. Two situations can arise:

  - The item disappears and is replaced by another one that already existed in the previous season. In this case, the adjustment is made using the price overlapping method.
  - The item disappears and is replaced by a new item that did not exist in the previous season. In this case, several methods are used:
    - the adjustment for identical quality applies when the substitute item belongs to the same “quality range” as the one replaced;
    - the aim is to find the variation that other items in the same range that already existed in the previous season have had;
    - it is assigned the average variation that the aggregation to which it belongs has had in that season;
    - experts are consulted;

– In the case of furniture, when the model for which the price is being collected disappears, it is replaced by a similar one. In this case, information is usually available on the qualities of the substitute and replaced items; if they do not match, it would be necessary to resort to the information provided by experts.

– Replacement in items such as household appliances or image and sound reproduction equipment occurs when new models with technological innovations appear on the market that will replace the previous one, as it is possible that the latter items begin to decrease in price. The timing of the substitution is of vital importance and should be given special attention, because otherwise a delay in the substitute item may lead to underestimating the price evolution of these items.

– In the catering sector, most quality changes are due to a change of establishment. In this situation it is possible to use the price overlapping method or imputation pricing.

IX Series linking

In a base change of a chained index, it is not necessary to calculate any link coefficient, since the chaining calculation method allows for making changes in weightings, sample and methodology every December, and to chain the indices obtained from these new calculations, with the series that was being published calculated using the old sample, weightings and methodology.

However, due to the significant changes introduced by ECOICOP vers. 2, it is necessary to recalculate the historical series of all the CPI categories published up to the entry into force of the new base, in order to adapt them to the new classification. It is important to note that, since this is only a reclassification of the basic components of the CPI, the overall index will not be affected, remaining unchanged in both its value and its rates.

As on other occasions when changes were made to the classification, the goal is to have the most complete and continuous historical series possible based on the new classification. To achieve this, the procedure explained below was followed.

Indices based on the ECOICOP

The current ECOICOP classification has been in effect in the CPI since January 2017. Therefore, the items in the CPI basket, which are currently distributed among the different categories pertaining to this classification, will be reclassified to place them in the new aggregations. The indices for all the aggregates from January 2017 to December 2025 will be calculated. In this case, all the aggregations that make up the new COICOP 2018 will have their respective historical series from the year 2017.

Indices based on classifications prior to ECOICOP

The latest change to the CPI classification came into effect in January 2017, when the current ECOICOP was adopted. On that occasion, links were made in those series where both classifications were considered comparable based on their content. In this way, it was possible to recalculate homogeneous series classified according to ECOICOP for most functional aggregations from January 2002 to December 2016. On this occasion, it is necessary to carry out a similar exercise, in the aim of transforming these aggregations based on the ECOICOP according to the new COICOP 2018 classification.

The procedure consists of establishing a direct comparison of each aggregation in force in the 2002-2016 period with its corresponding aggregation in the new COICOP 2018. In this way, the corresponding links will be made, giving continuity to the existing series, provided that their general coverage is similar. When making these comparisons between classifications, there may be cases where it is possible to continue the published official series because they have a one-to-one correspondence with those of the new classification; and in other cases, continuity will be maintained so long as most of its content is the same, even if it is not exactly the same.

Once the historical series has been recalculated in base 2021 with the new ECOICOP v2 classification, the reference period of the indices or base period was changed from the year 2021 to the year 2025. This has been done by calculating a rescaling coefficient, which has converted the indices in base 2021, from the January 2002 to December 2024, into indices in base 2025.

This coefficient is that which makes the simple arithmetic average of indices published in base 2021 for the year 2025 equal to 100:

$$\left(\frac{1}{12} * \sum_{m=enero}^{diciembre} {}_{21}I^{m25}\right) * C_{re-escala} = 100 \rightarrow$$

$$\rightarrow C_{re-escala} = \frac{100}{\left(\frac{1}{12} * \sum_{m=enero}^{diciembre} {}_{21}I^{m25}\right)}$$

Multiplying the series published in base 2021 by this rescaling coefficient, a series of indices for base year 2025 is obtained, which preserves the variation rates published, and with which the new indices in base year 2025 have been chained, calculated as of January 2026.

X Harmonised Index of Consumer Prices, Base 2025

The Harmonised Index of Consumer Prices (HICP) is a statistical indicator whose objective is to provide a common measure of inflation that allows comparisons to be made between the countries of the European Union (EU), and between these and other countries that do not belong to the EU. Therefore, it was used to examine compliance with the Maastricht Treaty requirements for entry into the European Monetary Union.

