INSTITUTO NACIONAL DE ESTADISTICA

Consumer Price Index Base 2001

Methodology

Index

1. Introduction

The Consumer Price Index system change consists mainly of revising and updating one of its components and determining the best options for obtaining a precise and representative indicator, which adapts to the economies tendencies.

Traditionally, the CPI changed base every eight or nine years; this happened because the source used for elaborating the weights and the basket of items was the Household Basic Budget Survey (HBBS), whose periodicity marked the CPI base changes. Therefore, in order to cover consumer's behavioural changes, and that the CPI adapt to them, it was necessary to await the next base change. Evidently, in some cases the time frame was excessively long.

Until 1997 two family budget surveys existed: one continuous, of quarterly periodicity, and one basic, carried out once every eight or nine years. As of this year, both surveys were substituted by a quarterly one, whose information is similar to the basic survey as far as breakdown. This new survey, called the Household Continuous Budget Survey (HCBS), provides the information necessary to carry out a CPI base change and to permanently update the weights as well as renew the basket of items composition.

Therefore, with the new CPI Base 2001, a new calculation system has commenced whose most important characteristics are its **dynamic** and its **current** nature. It is a more dynamic CPI than its predecessors in that it will revise its weights annually for certain levels of functional breakdown and will include any change detected in the market components within the shortest time frame possible; be they the appearance of new products, structural consumption changes or in the municipalities or Outlets sample.

But, moreover, this will be a more current CPI as it will revise its methodological system permanently with the objective of improving it. For this, there will be direct contact with the different academic forums and national and international producer organisations.

In order to carry out the System change a Prices Work Group has been created (with representatives from universities, ministries, Banco de España, consumers, unions and CEOE), which examined the most relevant aspects in the elaboration of the new prices system.

Subsequently, the new Systems methodology was analysed by the Higher Statistics Council and was studied by the Permanent Commission of that Council until approved in the Higher Statistics Councils Plenary Meeting.

The new System was implemented in two phases over two years. In the first, some improvements were introduced, which were completed in January 2002.

The main characteristics of the new Consumer Price Index Base 2001 system are covered in this methodology.

2. Indicator definition

The Consumer Price Index is a monthly statistical measurement of the price evolution for consumer goods and services acquired by households in Spain.

In the Base 2001 System the HCBS definition of expense is used: *consumption expense is the cash flow which each household and each one of its members pay for certain goods and services for the household or to be transferred freely to other households or institutions.*

Those consumption categories defined in the HCBS as the value of goods received in kind for self-consumption, self-supply, salary in kind, free or subsidised meals and dwelling rental for the household, when it is owned or freely or semi-freely borrowed by other households or institutions.

Some taxes not considered as consumption from the HCBS viewpoint have been suppressed as well, in addition to other expenses like those related to lotteries and gambling. This definition of consumption expenses agrees with the criteria used by the European Accounts System (EAS-95).

The different consumer goods and services in the HCBS are classified in agreement with the harmonised COICOP classification (Classification of Individual Consumption by Purpose) which substitutes the one used in previous bases (PROCOME).

The precision with which this short term indicator measures price levels depends on two qualities, which all CPI indicators should have: temporal representation and comparability.

The degree of CPI representativity is determined by the adaptation of this indicator to the economic reality of the day; thus, the variation rate calculated will be more approximated to the evolution of the set of economic prices the more the elements selected for measurement of consumer behaviour guidelines adapt to the guidelines of that behaviour. To achieve this, the items selected that will form part of the basket of items must be those most consumed by the majority of the population, the sample outlets must be the most visited and the importance relative to each item in the basket of items must respond to consumption tendencies of households. The better the selection of these elements the more representative this indicator is considered.

On the other hand, the CPI is an indicator which only has meaning when time comparisons are established; in fact, an index has barely any significance if a comparison to indices of other periods is not established, in order to obtain the corresponding variation rates (it could be a month, a year, or any other time period). Therefore, the other quality attributable to the CPI is temporal comparability, in other words, the need for the elements which define the CPI remain stable throughout time except, logically, the prices collected monthly. In this manner, any variation in the CPI will only be due to changes in prices of the items selected for the basket of items, and not to any change in the methodological contents of the indicator.

The CPIs applications are numerous and of great importance to the economic, legal and social fields. Among them its use as a measure of inflation stands out. It is also applied in the revision of rental housing contracts, as a reference in salary negotiations, in fixing pensions, in updating the premiums for insurance and other types of contracts, and as a deflator in National Accounts.

3. Indicator scope

3.1 Temporal scope

3.1.1 BASE PERIOD

The indices reference period or base period is that in which all indices are made equal to 100. Normally, it involves an annual period. In the new System the arithmetic average of the 2001 twelve monthly indices is made equal to 100, therefore the indices reference period is 2001, or rather we are dealing with the CPI Base 2001. This means that all indices that are published will be referenced to this year.

3.1.2 REFERENCE PERIOD OF THE PRICES

The reference period is that period with whose prices the current prices are compared, in other words, the period selected to calculate the elementary indices.

With the formula used for previous CPI bases – Laspeyres with a fixed base – this period coincided with the base period. However with the new formula for calculation of the CPI Base 2001 – Laspeyres linked – the prices reference period varies each year. During 2002 it coincides with the base year and for later years it will be the month of December of the year immediately previous to the year considered.

3.1.3. REFERENCE PERIOD OF WEIGHTS

The weights reference period is that period to which the weights are referred, that serve as a structure for the System.

The current System change has been carried out with data proceeding from the HCBS, which provides the basic information on the consumption expenses of families on goods and services. The reference period for the new System's weights is between the 2nd quarter of 1999 and the 1st quarter of 2001.

For the weights calculation more importance has been given to the information corresponding to the four quarters closest to the moment when the update was carried out.

However, due to the continuous availability of data on expenses coming from the Household Continuous Budget Survey, one of the most important modifications in this new System is the continuous updating of the weights.

A revision for determined levels of geographic and functional breakdown will be carried out annually. The HCBS information closest to the moment of the revision will be used for this.

A base change will also be carried out every five years. It will update the weights for all functional and geographic breakdown levels.

3.2. Population scope

The reference population is that groupof the population whose consumption expense structure serves as a base for the selection of the representative items and the calculation of the weights.

In the CPI Base 2001 the reference strata includes the entire population residing in main family dwellings in Spain, the expenses of persons living in collective or institutional housing (convents, nursing homes, prisons...) are therefore excluded.

3.3 Geographic scope

The geographic scope of the research is the whole of Spain.

3.4 Consumption field

This is the set of goods and services that households consume; not considered therefore are expenses on investment goods nor self-consumption, self-supplies, imputed rents or expenses subsidised by the public administration. Some taxes not considered as consumption from the HCBS viewpoint have been suppressed as well, in addition to other expenses like those related to lotteries and gambling.

In the HCBS the goods and services have been classified according to the international consumption classification. Each consumption division of the HCBS must be represented by one or more items in the CPI in such a way that the development of its prices represents that of all elements that integrate that category.

3.4.1 BASKET OF ITEMS

This is the set of good and services selected in the CPI whose evolution of prices represents that of all those which compose the COICOP category to which they belong.

The process to determine the composition of the basket of items and its structure of weights uses the HCBS as a fundamental source of information; thus, by virtue of the importance of each category they have selected one or more items for the CPI.

The total number of items that compose the CPI Base 2001 is 484.

A description or specification is elaborated with the objective of facilitating their identification on the part of the surveyor and permitting the correct collection of prices for each one of the items. These specifications bear in mind the own particularities of each region.

3.5 Indices functional breakdown

The CPI Base 2001 completely adapts to the COICOP international consumption classification. The basket of items items are grouped in subclasses, these classes are then broken into subgroups, and then finally the subgroups into groups.

The CPI functional structure is formed by 12 groups, 37 subgroups, 80 classes and 117 subclasses. There are also 57 headings maintained from the Base 1992 CPI and the number of special groups was increased since then.

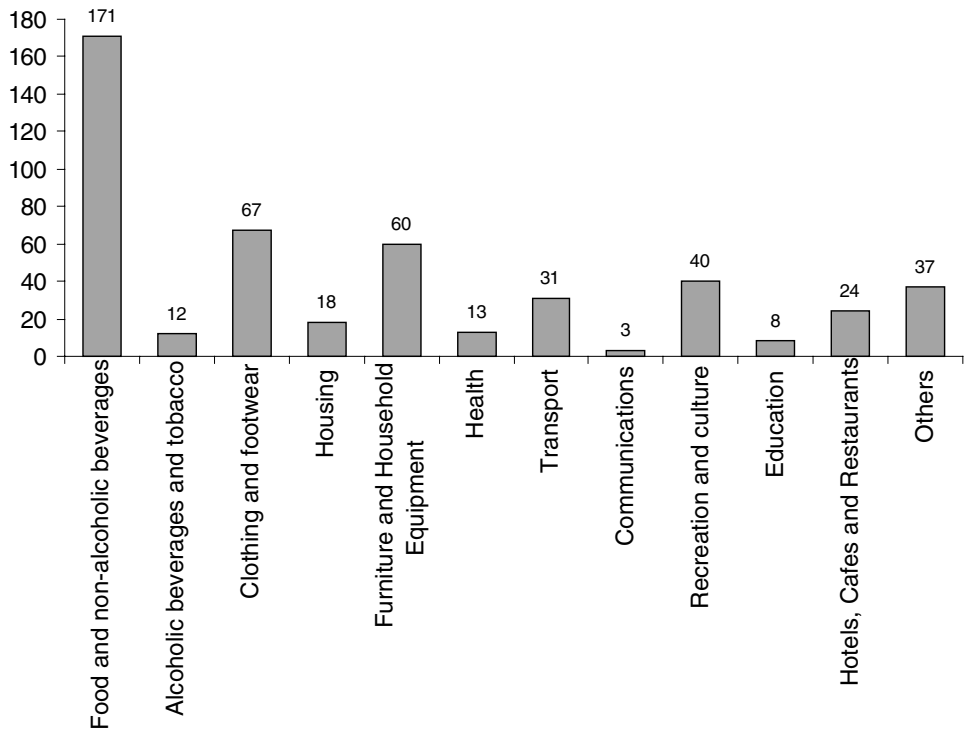
The following table establishes the comparison between the number of groups in the 1992 and the Base 2001.

	Base 1992	Base 2001
Groups	8	12
Subgroups	33	37
Classes	55	80
Subclasses	110	117
Headings	57	57
Special Groups	22	28

The items are distributed among the large groups of the 2001 CPI in the following way:

Number of items CPI Base 2001

	Groups	Number of items
1	Food and non-alcoholic beverages	171
2	Alcoholic beverages and tobacco	12
3	Clothing and footwear	67
4	Housing	18
5	Furniture and Household Equipment	60
6	Health	13
7	Transport	31
8	Communications	3
9	Recreation and culture	40
10	Education	8
11	Hotels, Cafes and Restaurants	24
12	Others	37
	Total	**484**



3.6 Índices geographic breakdown

The CPI Base 2001 includes the indices for the different levels of geographic and functional breakdown, which were previously in the Base 1992 CPI. Additionally, information is supplied on all the special groups for each of the Autonomous Communities.

All the indices published monthly appear in the following table.

INDEX	National	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	

4. Sample design

As in the majority of European Union (EU) countries, the design for the sample of prices used to calculate the CPI is intentional or opinionated and is therefore not a design by probability, given the characteristics of the population being studied.

In order to obtain significant indicators at all levels of functional and geographic breakdown for which the CPI is published, the selection process has been structured into three large sections, each with the objective of the selection of its different components. These are the following:

– Selection of municipalities.

– Selection of commercial areas and outlets.

– Selection of items.

4.1 Selection of municipalities

Demographic criteria have basically been followed for the selection of the municipalities that compose the new CPI System. The official population data used the Municipal Inhabitants Register to 1 January 1998.