The harmonisation process began to take shape in 1995 with a primary objective: to define the phases that would lead to the HICP and to embody it in a legal document that would make this process mandatory. Council Regulation 2494/95 of October 1995 was thus approved, which clearly defined the two phases of the process.

The first phase was developed during 1996 and established the calculation of the Transitional Consumer Price Indices (TCPI), based on the CPI of each European Union member country.

The second contemplates the construction of the Harmonised Index of Consumer Prices (HICP), as a result of homogenising the most important methodological aspects of each Consumer Price Index, to make them comparable.

During the transitional implementation period, the necessary modifications and adjustments were made to the national CPIs, until an index with essential characteristics common to all countries was achieved. The first index of this phase corresponds to January 1997 and was made public on 7 March.

Since then, numerous regulations have been approved, containing the minimum standards for the treatment of various aspects of the calculation of the HICP, which have increased the comparability of the indices over these years.

In June 2016, Regulation (EU) 2016/792 of the European Parliament and of the Council of 11 May 2016 on harmonised consumer price indices and the housing price index came into force, repealing Council Regulation (EC) No 2494/95 and combining into a single Regulation all the regulations approved to date on harmonised consumer price indices, and applying for the first time to the indices of January 2017.

Technical characteristics of the HICP

The HICP is an indicator whose methodological design and production process is, for the most part, common to that of the CPI. For this reason, any details about the content of its methodology as well as aspects related to the characteristics of the statistical process (units of observation, form and periodicity of collection, etc.) and the plan and periodicity of dissemination, can be found in this methodology.

The following outlines the technical aspects in which this index differs from the CPI:

1. **Coverage of goods and services.** From the index of January 2017 to December 2025, the only difference between the HICP and the Spanish national CPI in this respect referred to *gambling*, which were included in the CPI, while they were outside the consumption field of the HICP.

   However, in accordance with Commission Delegated Regulation 2024/3159 of 2 September 2024 amending Regulation (EU) 2016/792, this service must be included in this indicator for the first time from January 2026.

To this end, Eurostat has drawn up guidelines that establish principles to ensure the harmonisation of compilation practices and, consequently, the comparability of the HICP sub-indices relating to gambling.

2. **Geographic and population coverage**. The HICP covers the spending of the entire population, both rich and poor households, urban and rural, living in private or group homes.

   In addition, spending by foreign visitors is included, while spending by Spaniards outside our borders is excluded, except for spending for business purposes.

3. **Treatment of seasonal items**. Unlike the CPI, where the price of these items is repeated in the months in which it is not available, the HICP estimates the price based on the evolution of the prices of those products in the same category that are available.

4. **Common reference period**. In the HICP this is 2025=100. This period will be updated in the event of a major methodological change in the HICP or every ten years.

5. **Rounding system.** Whereas for the CPI the indices are published rounded to three decimal places and the rates of change are calculated using all the decimal places of the indices, in the case of the HICP, the indices are published rounded to two or one decimal place (if national legislation does not allow the publication of indices to two decimal places) and the rates of change are calculated from the published indices.

   In both the CPI and the HICP, the rates of change are published rounded to one decimal place.

Annex I. Calculation of aggregate indices

With the formula for calculating the Base 2025 CPI (chain-linked Laspeyres), the indices referring to December of the year *(t-1)* start from a value equal to 100 in December of that year. Since the published CPI series must be continued, the "publishable" or chained indices must be calculated.

The index published in month *m* of year *t*, in base 2025, is obtained by multiplying the index of December of *(t-1)*, in base 2025, by the index of month *m* of year *t* referring to December of *(t-1)*, divided by 100:

$$_{16}I^{mt} = {}_{16}I^{dic(t-1)} * \left(\frac{{}_{dic(t-1)}I^{mt}}{100} \right)$$

These indices are not additive, that is, using the published indices it is not possible to calculate the indices of the functional or geographical aggregations. These aggregations are calculated using the indices referring to December of the previous year (unpublished), which are additive.

The steps to obtain the index in base 2025 of aggregate *A*, from the published indices, in base 2025, of its components *A1* and *A2*, are described below:

1. The indices referring to December of the previous year must be obtained for each *A1* and *A2* component. This is done by dividing the published index from month *m* of year *t*, by the published index from December of the previous year:

$$_{dic(t-1)}I_i^{mt} = \left(\frac{{}_{25}I_i^{mt}}{{}_{25}I_i^{dic(t-1)}} \right) * 100 \quad i = A1 \; y \; A2$$