The demographic criteria used for the Base 1992 CPI has been used, and some additional criteria have been introduced as well in order to obtain representative indicators for each level of functional and geographic breakdown.

For groups 1 (Food and alcoholic beverages) and 2 (Alcoholic beverages and tobacco) municipalities with more than 50,000 inhabitants have been selected, except some in provinces like Madrid, Barcelona, Cadiz, Malaga, Alicante and Asturias, which do gather the requirements but are represented by other municipalities close by with similar socio-economic characteristics.

Along with the goals for the Base 1992 CPI to meet; the municipalities selected for the collection of prices, 30% of the provincial population and 50% of the autonomous community population; the attempt to obtain information on prices for some non-capital municipalities has been added in those cases where the Base 1992 only considered the capital as representative of price evolution for the province. In other words, the objective has been to include at least two municipalities per province in the sample, whenever the populations characteristics permit it and taking into account the linkbetween the population in the capital with that in the remaining municipalities of the province.

To fulfil these premises, it has been necessary to include municipalities with populations less than 50,000 inhabitants. Among the smaller ones, the following stand out: Barbastro (14.462 inhab.), Alcañiz (12.823 inhab.), Verín (12.441 inhab.), Tarancón (11.189 inhab.), Madridejos (10.461 inhab.) and Haro (9.150).

Due to the population characteristics of certain provinces and autonomous communities, in some cases the objectives of 30% and 50% of population covered respectively have not been reached. Also, it should be pointed out that with the presence of certain outlets and commercial areas in the sample, situated

on many occasions in the outskirts of a municipality and even in other bordering municipalities, higher percentages of population are being covered than those being considered, since we are dealing with commercial attraction points for all neighbouring municipalities.

Special attention has been paid in this new System to those Autonomous Communities with only one province because of the effects that this can have in the calculation and because of the indices representativity in that geographic breakdowns.

The sample of municipalities obtained with the criteria previously cited contains 141, as opposed to the 130 municipalities in the Base 1992. A larger percentage of the population is therefore covered than with the previous base.

For the rest of the COICOP groups (from 3 to 12), all the provincial capitals have been selected, Ceuta, Melilla, and those municipalities with over 100.000 inhabitants, except for some municipalities of Madrid and Barcelona, for the reasons previously exposed. Additionally in some cases medium sized municipalities
have been selected, between 50.000 and 100.000 inhabitants, when the percentage of population in the capital necessitated it in order to obtain the greatest provincial representativity possible. This has occurred, among others, in the provinces of A Coruña and Cádiz.

The number of municipalities selected for this group has gone from 70, in the Base 1992, to 97 in the Base 2001.

The same as occurs in groups 1 and 2, the number of municipalities selected for the sample of groups 3 to 12 is greater than considered, due to the existence of price readings for determined items, such as for example furniture, toys, repair shops, ..., in other municipalities that have not previously been accounted for in the cited calculation.

4.2 Selection of commercial areas and Outlets

The Base 1992 CPI was used as a starting point for the sample of the number of outlets selected in the CPI Base 2001. The existing network of available outlets in each province has been studied, paying special attention to the different types and characteristics of these outlets and always taking into account the representation of the commercial reality and the evolution of prices in all scopes.

The important role played by the INE Provincial Delegations in this work is noteworthy.

As a general criteria, the number of outlets informing on the prices of an item is greater as the items weights in the index increases and the greater the discrepancy between the prices of that item.

In addition to using the already existing network and the population data, a minimum number of outlets was established for each item each province for the

calculation of the number of outlets. This minimum depends on the type of item and its collection type.

The distribution of sales percentages by type of outlet has been taken into account (hypermarkets, supermarkets, markets and specialised shops), depending on each item for the selection of the types of outlet. Various information sources were used for this, among them the Structural Trade Survey (INE) and the Ministry of Agriculture, Fisheries and Food.

Special attention was paid to shopping centres, hypermarkets and supermarkets, given their importance in terms of sales volume, although this aspect was already covered in the Base 1992 CPI. In many cases the situation of these centres, as well as the presence of markets, conditions the creation of the *commercial zones* which are explicitly defined, in each municipality of the sample, for the items in groups 1 and 2, and implicitly for the remaining groups.

The hypothesis that the population, which forms part of that commercial zone, has a homogeneous behaviour and habits with regards to consumption was made for the definition of the commercial zones. These commercial zones have been set with the help of the Provincial Delegations.

Three types of commercial areas were defined for food and beverage (alcoholic and non alcoholic) items, depending on the municipality size and the number of outlets that could be selected for the different types of items considered.

In addition, these items were classified into 3 large groups attending to the variability of their prices and their weight in the basket of items. The first two types are composed of perishable items: meats, fish, fresh fruits and vegetables.

This classification determines the number of outlets from which prices are collected according to the type of commercial area and the type of item.

Even though the strict delimitation of the commercial zones has not been carried out, the selection of outlets is made complying with the objective of representation for the items in the remaining groups. The outlets sample represents all the local outlets with the evolution of the prices for the items sold in them.

The actual selection of the informant outlets has been carried out by personnel from the INE Provincial Delegations.

The basic regulations used for the selection of these Outlets are the following:

– All commercial areas and the different types of outlets that exist should be represented in the sample.

– The outlets should be the most frequented by the local public, and/or those with the greatest sales volume.

– The outlets should be the most representative for the type of item on which information is being collected.

– More than one price cannot be collected for the same item, on the same day, in each outlet.

– One outlet should not concentrate a significant number of price readings for different items. This is an attempt to avoid only one outlet's pricing policies from conditioning the evolution of the index .

– Outlets with restricted access such as co-operatives, company stores or similar outlets do not form part of the sample. Door to door sales, sales to the home or electronic commerce are also not considered.

– The outlets selected must offer sufficient guarantees of continuing to sell the items whose prices are collected, since this sample will remain fixed over time, unless the outlets close, change activity, loss of representativity as far as consumption is concerned or the item whose price was being collected is no longer marketed. In these cases, the outlet will be replaced by another, as long as it fulfils the necessary requirements for belonging to the sample.

All these criteria come before other aspects, such as the collection costs, the informants will to collaborate and the reliability of the data supplied. Nevertheless, Law 4/1990 establishes the obligation to supply the data requested for the elaboration of this Statistic.

With these characteristics approximately 30,000 outlets distributed over the entire country were selected.

4.3 Selection of items

Various organisms were contacted for the selection of the items representative of the HCBS expense divisions. Businessmen, manufacturers, wholesalers and outlets associations, which provided information on those items that best represent the different divisions, in agreement with the following selection criteria:

– The evolution of the selected items prices should be similar to the rest of the items in the lot which they represent.

– The items should be regularly consumed by the population.

– They should have easily observable prices.

– They should offer reasonable guarantees of remaining on the market.

Thus, in the CPI Base 2001 the basket of items is composed of 484 items, as opposed to the 471 which the Base 1992 CPI included. Objects, which have become obsolete, such as the typewriter, have been eliminated and new items like those related to prepared food have been incorporated.

4.3.1 SPECIFICATIONS OF ITEMS

Once the items are selected the specifications that define them must be determined. The elaboration of these specifications permits the comparison over time of items, which are the same, or of equivalent quality, in order to measure price changes not motivated by quality. Therefore, the items denominations are broadened with the initial specification of certain factors determinant of price, which differ from one item to another, and among which are found: unit of measure, packaging, size, composition, form or dimensions.

In the items from group1 and 2 the theoretical unit of collection (litre, kilo, ...) is determined by the generalised unit of consumption for each type of item.

As occurred with the Base 1992 CPI, the specifications are made broad and flexible to avoid discontinuity or lack of monthly prices.

In order to determine the characteristics which form the specifications, information was obtained from numerous organisations, professional associations and companies; in this way a set of general specifications is elaborated which are subsequently adapted, by province, to the items existing on the market. Therefore, the specifications are not uniform in the whole country, when considering the different consumption habits and trade practices of each geographic zone. Thus, when the collection of information is carried out the items are defined in a detailed manner.

The specifications for each item remain fixed over time as long as they remain representative of consumption in the area. They are modified, therefore, when the item is no longer sold or is no longer representative of consumption in an area.

On occasion, when it is necessary to carry out a variety change, the Provincial Delegations should indicate the detailed specification of the new variety and its price during the current period and in the previous one. This permits the calculation of a link coefficient that assures variations in the index motivated exclusively by variations in prices.

4.4 Number of observations

As has been previously stated, the number of observations used for the calculation of the index depends on the type of item as well as the outlets selected in each of the provinces.

In the sections about *Types of items* and *Collection of prices* the frequency with which prices are collected is indicated. This basically determines the size of the price sample collected monthly.

The number of prices processed has increased since the Base 1992 CPI, going from 150,000 to almost 200,000 prices.

In the following table the changes occurred in the sample in the Base 2001, relative to the previous Base 1992.

Number	Base 1992 CPI	CPI Base 2001
Municipalities (groups 1 and 2)	130	141
Municipalities (groups, except 1 and 2)	70	97
Commercial areas (groups 1 and 2)	276	307
Outlets	29.000	30.000
Items	471	484
Observations	150.000	200.000

5. General calculation method

The CPI Base 2001 System calculation uses the Laspeyres linked formula, as opposed to the fixed base Laspeyres formula used in the previous indices.

In both cases, the calculated index is the result of adding the elementary indices of each basic component in the basket of items using weighted averages. The differentiating factor between these two formulas is in the type of weights used in this group.

In the fixed base Laspeyres index, the weights used remain constant during the entire period while the system is in force, however, with the linked base, the weights are updated periodically.

An update of the weights for certain levels of functional and geographic groups will be carried out in the CPI Base 2001 annually.

This continuous updating of the weights has two fundamental advantages:

– The CPI adapts to market changes and to consumption habits in a very short period of time;

– The appearance of new goods or services in the market for their inclusion in the CPI, as well as the disappearance of those considered not very significant, may be detected.

Fixed Base Laspeyres Index

$$ {}_0I_L^t = \frac{\sum_i p_i^t q_i^0}{\sum_i p_i^0 q_i^0} $$

This is a groupindex, calculated as the sum of the relation of prices of items (p_I) which form it, weighted with the expense structure referred to the year considered as a base (q_0); it can also be expressed as

$$ {}_0I_L^t = \frac{\sum_i \frac{p_i^t}{p_i^0} p_i^0 q_i^0}{\sum_i p_i^0 q_i^0} = \sum_i {}_0I_i^t W_i^0 $$

where:

$$ {}_0I_i^t = \frac{p_i^t}{p_i^0} $$

$$ W_i^0 = \frac{p_i^0 q_i^0}{\sum_i p_i^0 q_i^0} $$

Linked Laspeyres Index

$$ {}_0I_{LE}^t = \prod_{k=1}^{t} \frac{\sum_i p_i^k q_i^{k-1}}{\sum_i p_i^{k-1} q_i^{k-1}} $$

Similarly, it can be expressed as:

$$ {}_0I_{LE}^t = \prod_{k=1}^{t} \frac{\sum_i \frac{p_i^k}{p_i^{k-1}} p_i^{k-1} q_i^{k-1}}{\sum_i p_i^{k-1} q_i^{k-1}} = \prod_{k=1}^{t} \sum_i {}_{k-1}I_i^k W_i^{k-1} $$

where:

$$ {}_{k-1}I_i^k = \frac{p_i^k}{p_i^{k-1}} $$

$$ W_i^{k-1} = \frac{p_i^{k-1} q_i^{k-1}}{\sum_i p_i^{k-1} q_i^{k-1}} $$

As can be seen, a linked index establishes comparisons between the current period (t) and the base period (0) but considers the intermediate situations (k).

In the CPI Base 2001, the intermediate situations considered correspond to December of each year, from 2002 until the penultimate year when the base is in force. These months coincide with the different price reference periods.

Thus, the index in Base 2001 for month *m* of Year *t* , with *t* being any year as of 2003, is obtained as a product of indices in the following manner:

$$ {}_{01}I^{mt} = {}_{01}I^{dic(t-1)} \times \left(\frac{{}_{dic(t-1)}I^{mt}}{100} \right) = $$

$$ = {}_{01}I^{dic02} \times \left(\frac{{}_{dic02}I^{dic03}}{100} \right) \times \cdots \times \left(\frac{{}_{dic(t-2)}I^{dic(t-1)}}{100} \right) \times \left(\frac{{}_{dic(t-1)}I^{mt}}{100} \right) $$

where:

${}_{01}I^{mt}$ is the index in period (*m,t*), in Base 2001.

${}_{dic(t-1)}I^{mt}$ is the index in period (*m,t*), referred to December of year *t-1*.

In a linked index it is important to distinguish the three reference periods: the indices, the weights and the prices.

The main inconvenience about the linked indices is the **lack of additivity**. This makes it impossible to obtain the index of any groupas a weighted average of the indices of the groups, which form it. Thus, for example, the general index cannot be calculated as a weighted average of the indices of the twelve groups.

During the first year of the Base (2002) the indices are additive, but once the first link is carried out, in January 2003, the additivity is lost.

5.1 Elementary indices

A basic group is the lowest breakdown level consumption component for which an index is calculated without the use of weights; these indices are called elementary indices or micro indices. In the Spanish CPI each basket of items and each province has a basic index calculated, due to which the basic group is the item-province.

The basic group index *i* in a province is obtained as a quotient of the average price of that basic groupin the current period and the average price calculated in the price reference period.

Since the year 2002 is the first year the new System is implemented, the reference period for prices coincides with the reference period for the indices. Because of this, the formula for the basic index will be:

During 2002:

$$_{01}I_i^{m02} = \frac{\overline{P}_i^{m02}}{\overline{P}_i^{2001}} \times 100$$

where:

$_{01}I_i^{m02}$ is the index in Base 2001 of the basic group *i*, in month *m* of year 2002.

$\overline{P}_i^{m02}$ is the average price of the basic group *i*, in month *m* of year 2002.

$\overline{P}_i^{2001}$ is the arithmetic average of the twelve average monthly prices of the basic group *i*, in base year 2001.

As of 2003 this formula will use the prices from December of the year immediately previous to that of month m as a reference period.

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

where:

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

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

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

• ***Average Prices***

As opposed to previous bases, the average prices used to calculate the index are obtained from geometric averages.

With the new System, Spain joins the majority of countries, which have been using the **geometric average** to obtain the basic aggregate indices. The arithmetic average used until now has the main disadvantage of granting more influence to the variation of the highest prices. On the contrary, using the geometric average each of the prices observed for one same item in a specific

province have the same importance, in other words, they contribute in the same way to the calculation of the basic index.

Thus, the average price of the basic group *i* in period (*m,t*) is calculated as:

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

where:

P_{ij}^{mt} is the price of the basic group *i* collected in outlet *j* during period (*m,t*).

n_i^{mt} is the number of prices used in the calculation of the average price for basic group *i* in period (*m,t*).

On the other hand, the average price of an item *i* in 2001, used for obtaining the elementary indices during 2002 is calculated as an arithmetic average of the twelve monthly prices of the base year, in the following method:

$$\overline{P}_i^{2001} = \frac{1}{12} \sum_{m=1}^{12} \overline{P}_i^{m01}$$

where:

$\overline{P}_i^{2001}$ is the average price of item *i*, in 2001.

$\overline{P}_i^{m01}$ is the average price of item *i*, in month m of 2001.

Each average monthly price is calculated as indicated in the formula (1).

5.2 Weights

The weights used for the calculation of the aggregate indices come from the HCBS. Since its implementation in the second quarter of 1997, this quarterly survey provides estimates on the consumption expense of households resident in family dwellings in Spain.

The classification used by the HCBS (COICOP international consumption classification) consists of a series of expenses divisions, the majority of which include goods and services covered in the CPI.

In order to obtain more detailed information, the breakdown of these divisions has been necessary, which is fundamental for the calculation of the basket of items items weights.

Eight quarters of the HBCS are necessary to obtain firm estimates on the structure of household expenses. The quarters to which the data employed in the calculation of the weights are referred are those comprised between the 2nd quarter of 1999 and the 1st of 2001.

Different organisations, associations, manufacturers and wholesalers were also necessary in order to assign the weights for the expense divisions, which contain more than one basket of items item.

Two annual expense structures were established with the data from the quarters mentioned, the first with the year composed of the first 4 quarters and the second with the last 4. To obtain the total expense, a weighted arithmetic average of these structures was calculated where the second year is assigned a greater weight because it is closer to the moment the update is made.

The weights of each item represent the relation between the expenditure made in the divisions represented by that item and the total expenditure made on all divisions covered by the index:

$$W_i = \frac{\text{expense made in the divisions represented by that item i}}{\text{total expenditure}}$$

These weights in each of the geographic, provincial, autonomous community and national total groups. Based on these the weights for the functional aggregations are obtained. Thus, the weight for functional aggregation A is obtained as a sum of the weights of the items, which form that group:

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

The periodical update of the weights, which will be carried out in the new System, will use the information from the last available quarters of the HCBS.

The weights CPI Base 2001 of the twelve COICOP groups appear on the following table:

Group weights (so much per thousand)

Groups	Weighting CPI-01
1. FOOD AND NON-ALCOHOLIC BEVERAGES	218,630
2. ALCOHOLIC BEVERAGES AND TOBACCO	32,170
3. CLOTHING AND FOOTWEAR	99,280
4. HOUSING	110,260
5. FURNITURE AND HOUSEHOLD EQUIPMENT	63,571
6. HEALTH	28,062
7. TRANSPORT	155,760
8.COMMUNICATIONS	25,729
9. RECREATION AND CULTURE	67,263
10. EDUCATION	17,444
11. HOTELS, CAFES AND RESTAURANTS	112,708
12. OTHER GOODS AND SERVICES	69,124
TOTAL	**1.000**

These weights are similar to the ones which were in force in 2001, with the implementation of the first Phase of the System change (January 2001) indices for the twelve groups began to be published and their weights were updated with the HBCS data relative to the eight quarters comprised between the second one of 1998 and the first one of 2000.

5.3 Aggregate indices

2002

Functional aggregations for a province

The calculation of the index for a functional aggregation A (aggregation, subgroup, class, subclass, heading or special aggregation) in a province p is carried out based on the elementary indices of the items belonging to that aggregation and its corresponding weights. Its mathematical expression is the following:

$$ {}_{01}I_{Ap}^{m02} = \sum_{i \in A} {}_{01}I_{ip}^{m02} W_{ip} $$

where:

${}_{01}I_{ip}^{m02}$ is the index in month *m* of 2002 for item *i* in province *p*, in Base 2001.

W_{ip} is the weighting of item *i* in province *p*, within aggregation *A*, in other words:

$$W_{ip} = \frac{\text{expense made in the item i within province p}}{\text{expense made in functional group A within province p}}$$

Geographic aggregations of a functional aggregation

In the same way as with the previous case, to calculate the index for a geographic aggregation larger than a province *R* (Autonomous Community or entire country) for a determined functional aggregation *A*, the following must be followed:

$$_{01}I_{AR}^{m02} = \sum_{p \in R} {}_{01}I_{Ap}^{m02} \text{ x } W_{Ap}$$

where:

$_{01}I_{Ap}^{m02}$ is the index in month *m* of 2002 for functional aggregation *A* in province *p*, in Base 2001.

W_{Ap} is the weighting of functional aggregation *A* in province *p*, in other words:

$$W_{Ap} = \frac{\text{expense made in functional group A within province p}}{\text{expense made in functional group A within geographic group R}}$$

2003 and later

As previously mentioned, as of January 2003, the indices will be referred to December of the year immediately prior to the one, which the index deals with.

On the other hand, the weights used for the calculation of the aggregations will also refer to the previous period, thus maintaining the coherence with the reference prices.

The calculation of the aggregate indices is subsequently described.

Functional aggregations within a province

The calculation of the index for a functional aggregation *A* in a province *p* , is obtained as the sum on the elementary indices of the items belonging to that aggregation with the weights effective in year *t*.

Thus, its mathematical expression is as follows:

$$_{\mathrm{dic}(t-1)}\mathrm{I}_{\mathrm{Ap}}^{\mathrm{mt}} = \sum_{i \in A} {}_{\mathrm{dic}(t-1)}\mathrm{I}_{\mathrm{ip}}^{\mathrm{mt}} \mathrm{x}\ {}_{(t-1)}\mathrm{W}_{\mathrm{ip}}$$

where:

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

$_{(t-1)}\mathrm{W}_{\mathrm{ip}}$ is the weighting of item *i* in province *p*, within aggregation *A*, in other words,

$$_{(t-1)}\mathrm{W}_{\mathrm{ip}} = \frac{\text{expense made in the item i within province p referred of year } (t-1)}{\text{expense made in functional group A within province p referred of year } (t-1)}$$

as so much per one, updated for (*t-1*).

Once calculated as has been previously detailed, the aggregate indices must be linked. These indices are finally disseminated and give continuity to the published series (Base 2001).

For any functional aggregation *A,* the index in Base 2001 in province *p*, is calculated as follows:

$$_{01}\mathrm{I}_{\mathrm{Ap}}^{\mathrm{mt}} = {}_{01}\mathrm{I}_{\mathrm{Ap}}^{\mathrm{dic}(t-1)} \times \left(\frac{{}_{\mathrm{dic}(t-1)}\mathrm{I}_{\mathrm{Ap}}^{\mathrm{mt}}}{100} \right) =$$

$$= {}_{01}\mathrm{I}_{\mathrm{Ap}}^{\mathrm{dic02}} \times \left(\frac{{}_{\mathrm{dic02}}\mathrm{I}_{\mathrm{Ap}}^{\mathrm{dic03}}}{100} \right) \times \cdots \times \left(\frac{{}_{\mathrm{dic}(t-2)}\mathrm{I}_{\mathrm{Ap}}^{\mathrm{dic}(t-1)}}{100} \right) \times \left(\frac{{}_{\mathrm{dic}(t-1)}\mathrm{I}_{\mathrm{Ap}}^{\mathrm{mt}}}{100} \right)$$

Geographic aggregations of a functional aggregation

In the same way as in the previous case, the calculation of an index for a geographic aggregation *R* larger than the province, for a determined functional aggregation *A* is carried out as follows:

$$_{\text{dic}(t-1)}I^{mt}_{AR} = \sum_{p \in R} {}_{\text{dic}(t-1)}I^{mt}_{Ap} \; x \quad {}_{(t-1)}W_{Ap}$$

where:

$_{\text{dic}(t-1)}I^{mt}_{Ap}$ is the index in month *m* of year *t* of the functional aggregation *A* in province p, referred to December of year *t-1*.

$_{(t-1)}W_{Ap}$ is the weighting for functional aggregation *A* in province *p*, as such per one, updated to *t-1*, in other words,

$$_{(t-1)}W_{Ap} = \frac{\text{expense made in functional group A within province p}}{\text{expense made in geo gra phic group R within province p referred of year (t - 1)}}$$

• ***Calculation of linked indices***

For any functional aggregation *A*, the linked index in month *m* of Year *t* in region *R*, in Base 2001, is:

$$_{01}I^{mt}_{AR} = {}_{01}I^{\text{dic}(t-1)}_{AR} \times \left(\frac{{}_{\text{dic}(t-1)}I^{mt}_{AR}}{100} \right) =$$

$$= {}_{01}I^{\text{dic}2002}_{AR} \times \left(\frac{{}_{\text{dic}2002}I^{\text{dic}2003}_{AR}}{100} \right) \times \cdots \times \left(\frac{{}_{\text{dic}(t-2)}I^{\text{dic}(t-1)}_{AR}}{100} \right) \times \left(\frac{{}_{\text{dic}(t-1)}I^{mt}_{AR}}{100} \right)$$

5.4 Calculation of variation rates

5.4.1 MONTHLY VARIATION RATES

The monthly variation rate is an index in period (*m, t*) it is calculated as the quotient between the index in the current month m and the index in the previous month *m-1*, according to the following formula:

$$\Delta^{mt/(m-1)t} = \left(\frac{{}_{01}I^{mt}}{{}_{01}I^{(m-1)t}} - 1 \right) \times 100$$

where:

$\Delta^{mt/m-1)t}$ is the monthly variation rate of prices in month *m* of year *t*.