2. The indices obtained in the previous step are aggregated using the weightings in force in the reference period of the index *(m,t)*. In this way, the index of aggregate *A* is obtained, referenced to December of *(t-1)*:

$$_{dic(t-1)}I_A^{mt} = \frac{{}_{dic(t-1)}I_1^{mt} \times {}_{dic(t-1)}W_1 + {}_{dic(t-1)}I_2^{mt} \times {}_{dic(t-1)}W_2}{{}_{dic(t-1)}W_1 + {}_{dic(t-1)}W_2}$$

3. The index in base 2025 of aggregate *A* is calculated as the product of the published index of December of the previous year by the ratio of the aggregate index obtained in step 2 to 100:

$$_{25}I_A^{mt} = {}_{25}I_A^{dic(t-1)} * \left(\frac{{}_{dic(t-1)}I_A^{mt}}{100} \right)$$

Annex II. Historical evolution

The INE established the first Cost of Living Index System in 1939. Before 1936, some series of simple indices and average prices were published, which later served to establish this initial System. From July 1938, the National Statistics Service began to compile cost of living indices for certain provincial capitals. With the gradual extension to all provincial capitals, the grouping of simple indices into five consumption groups and a readjustment of the weightings, the Cost of Living Index System was implemented in 1939, based on July 1936.

Since then there have been nine systems of Consumer Price Indices, including the current one, called Cost of Living Indexes until the implementation of Base 1976, whose base periods have been: July 1936, 1958, 1968, 1976, 1983, 1992, 2001, 2006, 2011, 2016, 2021 and 2025.

The main characteristics of these systems are briefly summarised below:

Index Systems

Base	Validity period		
1936 (July)	July 1939	–	December 1960
1958	January 1961	–	December 1968
1968	January 1969	–	December 1976
1976	January 1977	–	January 1985
1983	August 1985	–	December 1992
1992	January 1993	–	December 2001
2001	January 2002	–	December 2006
2006	January 2007	–	December 2011
2011	January 2012	–	December 2016
2016	January 2017	–	December 2021
2021	January 2022	–	December 2025
2025	January 2026		

Reference stratum

Base	Reference Stratum
1936 (July)	– Middle-class families consisting of four or five people with a monthly income of about 600 pesetas in 1939.
1958	– Households whose main breadwinner is employed with annual incomes below 80,000 pesetas in March 1958.
1968	– Multi-person households whose main breadwinner is economically active, with annual incomes between 21,600 and 120,000 pesetas in 1968.
1976	– Multi-person households whose main breadwinner is economically active, with annual incomes between 81,000 and 720,000 pesetas in 1973-74.
1983	– Multi-person households (economically active and inactive) with incomes between 322,575 and 2,000,000 pesetas in 1980-81.
1992	— All households resident in Spain.
2001	— All households resident in Spain.
2006	— All households resident in Spain.
2011	— All households resident in Spain.
2016	— All households resident in Spain.
2021	— All households resident in Spain.
2025	— All households resident in Spain.

Survey used to obtain the weightings

Base	Survey
1936 (July)	– The weightings were established based on studies of Household accounts conducted in 1940.
1958	– Household Accounts Survey, referring to March 1958, directed to 4,192 families belonging to the reference stratum.
1968	– Household Budget Survey conducted from March 1964 to March 1965, interviewing 20,000 families. To study the evolution of the consumption structure up to December 1968, the year taken as a base, a series of surveys were carried out on 4,800 households per year.
1976	– Household Budget Survey for the period between July 1973 and July 1974, targeting 24,000 households.
1983	– Household Budget Survey for the period between 1 April 1980 and 31 March 1981, in which 24,000 households were interviewed.
1992	– Household Budget Survey, conducted from 1 April 1990 to 31 March 1991. Information was requested from 21,000 households.
2001	– Continuous Household Budget Survey corresponding to the 8 quarters from the 2nd quarter of 1999 to the 1st quarter of 2001. 8,064 households were interviewed each quarter. The latest available survey data was used for the annual updates each year.
2006	– Continuous Household Budget Survey corresponding to the 8 quarters from the 1st quarter of 2004 to the 4th quarter of 2005. 8,064 households were interviewed each quarter. For the annual updates, the latest available data from the Household Budget Survey (in force since 2006) are used each year.
2011	– Household Budget Survey, base 2006, from the year 2010. Approximately 24,000 households are interviewed each year. The latest available data from this survey are used for the annual updates.
2016	– Household Budget Survey, base 2006, from the year 2015. Approximately 24,000 households are interviewed each year. The latest available data from this survey are used for the annual updates.
2021	– Since 2023, the Final Monetary Consumer Expenditure of Households from the National Accounts has been the main source of the weightings.
2025	– Final Monetary Consumer Expenditure of Households from the National Accounts.