${}_{01}I^{mt}$ is the index in month *m* of year *t*, in Base 2001.

${}_{01}I^{(m-1)t}$ is the index in month *m-1* of year *t*, in Base 2001.

It is important to point out that as of January 2003 the rates obtained in this way coincide with those calculated based on the indices referenced to December of the previous year.

5.4.2 ACCUMULATED VARIATION RATES

The cumulative variation rate is calculated as a quotient between the published index in the current month and the index for December of the previous year, both in Base 2001:

$$\Delta^{mt/dic(t-1)} = \left(\frac{{}_{01}I^{mt}}{{}_{01}I^{dic(t-1)}} - 1 \right) \times 100$$

where:

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

$_{01}I^{mt}$ is the index in month *m* of year *t*, in Base 2001.

$_{01}I^{dic(t-1)}$ is the index in December of year *t-1*, in Base 2001.

The same as occurs with the monthly rates, the cumulative ones can be calculated as of January 2003 with the indices from December of the previous year.

5.4.3 ANNUAL VARIATION RATES

The annual variation rates are calculated as a quotient between the index published in the current month and the same index from the same month of the previous year, both in Base 2001:

$$\Delta^{mt/m(t-1)} = \left(\frac{{}_{01}I^{mt}}{{}_{01}I^{m(t-1)}} - 1 \right) \times 100$$

where:

$\Delta^{mt/m(t-1)}$ is the variation rate of prices in month *m* of year *t*, in Base 2001.

$_{01}I^{mt}$ is the index in month *m* of year *t*, in Base 2001.

$_{01}I^{m(t-1)}$ is the index in month *m* of year *t-1,* in Base 2001.

The calculation of these annual rates during the first year of the 2001 System implementation uses Base 2001 indices, even though these have not been published yet. This is a novelty with respect to the previous base changes, necessary so that the price variations will not be affected by beginning to include the January 2002 sales prices.

5.4.4 Variation rates with indices in different bases

As has been mentioned in previous sections, the coming into force of the 2001 System supposed a break in the series of indices due to the inclusion of sales prices. This break affects the calculation of the variation rates when the indices for the periods of time selected are measured in different bases; when this occurs, the general formula for calculating the variation rates must be modified.

The method to be followed for the calculation of this type of variation rates is described below; for this, different cases have been considered depending on which periods are considered.

a) **Initial period = year 2001**
Final period ≥ 2002

Price variation between two moments in time which belong to two different bases, as long as the initial period corresponds to 2001, is calculated using the indices in Base 2001 for both periods, initial and final, despite the fact that the first of them is not yet made public. Thus, the variation of prices between month m of the year 2001 and month *m'* of year *t'* (*t' ≥ 2002*) is obtained as follows:

$$\Delta^{m't'/m01} = \left(\frac{{}_{01}I^{m't'}}{{}_{01}I^{m01}} - 1 \right) \times 100$$

where:

$\Delta^{m't'/m01}$ it is the price variation rate from month *m* of the year *2001* to month *m'* of year *t'*.

${}_{01}I^{m't'}$ it is the index in month *m'* of Year *t'*, in Base 2001.

${}_{01}I^{m01}$ it is the index in month m of the year *2001*, in Base 2001.

Due to the fact that, as has already been mentioned, the indices for 2001 measured in Base 2001 are not yet published, the INE calculates and publishes these variation rates, which are available at this Institutions Internet site.

b) **Initial period <2001**
Final period ≥ 2002

When the initial period is prior to 2001, the only indices available for this period are in Base 1992 and therefore, do not include sale prices; because of this, it has been necessary to obtain a method of calculation which solves the problem of the lack of continuity provoked by the final period including sale prices and the initial one not.

This method consists of calculating that variation in parts or divisions.

To obtain the price variation rate since month m of year *t* (*t<2001*) until month *m'* of year *t'* (*t' ≥ 2002*) the following divisions are considered temporal:

Section 1: (*m, t*) / (*m', 2001*)
Section 2: (*m', 2001*) / (*m', 2002*)
Section 3: (*m', 2002*) / (*m', t'*)

Section 1. Calculation of the variation rate between the period (*m,t*) and (*m', 2001*)

Given that these are periods prior to January 2002, none of the indices involved includes sales prices. Therefore, the variation for the first section can be obtained based on the indices published in Base 1992 ($_{92}\mathrm{I}$) or with the linked indices in Base 2001 ($_{01}\mathrm{IE}$), since the variation rates coincide in both cases. Thus:

$$\Delta^{\mathrm{m'01/mt}} = \left(\frac{{}_{92}\mathrm{I}^{\mathrm{m'01}}}{{}_{92}\mathrm{I}^{\mathrm{mt}}} - 1 \right) \times 100 = \left(\frac{{}_{92}\mathrm{I}^{\mathrm{m'01}} \times \mathrm{C}_{\mathrm{L}}^{01/92}}{{}_{92}\mathrm{I}^{\mathrm{mt}} \times \mathrm{C}_{\mathrm{L}}^{01/92}} - 1 \right) \times 100 = \left(\frac{{}_{01}\mathrm{IE}^{\mathrm{m'01}}}{{}_{01}\mathrm{IE}^{\mathrm{mt}}} - 1 \right) \times 100$$

where:

$\mathrm{C}_{\mathrm{L}}^{01/92}$ is the legal link coefficient, which transforms the indices in Base 1992 into indices in Base 2001.

Section 2. Calculation of the variation rate between (*m', 2001*) and (*m', 2002*)

The second section, which corresponds to an annual period, compares a month from the year 2001 with the same month in 2002. These variation rates are published by the INE and are calculated in Base 2001; as has already been mentioned, the indices for 2001 are not yet public.

This rate is calculated using the formula expressed in the section dedicated to the calculation of the annual rate:

$$\Delta^{\mathrm{m'02/m'01}} = \left(\frac{{}_{01}\mathrm{I}^{\mathrm{m'02}}}{{}_{01}\mathrm{I}^{\mathrm{m'01}}} - 1 \right) \times 100$$

Section 3. Calculation of the variation rate between (*m', 2002*) and the final period (*m', t'*)

The third section compares the same month from different years, both after 2001. Since both indices are measured in the same base, the calculation of the variation can be carried out based on the published indices.

$$\Delta^{\mathrm{m't'/m'02}} = \left(\frac{{}_{01}\mathrm{I}^{\mathrm{m't'}}}{{}_{01}\mathrm{I}^{\mathrm{m'02}}} - 1 \right) \times 100$$

Calculation of the rate for the entire period

Using the variations calculated for the three divisions, the price variation rate between month m of year t and month m' of year t', is obtained as follows:

$$\Delta^{m't'/mt} = \left[\left(1 + \frac{\Delta^{m'01/mt}}{100} \right) \times \left(1 + \frac{\Delta^{m'02/m'01}}{100} \right) \times \left(1 + \frac{\Delta^{m't'/m'02}}{100} \right) - 1 \right] \times 100$$

This rate can only be obtained using the indices for the initial and the final periods. For this purpose the *sales* coefficients, which establish a relation between Base 92 and Base 01 by means of index quotients for each of the months in 2001, must be used. There exist twelve different monthly sales coefficients for each functional and geographic aggregation.

Thus, for each of the months of year 2001 and for each one of the geographic and functional aggregations, the coefficient would be calculated as:

$$C^m = \frac{{}_{01}IE^{m01}}{{}_{01}I^{m01}}$$

where:

C^m is the sales coefficient for month *m*.

${}_{01}IE^{m01}$ is the index in month *m* of 2001, linked.

${}_{01}I^{m01}$ is the index in month *m* of 2001, in Base 2001.

The variation rate between the initial period (*m, t*) and the final (*m', t'*) can be obtained as a quotient between the final periods index, in Base 2001 (${}_{01}I^{m't'}$) and, the linked index for the initial period (${}_{01}IE^{mt}$) multiplied by the monthly sales coefficient corresponding to the final period.

Section 1 Section 2 Section 3

$$\Delta^{m't'/mt} = \left(\frac{{}_{01}IE^{m'01}}{{}_{01}IE^{mt}} \times \frac{{}_{01}I^{m'02}}{{}_{01}I^{m'01}} \times \frac{{}_{01}I^{m't'}}{{}_{01}I^{m'02}} - 1 \right) \times 100 = \left(\frac{{}_{01}I^{m't'}}{{}_{01}IE^{mt}} \times \frac{{}_{01}IE^{m'01}}{{}_{01}I^{m'01}} - 1 \right) \times 100 =$$

$$= \left(\frac{{}_{01}I^{m't'}}{{}_{01}IE^{mt}} \times C^{m'} - 1 \right) \times 100$$

where:

$C^{m'} = \frac{{}_{01}IE^{m'01}}{{}_{01}I^{m'01}}$ is the sales coefficient for month *m'*.

In order to facilitate the described variation rates to the users, these are calculated previously and made available to the public via Internet or disseminated via the customer service windows of the INE.

5.5 Calculation of effects

5.5.1 MONTHLY EFFECTS

The effect of the monthly variation of an items index or a aggregation of items indices on the general index is defined as the part of the variation of the general index which corresponds to that item or aggregation of items. Therefore, the sum of all the effects of all the basket of items items is equal to the variation of the general index.

The monthly effect that the price variation of an item or a aggregation of items has on the monthly variation of the general index is the variation that this index would have undergone assuming the prices of the rest of the items had not varied during that month.

The formula for the monthly effect of a determined item *i* (or of a determined functional aggregation) in month *m* of year *t*, as of 2003, is the following:

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

where:

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

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

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

$_{(t-1)}W_i$ is the weighting for item *i* referred to year (*t-1*), as such per one.

The effects are calculated based on the indices referred to December of the year immediately previous (without link) as can be seen. Thus, the indices used for the calculation of the effects are those which start at 100 each year. This is one of the main advantages of the new formula, it avoids two items or aggregations of items with the same weighting and the same variation affecting the general index in a different manner due to the different evolution of their prices since the beginning of the base.

An alternative method for calculating the weights is by means of the variation rates. The formula is obtained as follows:

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

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

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

Therefore, the monthly effect of a determined item *i*, is the products of it's monthly variation rate ($\Delta_i^{mt/(m-1)t}$) by it's weighting ($_{(t-1)}W_i$) and by the quotient between the items index and the general index, both from the previous month($I_i^{(m-1)t}/I_G^{(m-1)t}$).

As has already been mentioned previously, the sum of the monthly effects of all the items, which compose the CPI basket of items, is equal to the monthly variation of the general index. This can be verified in the following manner:

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

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

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

In 2002 the formulas for calculating the monthly effects are the same as those described for any year as of 2003, should they be referred to December of 2001, the indices with Base 2001 are used.

The monthly weighting for item *i* in month *m* of year 2002 is:

$$R_i^{m02/(m-1)02} = \frac{{}_{01}I_i^{m02} - {}_{01}I_i^{(m-1)02}}{{}_{01}I_G^{(m-1)02}} \times {}_{01}W_i \times 100$$

where:

${}_{01}I_i^{m02}$ is the index in month *m* of year *2002*, for item *i*, in Base 2001.

${}_{01}I_i^{(m-1)02}$ is the index in month *m–1* of year *2002*, for item *i*, in Base 2001.

${}_{01}I_G^{(m-1)02}$ is the general index in month *m-1* of year *2002*, in Base 2001.

5.5.2 ACCUMULATED EFFECTS

The effect of the variation occurred over the year of the index of an item or aggregation of items on the general index, represents the accumulated variation that the general index undergoes if the remaining items had not varied during the year. Or the equivalent, it is the part of the accumulated variation due to one item or a aggregation of items.

The formula for the accumulated effect, or in what has transpired of the current year, for a given item *i* (o from a given functional aggregation) in month *m* of year *t*, as of 2003, is the following:

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

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

where:

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

${}_{(t-1)}W_i$ is the weighting for item *i*, as such per one, referred to year *t-1*.

Both the alternative formula for the calculation of effects, as a function of variation rates, as well as the obtaining of variation rates as the sum of effects, are also valid in this section.

6. Types of items

6.1 Criteria for the classification of items

The operations included in the CPI calculation process, from the collection of prices to the calculation of indices and their publication, are different depending on the particularities of each item in the basket of items.

Thus, the periodicity for the collection of prices varies according to the frequency with which the prices of items are modified. The method of collection is also different depending on the geographic homogeneity of the prices and their availability. Finally, the calculation method for the indices is different according to each items characteristics.

The following table demonstrates the different types of items according to the criteria used in their classification:

Criteria	Types of items
Periodicity of the price collection	aggregations 1 and 2 → monthly: seasonal; perishable non seasonal; non-perishable
	aggregations from 3 to 12: monthly; of season; quarterly: quarterly; quarterly sales
Collection point and the recording of seasonal	provinces; Central services
Calculation method of elementary indices	prices which are centrally collected; of provincial collection with set price; housing rental; without special treatment

Periodicity of price collection

Depending on the periodicity and the frequency of collection of the prices a first method of classification for the items is established. Thus, if two types of items are considered, the monthly and the quarterly

Monthly collection items

The prices of monthly items are observed every month in all the outlets within the sample, mostly by means of personal visits. Generally, each outlet is visited one time each month, except those where perishable items prices are collected which, due to the greater frequency of their price variations, the interviewer visits up to three times monthly. This category includes fresh unprocessed food, which undergoes large periodical price fluctuations and constant quality changes. Within these, the seasonal (fresh fruits and vegetables) stand out, some of which are only sold in determined months of the year, which is when their price collection is carried out.

Seasonal items

The seasonal items are those whose consumption only occurs during some months of the year since they are not sold the rest of the year. Within these items are clothing and footwear items, which have 2 defined seasons (spring--summer and autumn-winter), and sports events, whose season corresponds with a League.

The price collection for these items is carried out once a month during the season when they are sold. And the treatment of the prices for those months when the item disappears is a repetition of the last price collected.

Quarterly items

Quarterly items are those whose prices are practically stable, in other words, they do not undergo many variations in price over time (electrical appliances, furniture, repair services,...).

The treatment of these prices consists of dividing the sample of selected outlets into three subsamples, in such a way that only the outlets of one of the subsamples is visited and the last price collected in the outlets in the other two subsamples is repeated. This ensures that every month there are outlets, which inform on the prices of these items and, should half the prices collected in the month vary, the following month information will be requested from all the outlets.

In the Base 2001 the percentage of quarterly items has increased with respect to the Base 1992. This permitted broadening the number of prices and outlets observed.

A new category has been established within the quarterly ones with the inclusion of sale prices: the sales quarterlies. These are the ones, which, despite fulfilling the stability requirement for the quarterly prices, show significant variations in typical sales periods (electrical appliances, furniture, bed linen, ...). Because of

this, the collection of prices during sales months are carried out by visiting all the outlets in the sample and not just those in the sub-sample corresponding to that month.

Price collection and recording point

Taking the place where the prices are collected and recorded into account, a distinction can be made between provincial collection items and centralised collection items.

The prices for the first ones are collected in each province by means of a personal visit, telephone or fax or official bulletins for the autonomous communities or for the provinces, and they are recorded in each Provincial Delegation.

On the other hand, the follow up for the centralised collection items is carried out by the INE Central Services. This type of items are, those goods and services that have one or various of the following characteristics:

– Their prices are the same in a wide geographic area

– Their prices are subject to the rates published in BOE (Official State Bulletin) or in the Official Bulletins for the autonomous communities and provinces

– Few companies exist which market the item

– A perfectly defined directory of informants is available.

Elementary indices calculation method

With respect to the calculation method, certain aggregations of items exist whose elementary indices are obtained in a different manner than the general formula
described in section 5.1.

According to the general calculation formula, the basic index for any item in the basket of items is obtained without considering any type of weighting. The exception to this general rule is the treatment which the centralised collection items and tariff price items receive; in both cases, the index is calculated taking into account a set of representative varieties or modes of the items consumption, weighted accordingly for the consumption carried out of each of them.

In the CPI Base 2001, the weighting for each modality is obtained from the expense carried out by the consumers, as opposed to the Base 1992 CPI, where it is measured from the number of units consumed. Thus, the coherence is maintained with the general structure of weights of the basket of items.

The seasonal items also receive special treatment because of their characteristics. Due to the periodic variations of their prices and amounts, fruits, fresh vegetables use a special method of calculation based on mobile measures which take into account the production and marketing calendar of the items.

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

In the following sections these special calculation methods are described in detail.

6.2 Seasonal items

6.2.1 DEFINITION

Seasonal items are those which undergo large periodic fluctuations both in price as well as in quantities consumed during the year, even disappearing from the market during some periods. Therefore, the weights of these items vary monthly, as opposed to the rest, being equal to zero in some months of the year.

Seasonal items are included in the indices of most countries. However notable differences exist in the treatment methods as well as in the cataloguing criteria for certain items such as seasonal ones. The products that have a greater seasonal profile in all countries are fresh fruits and vegetables, although in some fresh fish, certain meats, refreshments, ice creams, plants, flowers and sporting items are also included.

In the CPI Base 2001, as in the Base 1992, two sets of seasonal items are considered: *Fresh fruits* and *Fresh vegetables*, represented in both subclasses in the CPI classification. However, with respect to the Base 1992 CPI, the seasonal schemes have varied (broadening the collection months for some items), as well as the composition and weights of the elements in these sub-classes.

6.2.2 METHODOLOGY

The calculation method for these subclasses index is basically the same as for the Base 1992 CPI, with two novelties consequence of the changes introduced in the general index formula. One the one hand, the use of geometric average, instead of arithmetic, to obtain the average provincial prices and, on the other, the calculation of elementary indices as the quotient between the average current month price and the average price of the same month, not of the base year, but from the immediately previous year.

The calculation of the monthly index for the two seasonal subclasses in each province is carried out in three stages, in each of which a different index is obtained: basic index by seasonal item; direct index and mobile index, both by seasonal subclass.

1st stage. Calculation of elementary indices

In the first place, the **elementary indices** are obtained from each of the seasonal items of the current months CPI basket of items. These indices are calculated as the quotient of the current months price between the average price for the same month the previous year, multiplied by 100. The average prices, as has already been commented, are obtained applying the arithmetic average.

The basic index for seasonal item *i* in month *m* of year *t* is obtained as follows:

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

where:

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

$\overline{P}_i^{m(t-1)}$ is the average price in month *m* of year *t-1* for item *i.*

2nd stage. Calculation of direct indices

The **direct indices** for each subclass are obtained based on the elementary indices by item. They are obtained by the weighted sum of the elementary indices of the items, which make up each subclass during the current month (with the weights corresponding to this month).

The calculation of the direct index for subclass *S* in month m of year t is carried out as follows:

$$_{(t-1)}ID_S^{mt} = \sum_{i \in S} {}_{(t-1)}I_i^{mt} \times {}_{(t-1)}W_{i/S}^{m}$$

where:

$_{(t-1)}I_i^{mt}$ is the basic index in month *m* of year *t,* for item *i*.

$_{(t-1)}W_{i/S}^{m}$ is the weighting in month m for item *i* with respect to subclass *S*.

As can be seen, in this stage indices are calculated by seasonal subclass, not by item. Furthermore, weights are used $_{(t-1)}W_{i/S}^{m}$, which represent the expense carried out during month m of year *t-1* on each item *i*, with respect to the expense carried out during the same period on all the items that form the subclass *S*, as such per one. For each month, the sum of the weights of the items that form subclass *S* is equal to 1.

$$_{(t-1)}W_{i/S}^{m} = \frac{G_i^{m\,t-1}}{\sum_{i \in S} G_i^{m\,t-1}}$$

with

$$\sum_{i \in S} {}_{(t-1)}W_{i/S}^{m} = 1$$

where:

$G_i^{m\,(t-1)}$ is the expenditure made during month *m* of year *t-1* on item *i*.

The weights structure $\left\{ {}_{(t-1)}W_{i/S}^{m} \right\}_{i \in S}$ is different for each month of the year and for each province.

3rd stage. Calculation of mobile indices

Finally, the **mobile indices** are calculated by seasonal subclass which are those used to obtain more aggregationed indices (both on a functional and geographic level). These mobile indices are calculated as a weighted average of the direct indices for the current month and the 11 previous months, so that they are always an average of a complete years indices.

The calculation of the mobile index for subclass S, in month m of year t is the following:

$$_{(t-1)}IM_S^{mt} = \sum_{j=m-11}^{m} {}_{(t-1)}ID_S^{jt} \times {}_{(t-1)}W_S^{j/0} \times C_S$$

where:

$_{(t-1)}ID_S^{jt}$ is the direct index in month *j* of year *t* for subclass *S*.

$_{(t-1)}W_S^{j/0}$ is the weighting in month *j* for subclass *S*, for year *t-1*.

C_S is the coefficient for subclass *S*, which is the value that makes the mathematical average of the mobile indices for the base year be equal to 100 (as of 2003 it is equal to 1).

The Weights $\left\{{}_{(t-1)}W_S^{j/0}\right\}_{j=1,2,...,12.} = \left\{\sum_{i\in S} {}_{(t-1)}W_i^{j/0}\right\}_{j=1,2,...,12.}$ used in this stage represent the expense carried out during month *j* of reference year (*t-1*) in subclass *S*, with respect to the total expense carried out in the subclass during year (*t-1*), so much per one, in other words:

$$ {}_{(t-1)}W_S^{j/0} = \frac{G_S^{j0}}{\sum_{j=1}^{12} G_S^{j0}} $$

with

$$ \sum_{j=1}^{12} {}_{(t-1)}W_S^{j/0} = 1 $$

where:

G_S^{j0} is the expense carried out over month *j* of year (t-1) in subclass *S.*

These weights, like the previous ones, are different for each province.

6.2.3 CALCULATION OF INDICES

2002

The calculation of indices during 2002 is carried out according to the steps previously described. In the first step, to obtain the basic index of a seasonal item its average price in the current month is divided by its average price in the same month of the previous year (2001). In the second step the indices for the items that form the subclass that month are aggregationed and, in the third step a mobile index is calculated, as an average of the direct index for the current month and the eleven previous ones.

Given that the mobile index for a seasonal subclass is equal to the basic index for any non-seasonal item, its average index in the base year is equal to 100. In this way, the value of the coefficient C_S is that which makes the mathematical average of the mobile indices for the base year be equal to 100.

$$\frac{1}{12}\sum_{m=1}^{12} IM_S^{m0} = \frac{1}{12}\sum_{m=1}^{12} \sum_{j=m-11}^{m} ID_S^{j0} \text{ x } {}_{01}W_S^j \text{ x } C_S = 100 \quad \Leftrightarrow$$

$$C_S = \frac{100}{\frac{1}{12}\sum_{m=1}^{12} \sum_{j=m-11}^{m} ID_S^{j0} \text{ X } {}_{01}W_S^j}$$

In 2002, for each province, the mobile index for the seasonal subclass *S* in month *m* is equal to the index for subclass *S*, in Base 2001, for the same period:

$${}_{01}I_S^{m\ 2002} = IM_S^{m2002}$$

To obtain the indices in Base 2001, or the mobile indices, of the seasonal subclasses for each of the autonomous communities and the entire nation, weighted arithmetic averages are calculated for the provincial mobile indices following the same method described in the case of general items, in other words, applying the corresponding weights to each geographic aggregation.