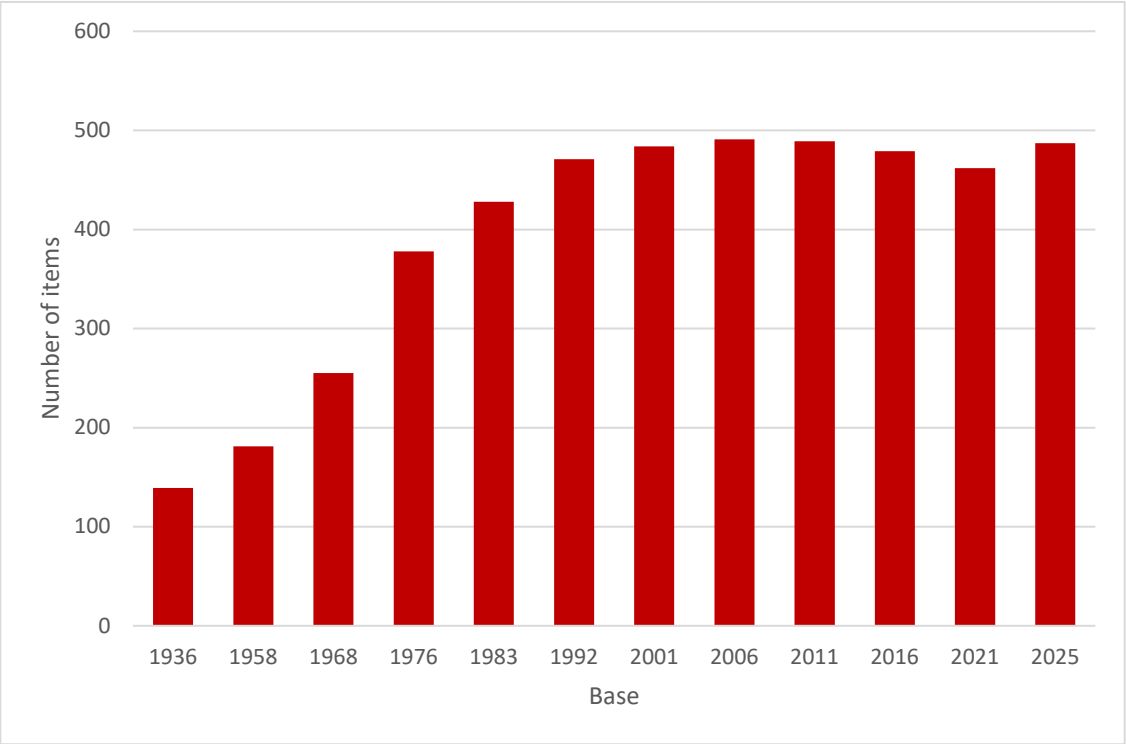
Geographic breakdown

Base	Indices
1936 (July)	– Indices were calculated for each provincial capital and one index for the group of capitals.
1958	– Indices were calculated for each provincial capital, Ceuta, Melilla, the country as a whole, the group of capitals and the group of non-capital municipalities.
1968	– Indices were established for the following groups: each provincial capital, Ceuta and Melilla; the national urban group, made up of all the components of the previous section plus the municipalities not included in it which had more than 50,000 inhabitants; the national non-urban group, which includes the remaining municipalities, and the total country as a whole.
1976	– Indices were developed for the national total, urban and non-urban groups, provincial capitals, Ceuta, Melilla and regional groupings (since 1978 these groupings are equivalent to the current

	autonomous communities and the group formed by Ceuta and Melilla).
1983	– Indices were obtained for the national total, urban and non-urban groups, provincial capitals, Ceuta, Melilla, autonomous communities and the group formed by Ceuta and Melilla.
1992	– Indices were calculated for the national total, provinces, autonomous communities and the group formed by Ceuta and Melilla.
2001	– The same indices were produced in this base as in the 1992 Database.
2006	– Indices were obtained for the country as a whole, the 17 autonomous communities, the 50 provinces, Ceuta and Melilla.
2011	– The same indices are produced in this base as in the 2006 database.
2016	– The same indices are produced in this base as in the 2011 database.
2021	– The same indices are produced in this base as in the 2016 database.
2025	– The same indices are produced in this base as in the 2021 database.

Shopping basket

Base	Number of items
1936 (July)	Different in each provincial capital, ranging between 95 and 139 items.
1958	181 items.
1968	255 items.
1976	378 items.
1983	428 items.
1992	471 items.
2001	484 items.
2006	491 items.
2011	489 items.
2016	479 items.
2021	462 items
2025	487 items



Calculation formula

In the July 1936 database, Lowe's formula was used to calculate the indices of the provincial capitals; the index of the set of capitals was obtained as the arithmetic mean of these indices weighted by the population of each capital.