2003 and later

As of January 2003 the basic and direct indices will be obtained as described in the first and second stages. In the third stage, the coefficient which appears in the mobile index formula takes on a value equal to 1, or what is the same, the mobile indices will be obtained as a weighted average of the direct indices without the need to introduce any coefficient. This is due to the fact that with the new formula for the linked index, in year t as of 2003, the indices for the seasonal subclasses, as for the non-seasonal items, must be equal to 100 in the month of December of the previous year t-1.

$$IM_S^{dic(t-1)} = \sum_{j=ene}^{dic} ID_S^{j(t-1)} \times W_S^{j/0} \times C_S = 100$$

where:

$$ID_S^{j(t-1)} = \sum_{i \in S} I_i^{j(t-1)} \times W_{i/S}^j$$

In that year t, all the elementary indices which are part of the calculation of direct indices, are obtained as the quotient of the average price of the current month

between the average price for the same month of the previous year *t-1*. Therefore, the elementary indices for the months of year *t-1* are equal to 100, while the months of year t take on other values.

Thus, in Year *t* the indices for the different stages are:

$$I_i^{m(t-1)} = 100 \qquad m=1, 2,\ldots.12.$$

$$ID_S^{m(t-1)} = \sum_{i \in S} I_i^{m(t-1)} \times W_{i/S}^{m} = \sum_{i \in S} 100 \times W_{i/S}^{m} = 100 \quad m=1, 2,\ldots.12$$

$$IM_S^{dic(t-1)} = \sum_{j=ene}^{dic} ID_S^{j(t-1)} \times W_S^{j/0} \times C_S = \sum_{j=ene}^{dic} 100 \times W_S^{j/0} \times C_S$$

$$= 100 \times C_S \times \sum_{j=ene}^{dic} W_S^{j/0} = 100 \times C_S$$

If the mobile index for December of *t-1* is equal to 100, then:

$$C_S = 1$$

To obtain the mobile indices for autonomous communities, or for the entire nation, weighted averages are calculated from the provincial mobile indices following the same method described generally for items. In other words, by applying the corresponding weights to each geographic aggregation.

The mobile indices, calculated as described above, are not published since that would signify a break in the series each December. Therefore, it is necessary to link these indices.

Linked indices

As has already been mentioned, the mobile index for a seasonal subclass equals the simple index for any non-seasonal item (indices referred to December of the previous year). In such a way that, due to similarity, the linked index for the seasonal subclass *S*, in month m of year *t*, is equal to the non-linked index (mobile index) same period (*m,t*) by the published index for the subclass in December of year *t-1* over 100.

$$_{01}I_S^{mt} = \left(IM_S^{mt} \text{ x } {}_{01}I_S^{dic(t-1)} \right) \times \frac{1}{100}$$

Just like with the linked indices, this index can also be expressed considering the intermediate situations:

$$ {}_{01}I_S^{mt} = \frac{{}_{01}I_S^{dic2002}}{100} \times \frac{{}_{dic2002}I_S^{dic2003}}{100} \times \cdots \times \frac{{}_{dic(t-2)}I_S^{dic(t-1)}}{100} \times IM_S^{mt} $$

6.3 Provincial collection items with tariff price

The provincial collection items with an tariff price are those which are composed by different concepts (rates, subscription quotas, consumption brackets, ...), and also that information is available on them for both prices and for weights.

Among the provincial collection items with tariff price are, among others: water, waste removal services, urban transport and education.

Calculation method

The final price of these items is obtained as a weighted average of the different concepts as a function of the expense carried out on each of them. The weights used in the calculation of the final price of these items is updated annually.

The variation of prices is reflected in the month, which they occur, as long as they occur before the day the prices are sent to the Central Services, approximately on the 26th of each month.

6.4 Rental of housing

The rental housing index is obtained based on a sample of dwellings spread throughout the entire country. It is selected and updated based on a survey, which is periodically carried out within the Active Population Survey (APS).

The samples design is based on a simple random sampling, with the sample unit being the rented dwelling, for each one of the provinces.

The size of the sample selected is geographically distributed taking into account, within each province, the number of dwellings available, the expenses incurred by families that rent and the average rent for the previously mentioned dwellings.

The prices of each dwellings are collected each quarter, obtaining the information from the renters. For this, the sample is divided into three subsamples, one for each month of the quarter.

Calculation method

The calculation of the final price, which is introduced in the basic index for rented housing, is carried out in the following manner:

An average price for rented housing in each province is calculated, in the same manner as for any other item collected monthly, in other words, the prices for rented housing from the subsample corresponding to the current month and that of the subsamples from the previous two months enter into the calculation of the current month.

The variation existing between the rental of common dwellings during the current quarter (months m, m-1, m-2) and in the previous quarter (months m-1, m-2, and m-3) is applied to the average price calculated in this manner. The formula is the following:

$$\Delta^{m/m-1} = \left(\frac{\sum_{i\ comunes\ (m,m-3)} p_i^m + \sum_{i=1}^{N_{m-1}} p_i^{m-1} + \sum_{i=1}^{N_{m-2}} p_i^{m-2}}{\sum_{i\ comunes\ (m,m-3)} p_i^{m-3} + \sum_{i=1}^{N_{m-1}} p_i^{m-1} + \sum_{i=1}^{N_{m-2}} p_i^{m-2}} - 1 \right) \times 100$$

where:

p_i^m is the rent in month *m* of dwelling *i*.

N_m is the number of dwellings in the subsample for month *m*.

6.5 Centralised collection items

The items collected in a centralised location do not only have a special calculation method, they also have a different type of collection than the rest of the items in the basket of items.

Information collection

The obtaining of information and following of the items of centralised collection is carried out by the INE Central Services instead of by the Provincial Delegations.

For this type of items a provincial collection is not necessary because, generally, few companies market them and/or there is a perfectly defined informant companies directory or the different rates are published in the Official Bulletins.

Even though the collection is centralised, if the prices differ between provinces, they are collected in all of them. On the other hand, when the companies marketing these items are the same ones, it is convenient to request the information from the INEs Central Services.

A sample of the most representative varieties (brands, models, consumption time lots, ...) and of the informant units has been elaborated.

The selection of informant units is carried out based on their market quota, while the selection of the representative varieties of an item are carried out based on the expense carried out on each of them.

The information used for the calculation of the price for these items is of two types:

– Information related to consumption: necessary for the calculation of the weights of each company in the sample (market quota), as well as the weights for each modality of the item. In order to maintain the CPI current these weights are revised annually.

– Information relative to the prices or tariffs of each one of the modalities and/or of each one of the concepts that compose the items final price. They are collected monthly.

In the majority of items, the date limit for including price variations for items with centralised collection is around four days before the end of the reference month. The criteria of covering at least 90 percent of the days in the reference month is followed.

Centralised collection items are, among miscellaneous goods and services, tobacco, electricity, medication, vehicles, air and rail transport, fuels, telephone service and organised trips.

Calculation method

All concepts and/or modalities that determine price for these items intervene in the calculation of their price.

Thus, for items such as tobacco, vehicles and medications different brands are considered; for miscellaneous goods and services such as electricity and telephone services, the different fixed rates, schedules, consumption time lots, ... or all of them, the final price is calculated as an average of the prices for each one of these concepts or varieties weighted by its degree of importance.

Since January 2001, when the first phase of the System change began, the weights of the varieties which form the items price, are calculated based on the expense carried out on them and not using the number of units consumed, as was previously done.

The change in the weighting method for the different varieties was carried out in order to maintain the coherence with the remaining aggregation levels, thus attaining that all the weights used in the CPI calculation be obtained based on expense, whenever the necessary information is available.

The calculation method for these items is the following:

The indices for the centralised collection items are obtained from the linked elementary indices monthly.

These elementary indices are calculated for each variety or category which compose the item, dividing the prices from that variety in the current month between those from the previous month, in other words:

$$I_i^m = \frac{P_i^m}{P_i^{m-1}} \times 100$$

where:

P_i^m it is the price, in month *m*, of variety A_i.

With these indices an average index per item is obtained as a weighted geometric average of the indices of all the varieties included in the sample:

$$I^m = \sum_{i=1}^{n} W_i \sqrt{\prod_{i=1}^{n} \left(I_i^m\right)^{W_i}}$$

where

W_i is the weighting as a function of the expenditure made on each variety, with $\sum_{i=1}^{n} W_i = 1$

7. Collection of prices

The collection of the prices of the items is carried out both in the provinces as well as in the on the dates Central Services, by means of personal visits by the INE agents to the outlets corresponding, with some exceptions. For those collection of information is carried out by telephone, fax, e-mail or catalogue due to their particular characteristics. Each outlet is visited by one interviewer, except hypermarkets and large department stores.

The prices collected are effective sale prices for the public, paid in cash.

In Base 2001 prices are not collected for defective merchandise, liquidations or clearances, as in the Base 1992. However, unlike previous bases, items with reduced prices or those on offer are collected.

As far as reduced prices or those on offer, an important change has occurred with respect to Base 1992, since in the CPI Base 2001 they are part of the calculation of the index.

7.1 Calendar and frequency of collection

In general, the collection period for prices spans from the 1st to the 22nd of each month, both inclusive. However, for centralised collection items this period can be broadened, in some cases, until the end of the corresponding month.

The collection of prices, for the same item, in the different informant outlets has been distributed over this period, in order to cover the greatest number possible of price fluctuations. Every month each of the selected outlets are visited on the same day, originally established; with this it is intended that the variation reflected by the index correspond perfectly to the monthly variation.

When the set day for the collection of information is a holiday the collection of prices is transferred to the next working day, always avoiding for some items, such as fish, that the collection be carried out on a Monday (since they are not captured on Sunday).

Since perishable items are subject to significant price fluctuations, their prices are collected three times per month at each of the selected outlets in all the provincial capitals.

In the remaining municipalities, the prices of these items are collected twice for each one of the outlets belonging to the sample, according to the established calendar.

The collection of perishable items prices in non-capital municipalities has increased with respect to the Base 1992, when there was only one price collection monthly. In this way, by increasing the number of observations, the price variability is covered better on a provincial level.

For the remaining items each outlet is visited once monthly, except for the quarterly items which are collected once every three months.

7.2 Inclusion of discounted and sales prices

One of the most important changes that has taken place with the entry into force of the new Base 2001 system was the inclusion of sales prices. This means that the new CPI covers prices reduced for sales or promotions, as well as those prices whose decreases are due to official sales periods. This affects the majority of the divisions which form the CPI, although the reductions for sales occur more generally in the clothing and footwear and household divisions, where they are more common.

The introduction of sales prices signifies a rupture of the CPI series which cannot be solved by the usual legal links. Thus, we are dealing with a methodological problem whose solution should be subject to the CPI's final objective: to measure the evolution of prices for goods and services over time. This means that the objective is to obtain monthly, annual and cumulative variation rates that present the real evolution of prices.

7.2.1 CRITERIA AND TYPES OF DISCOUNTS CONSIDERED

The criterion, followed in Base 2001, for the collection of discounted prices are the following:

– That the discount be carried out on items which are expected to be available again at their usual prices

– That the discount be carried out on items which can be acquired by all consumers, not only by part of them,

– And that these discounts be effective at the time of purchase.

Covered then are discounts due to:

– Seasonal sales (official sales periods covered by the *Retailers Planning Law*).

– Any type of offers (whenever they are not liquidations or clearances).

7.3 Organization of fieldwork

The collection of the majority of the information is carried out by the personnel assigned to the survey in each of the 52 Provincial Delegations of the INE: (a team of interviewers or surveyors), (interviewer inspectors), (a survey inspector) and, at the head of each Delegation, a Provincial Delegate finally responsible for the collection of information in each province.

The technical responsibilities lie with the survey inspector. These are the people in charge of organising and distributing the work, analysing the series of prices, planning inspection visits and generally resolving problems as they arise during the collection of prices. For this they are assisted by the interviewer inspectors, who must accompany the new interviewers on their first visits, verify the

suitability and representativity of the items and outlets, advise them on the correct method for carrying out the price collection and controlling and inspecting the work of the interviewers assigned to them.

Finally the interviewer or surveyors mission is the collection of prices, ensuring that the specifications for the selected items are complied with, proposing the substitution of items and outlets which are not considered ideal and communicating all incidences which occur to the interviewers inspector.

A plan of inspection visits to the informant outlets exists to control the quality of the information collected.

In the Delegations the inspection work corresponds to the interviewer inspector and the survey inspector. As a basic criteria all outlets providing information for the first time must be visited, as well as those which the inspector has verified that are reluctant to collaborate.

In the outlets interviews their suitability and representativity is verified, whether the items for which prices are being collected comply with the specifications and their prices are correct, the informants degree of collaboration and if the interviewers visits are carried out in the adequate manner and on the foreseen dates.

In addition, another systematic inspection exists established by the INEs Central Services which requires the inspection of a determined percentage of outlets monthly. The survey inspector must send a report on the inspection where they point out the outlets, items and interviewers as well as the discrepancies observed.

Finally, it is worth highlighting that continuous repetitive interviews are carried out by means of agents sent by the Central Services in order to verify the quality of the data obtained.

8. Treatment of the information

8.1 Information receipt

The direct collection of prices for items from the basket of items is carried out by means of a questionnaire automatically generated by each outlet, in which the interviewer notes the prices and incidences relative to the items which appear on it.

Once the questionnaires are filtered by the interviewer the data is then recorded.

After each phase of recording questionnaires, computer applications are used which detect possible errors.

The interviewers inspector is responsible for verification of atypical prices before proceeding to the next phase of the process. This system allows the detection of any error in the collection of data and the problem's resolution before much time has transpired since its collection.

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

With the previous phases carried out, the monthly information is sent to the Central Services on the foreseen dates, so that the index may be elaborated in the shortest time possible, which facilitates publishing the index on the established day.

At the Central Services both the data sent by the provinces and the prices elaborated by these services are jointly processed.

The total number of prices processed monthly, which is close to 200,000, is analysed by the Central Services requiring when necessary confirmation of atypical prices from the provinces. Once the prices are analysed and filtered, the indices and their corresponding variation rates are obtained, which are published during the course of the first fortnight of the following month to which the indicators are referenced.

8.2 Edition and validation of prices

As has already been mentioned in the previous section, the INE Central Services receive, filter and analyse all the prices collected monthly.

In addition, Central Services carries out the treatment for a lack of a price, in other words, the price is estimated from those items which are not available at the time of their collection.

In Base 1992, that estimation consisted of repeating the last price collected.

Until the beginning of the new base, the estimation procedure used was the repetition of the last valid price collected. With the beginning of the Base 2001, the estimation method for a lack of price is based on applying the average variation for the rest of the prices collected for the same item in the remaining

outlets of the province. This method was already applied in the Harmonised Consumer Price Index (HCPI) since its origin.

This estimation process is especially significant for perishable items, for which there are various price collections for the item at the same outlet during the month.

8.3 Quality changes

Another treatment necessary in any CPI is the adjustment of prices when there is a change in the variety of an item, the outlet, ..., since the CPI's objective is to cover the evolution of prices without the influences of these factors. These changes are known as quality change adjustments.

The quality change treatment is a problem faced by all countries, and which in recent years has become more accentuated due to the rapid technological progress that some items have experienced. Therefore, this is one of the matters which EUROSTAT takes care of in the scope of the harmonisation of the EU countries, with greatest priority.

In the elaboration of the Spanish CPI, in the different bases, there have been various methods used to estimate the quality changes. The selection of these methods has been determined by the availability of information at each moment.

8.3.1 DEFINITION

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

The substitutions of items can be due to many reasons:

– An item or model is no longer representative and another more representative one appears on the market

– An item or model disappears from the market

– An outlet ceases to be representative, closes or changes economic activity.

Whenever an outlet is no longer representative it should be substituted by another. A good selection of outlets with a significant sales volume means that the items the outlet has are the most representative and that because they are demanded by the clientele, when they disappear, will be substituted by others of the same quality.

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

The specifications of each item that composes the basket of items are maintained over time while they define a representative variety of consumption in the area, and are substituted when they are no longer marketed (or no longer representative) in the area.

When for some reason there occurs a change in quality (variety, brand ...) the Provincial Delegations communicate it to Central Services, indicating the exact characteristics of the new variety and its price, both in the current and previous period, as well as a link coefficient that guarantees variations of the index motivated exclusively by variations in price.

However, there is not always an overlapping period between the items, nor are the substitutes or the models being substituted always identical. It is therefore necessary to estimate which part of the price difference is due to technological improvements, changes in material, ... and which part is purely price variation.

For these estimations both the substitute item and the one being substituted are studied, analysing differences and similarities, and taking into account the opinions of experts on the evolution of prices and costs, thus relating the variations in price and quality.

The ideal situation for estimating quality changes is that in which enough information on the price determining characteristics for an item on the market (brand, technical characteristics, place of purchase, ...).

It is very difficult to count on the necessary information for many items, and even when the information is available, it can be very complicated to use.

8.3.2 QUALITY ADJUSTMENT METHODS

The quality adjustment methods used for the CPI are the following:

a) Total quality adjustment

Part of the supposed price difference between the substitute items price and that of the one being substituted is totally motivated by the difference in quality among them, or because they are so different that they are not comparable. It is then supposed that the price difference between both items is due exclusively to their difference in quality, so that the difference in prices will not be reflected in the index.

b) Adjustment for identical quality.

It is assumed that the substitute item has the same quality as the substituted item, in other words, that the difference between them is due to a real variation in prices.

c) Other adjustments.

All the adjustments where the difference in quality between one item and its substitute are estimated are included in this section. The most usual practices are:

• Prices of the options.

The sale price of the special characteristics that the previous item did not have, but that could be purchased as an option, are discounted from the price of the new item.

• Production costs.

The producer supplies information on the cost of producing an extra characteristic, and it is discounted from the price of the new item which possess that extra characteristic.

• Imputed prices.

The average price variation of a aggregation larger than the one which the item belongs to is imputed.

• Information provided by the experts.

The experts or specialists in the item are asked what amount of the difference between the items prices (substitute and substituted) is due to the difference in quality between them.

• Overlapping prices.

The value of the difference in quality between the substituted item and the substitute item is the price difference between them during the overlap period, in other words, during the period when they are both in force. If there is also a series of prices for both items available, different adjustments can also be made:

1) If the substituted item has not undergone any *variation* in price during a long period of time but the new items price has varied in the last few months, then a coefficient is introduced which covers the price variation for the new item:

$$K = \frac{\text{item price substituted in current month}}{\text{item price substitute on previous period *}}$$

* the one from the month when the price changed last.

2) If both the substituted item and the new one have undergone similar *variations* in prices in subsequent periods, then, a coefficient is introduced which equals the two series, since the item to be substituted had already covered the price variation:

$$K_I = \frac{\text{item price substituted in current month}}{\text{item price substitute on current period}}$$

• Regression methods. (Hedonic regression)

This method is based on the hypothesis that the price of one item can be expressed as a function of a set of characteristics by means of a regression model (linear or not linear).

In the case of the linear model:

$$PRICE = a_0 + \sum_{i=1}^{N} a_i \cdot x_i + u_i$$

I= 1,2… N (number of observations)

x_i: variables (items characteristics)

a_i: regression coefficients

u_i: disturbances

The models estimation provides the regression coefficients, and facilitates determining what part of the items price variation is due to the quality change and therefore, what part is purely a price variation.

There are various ways to calculate a hedonic price index according to the type of function and the variables selected for the model.

In the new CPI Base 2001 System there have been studies elaborated intended to evaluate the possibility of applying hedonistic regression, together with those already applied, to some of the basket of items items.

The main inconvenience of this method is the large number of observations required to carry it out. A very specific and harmonised collection of data (characteristics of the items) is necessary in all the geographic areas where the price collection is made; as well as very specialised knowledge of the sectors implicated.

Out of all the methods previously described, the Spanish CPI mainly uses the *overlapping prices* and the *information provided by experts* methods.

Subsequently the treatment received for quality change is indicated more specifically, depending on the type of item being dealt with.

FOOD

The problem with quality changes among perishable items (meats, fish, fruits, vegetables and eggs) is much more difficult to measure since the quality is normally mostly subjective.

With these items the notes that accompany the prices collected by the agents are very important for determining whether there has been a quality change or not, as well as the price evolution for the remaining collections for this same item in other outlets in the municipality.

An important aspect for non-perishable items are the corrective coefficients for unit changes. The theoretical unit is that unit of usual and generalised consumption in all commercial areas and in all the provinces. Information from manufacturers and traders is taken into account in its determination. Thus, when the real unit for which prices have been collected is different than the theoretical unit to which these prices are referred, an adjustment coefficient must be calculated:

$$k_U = \frac{\text{theorical unit}}{\text{real unit}}$$

The most usual item changes among non-perishable items are caused by changes in brand (whether it be in the same outlet or when changing outlets).

CENTRALISED COLLECTION ITEMS

The centralised collection items present different characteristics than the rest of the CPI items, which facilitates adjustments for change in quality.

These items are collected from the Central Services and the price is usually calculated by means of the design of representative samples by modalities, with global information obtained from the different informants.

Therefore the necessary information is obtained directly from the companies supplying the service or the regulating body. The quality change problems among these items are usually: the appearance of new modalities, new regulatory dispositions, changes in tariff schedules, ... The methods used to overcome the discontinuities in the evolution of prices are based on consultations with experts, price overlapping, or the evaluation of options.

The renewal of samples and internal weights of the modalities of these items reduces the quality adjustment number.

REST OF ITEMS

Among the items that compose the basket of items, the adjustments carried out in the following are noteworthy:

• In the majority of items in the clothing and footwear aggregation quality changes are carried out periodically twice per year, coinciding with the changes of season. Two situations can occur:

– An item disappears and is substituted by another which already existed the previous season. In this case the adjustment is carried out via the overlap method:

– An item disappears and is substituted by another which did not exist the previous season. In this case various methods are used:

- Experts are consulted

- The variation that other items of the same range which already existed in the previous season underwent

- The average variation that the aggregation to which it belongs has undergone this season is imputed.

• In the case of furniture, when the model whose price is collected disappears it is substituted by a similar one. In this case there would be information available on the new and old (substitute and substituted) items; should they not coincide it would be necessary to resort to the information provided by experts.

• The substitution of items such as electrical appliances, video, sound and computer equipment is carried out when new models with technological improvements to substitute previous ones appear on the market, since the possibility exists that these items begin dropping in price. The moment at which the substitution happens is of vital importance and should be paid close attention to, since otherwise a delay in the substitution can cause an underestimation of these items price evolution.

• In the pharmaceutical items there exists a constant modification of the presentation formats for these products. When this occurs adjustments are made in function of the packages *utility*.

• In the restoration items the majority of quality changes are due to outlet changes. It is almost always possible to use the overlapping price method in this situation.