In all subsequent bases, the Laspeyres formula, with a fixed base, was used for the calculation of indices.

Starting with Base 2001, the chained Laspeyres formula is introduced for the calculation of indices.

Consumer groups and weightings by group

Group	Weighting	Group	Weighting
Base July 1936		**Base 1958**	
Food Products	601.0	Food Products	553.0
Clothes and footwear	94.0	Clothes and footwear	136.0
Dwelling (rented)	146.0	Dwelling (rented)	49.6
Household expenses	85.0	Household expenses	82.1
Miscellaneous	74.0	Miscellaneous	179.3
TOTAL	1,000.0	TOTAL	1,000.0
Base 1968		**Base 1976**	
Food Products	493.9	Food Products	405.20
Clothes and footwear	139.4	Clothes	81.71
Dwelling (rented)	79.5	Housing	140.01
Household expenses	98.9	Furnishings,	77.51
Miscellaneous	188.3	Medicine	33.74
TOTAL	1,000.0	Transportation	97.44
		Culture	69.44
		Other	94.95
		TOTAL	1,000.00

Base 1983		Base 1992	
Food Products	330.27	Food Products	293.61
Clothes	87.39	Clothes	114.79
Housing	185.65	Housing	102.80
Furnishings,	74.15	Furnishings,	66.84
Medicine	23.93	Medicine	31.26
Transportation	143.81	Transportation	165.42
Culture	69.60	Culture	72.67
Other	85.20	Other	152.61
TOTAL	1,000.00	TOTAL	1,000.00

Base 2001	2002	Base 2006	2007
Food and non-alcoholic beverages	218.630	Food and non-alcoholic beverages	220.556
Alcoholic beverages and tobacco	32.170	Alcoholic beverages and tobacco	28.229
Clothes and footwear	99.280	Clothes and footwear	90.280
Housing	110.260	Housing	103.607
Furnishings,	63.571	Furnishings,	61.520
Medicine	28.062	Medicine	28.259
Transportation	155.760	Transportation	148.879
Communications	25.729	Communications	35.845
Leisure and culture	67.263	Leisure and culture	71.089
Education	17.444	Education	16.027
Hotels, cafés and restaurants	112.708	Hotels, cafés and restaurants	115.477
Other goods and services	69.124	Other goods and services	80.230
TOTAL	1,000.000	TOTAL	1,000.000

Base 2011	2012	Base 2016	2017
Food and non-alcoholic beverages	182.642	Food and non-alcoholic beverages	197.711
Alcoholic beverages and tobacco	28.872	Alcoholic beverages and tobacco	30.190
Clothes and footwear	83.437	Clothes and footwear	67.342
Housing	120.006	Housing	133.033
Furnishings,	66.750	Furnishings,	58.765
Medicine	31.398	Medicine	39.612
Transportation	151.630	Transportation	146.693
Communications	38.498	Communications	35.960
Leisure and culture	75.420	Leisure and culture	85.209
Education	14.175	Education	16.793
Hotels, cafés and restaurants	114.608	Hotels, cafés and restaurants	121.193
Other goods and services	92.563	Other goods and services	67.499
TOTAL	1,000.000	TOTAL	1000.000

Base 2021	2022	Base 2025	2026
Food and non-alcoholic beverages	22.6	Food and non-alcoholic beverages	17.41
Alcoholic beverages and tobacco	3.1	Alcoholic beverages and tobacco	3.51
Clothes and footwear	6.0	Clothes and footwear	3.58
Housing	14.2	Housing	12.26
Furnishings, household	5.8	Furniture and household goods	4.74
Medicine	4.4	Health care	5.23
Transportation	13.0	Transportation	15.47
Communications	3.6	Information and Communications	3.75
Leisure and culture	6.4	Recreational activities, sport, and culture	7.48
Education	1.6	Education services	1.61
Hotels, cafés and restaurants	13.0	Restaurants and accommodation services	17.03
	6.3	Insurance and financial services	2.27
Other goods and services		Personal care, social protection, and miscellaneous goods and services	5.67
TOTAL	1,000.000	TOTAL	1000.0

As can be seen, up to the 1976 base system, five groups were considered, which were increased to eight from that system onwards. In Base 2001 these groups increased to 12 and in the current base, Base 2025, with the introduction of ECOICOP vers. 2, they have been expanded to 13 groups.

Although the number and names of the groups may be the same between two systems, the inclusion of certain items in one group or another has varied across different bases, which prevents exact comparisons between the corresponding weighting structures.