9. Linked series

9.1 Introduction

In all Consumer Price Index System changes a break occurs in the continuity of the series. The updating of weights, the composition of the new basket of items and, especially the methodological changes, cause the new series to differ from the old one. These differences, are insurmountable from a theoretical viewpoint. However, the users need for continuous series has necessitated the calculation of link coefficients which unite the series from the old base with those from the new one.

In this System change, in addition, a new classification of good and services (COICOP) has begun to be used. The majority of functional aggregations for which
indices are published have been related to those existing in the Base 1992. However, in some cases it has been impossible to establish a new equivalency between both classifications. Until now, the INE also calculated another type of link, the structural link. In this new System these link coefficients were not calculated because they do not solve the break in the series either, and therefore are not useful.

As in other System changes, the INE has calculated the legal link coefficients for the different geographic and functional aggregations. However, the series linked by these coefficients, though they maintain the variation rates published until January 2002, do not permit the calculation of variation rates between different bases (because of the inclusion of sales prices in the Base 2001).

9.2 Legal link coefficients

The legal link receives this name because it was used by the INE in its official certifications.

The legal link coefficient is obtained as the quotient between the December 2001 index, in Base 2001 and, the index for the same period in Base 1992:

$$C_{L}^{92/01} = \frac{{}_{01}I^{dic01}}{{}_{92}I^{dic01}}$$

where:

${}_{01}I_{dic01}$ is the index for December 2001, in Base 2001.

${}_{92}I_{dic01}$ is the index for December 2001, in Base 1992.

With this procedure the variation calculated with the new system is adopted at the moment of transition from one system to another (December 2001 to January 2002).

The linked series are calculated by multiplying each of the indices in Base 1992 by this coefficient. With these series the published monthly variation rates can be obtained, but the same does not occur for the annual variation rates for the year 2002, since for them the 2001 indices are used, in Base 2001.

The link coefficients have been obtained independently for each series of indices which have continuity in the new base, which means that any aggregation index for a linked series is not the result of the weighted average of the elementary indices of which it is composed.

Finally, it is important to point out that, if the new System has the average of the 2001 indices, in Base 2001, as a base equal to 100, the indices published that year were indices calculated in Base 1992 and, therefore, the linked series may not have an average of 100 in 2001.

The legal coefficient can be obtained through multiplication, in other words, the coefficient which links non-consecutive periods is obtained as a product of the link coefficients of the consecutive systems from that period. Thus, the link coefficient between the 1968 and 2001 systems, is calculated in the following manner:

$$C_L^{68/01} = C_L^{68/76} \times C_L^{76/83} \times C_L^{83/92} \times C_L^{92/01}$$

9.3 Structural link coefficients

The structural link coefficient is obtained as the quotient of the average index for Base year 2001 in Base 2001 and, the average index for the same year in Base 1992. The first average index is equal to 100. Therefore, the structural link coefficient is calculated as follows:

$$C_E^{92/01} = \frac{\sum_{m=1}^{12} {}_{01}I^{m01}}{\sum_{m=1}^{12} {}_{92}I^{m01}} = \frac{100}{\sum_{m=1}^{12} {}_{92}I^{m01}}$$

where:

${}_{01}I^{m01}$ is the index in month *m* of 2001, in Base 2001.

$_{92}I^{m01}$ is the index in month *m* of 2001, in Base 1992.

The main advantage of this link is the broadening of the overlap period between the two bases, this being the entire year 2001 and not the month of December, as occurs with the legal link.

The inconvenience of the series linked by the structural link coefficient (with respect to the legal coefficient) is that they may not maintain the rates in short periods which include the moment of transition.

The introduction of sales prices produces a break in the series in Base 2001, as has already been stated on numerous occasions. Because of this the INE has not calculated structural link coefficients.

9.4 Sales coefficients

Due to the inclusion of sales prices in the CPI Base 2001, neither the legal link coefficient nor the structural one solve the problem of the break in the series. Due to this, and in order to facilitate the variation rates calculation between indices from two different bases (including Base 2001), coefficients have been calculated, called sales coefficients, based on which the published variation rates can be obtained.

The section on the calculation of variation rates covers the calculation method using these sales coefficients. These have different monthly variation rates for each functional and geographic aggregation.

The sales coefficient for month m, is obtained as the quotient between the index for month m of year 2001 linked (index in Base 1992 and linked, with the legal link coefficient, to the Base 2001) and, the index in Base 2001 for that period. Thus:

$$C^m = \frac{{}_{01}IE^{m01}}{{}_{01}I^{m01}} \qquad \text{with} \qquad {}_{01}IE^{m01} = {}_{92}I^{m01} \times C_L^{92/01}$$

where:

C^m is the sales coefficient in month *m*.

$_{01}IE^{m01}$ is the index in month *m* of 2001 linked.

$_{01}I^{m01}$ is the index in month *m* of 2001, in Base 2001.

$_{92}I^{m01}$ is the index in month *m* of 2001, in Base 1992.

$C_L^{92/01}$ is the legal link coefficient (between Base 1992 and Base 2001).

The variation rate between the initial period (*m, t*) and the final one (*m', t'*), where *t* is before 2001 and *t'* as of 2002, can be obtained as the quotient between the index in Base 2001 for the final period and the linked index for the initial period multiplied by the coefficient corresponding to the final period.

$$\Delta^{m't'/mt} = \left(\frac{{}_{01}I^{m't'}}{{}_{01}IE^{mt}} \times C^{m'} - 1 \right) \times 100$$

where:

$_{01}I^{m't'}$ is the index in month *m* of year T', in Base 2001.

$_{01}IE^{mt}$ is the index in month *m* of year t linked.

$C^{m'}$ is the sales coefficient in month *m*.

Despite being called sales coefficients, these coefficients do not only cover the effect of the inclusion of sales prices but also all the changes carried out in the new CPI Base 2001, such as the basket of items renewal, the revision of the weights, the broadening of the sample, the methodological changes, ...

9.5 Ull coefficients

The calculation of the updating of rents according to the Urban Leasing Law (ULL) has been adapted in order to not be affected by the methodological changes introduced into the new CPI Base 2001.

The method for updating the rent from an initial period to a final one is the following:

$$\text{update income} = \text{initial income} \times \frac{\text{final period CPI}}{\text{initial period CPI}}$$

This formula is always valid for the initial and final period whenever they correspond to years prior to January 2002. Similarly, its application is also

possible when both periods are after that date. The problem arises when the initial and the final period correspond to different bases. In other words, when the initial period is prior to January 2002 and the final one is later. In this case, the price variations are not obtained from the published indices, as has already been seen; so that, for the update of the rent to correctly cover the real variation in prices during this interval, the final period for an index must be used, which is called the ULL index and which is obtained by multiplying the index published in that period by the ULL coefficient for the corresponding month (C^{m}_{LAU}). The formula is the following:

$$\text{update income} = \text{initial income} \times \frac{\text{URL index final period}}{\text{initial period CPI}}$$

where:

$$\text{URL index final period} = \text{final period CPI} \times \text{URL coefficiente}$$

Month	ULL Coefficient
January	1,357700
February	1,361911
March	1,356739
April	1,351849
May	1,351895
June	1,353461
July	1,366497
August	1,368930
September	1,361919
October	1,353368
November	1,349495
December	1,350862

Annex I. Historical evolution

The INE established the first Cost of Living Index System in 1939. Before 1936 some series of elementary indices and average prices were published, which later served to establish this first System. As of July 1938 the National Statistics Service began to elaborate cost of living indices for some provincial capitals. In 1939 the Cost of Living Indices System, Base July 1936, was implemented with the gradual extension to all the provincial capitals, the aggregationing of elementary indices into five consumption aggregations and a weights readjustment.

Since then there have been seven Consumer Price Index systems, including the current one, called Cost of Living until the implementation of the 1976 Base, whose base periods have been: July of 1936, 1958, 1968, 1976, 1983, 1992 and 2001.

The main characteristics of these Systems are briefly reviewed below:

Indices Systems

Base	Duration period	
1936 (July)	July 1939	- December 1960
1958	January 1961	- December 1968
1968	January 1969	- December 1976
1976	January 1977	- July 1985
1983	August 1985	- December 1992
1992	January 1993	- December 2001
2001	January 2002	

Reference strata

Base	Reference strata
1936 (July)	- Middle class families comprised of four or five persons with a monthly income of 600, in 1939 pesetas.
1958	- Households where the main breadwinner is active, with annual incomes below 80.000, in March 1958 pesetas.
1968	- Multi-person households where the main breadwinner is active, with annual incomes between 21.600 and 120.000, in 1968 pesetas.
1976	- Multi-person households where the main breadwinner is active, with annual incomes between, 81.000 and 720.000, in 1973-74 pesetas.
1983	- Multi-person households (active and inactive) with annual incomes between, 322.575 and 2.000.000, in 1980-81 pesetas.
1992	- All households resident in Spain.
2001	- All households resident in Spain.

Reference period and survey to obtain weights

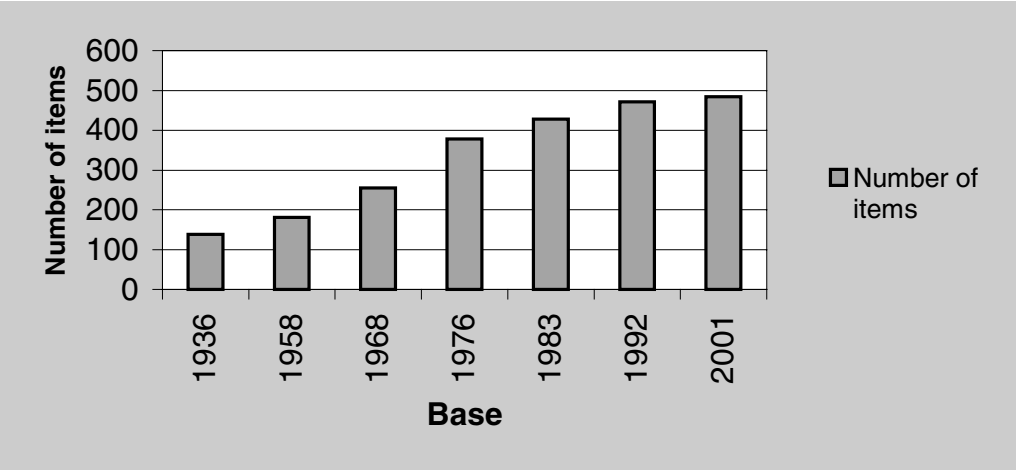
Base	Survey
1936 (July)	- The weights were established based on some studies about the family accounts carried out in 1940.
1958	– Family Budget Survey, referred to March 1958, directed at 4,192 families from the reference strata.
1968	– Household Budget Survey carried out from March 1964 to March 1965, interviewing 20,000 families. To study the evolution of the consumption structure until December 1968, the year which was used as a Base. A series of smaller surveys were carried out at 4,800 households a year.
1976	- Household Budget Survey for the period between July 1973 and July 1974, directed at 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 carried out from 1 April 1990 to 31 March 1991. Information was collected from 21,000 households.
2001	- Continuous Household Budget Survey corresponds to the 8 quarters from the 2nd quarter of 1999 to the 1st of 2001. 8,064 households were interviewed each quarter.

Geographic breakdown

Base	Indices
1936 (July)	- Indices were calculated for each provincial capital and an index for the aggregation of capitals.
1958	– Indices were calculated for each provincial capital, Ceuta, Melilla, the entire nation, the set of capitals and non-capital municipalities
1968	– Indices were established for the following sets: each provincial capital, Ceuta and Melilla; urban national set, formed by all the components of the previous section plus the municipalities not included in it and with 50.000 inhabitants; non-urban national set, which includes the remaining municipalities, and the entire nation.
1976	- Indices are elaborated for the entire nation, urban and non-urban set (since 1978 that aggregations are equal to the current Autonomous Communities and that formed by Ceuta and Melilla).
1983	- Indices were obtained for the entire nation, urban and non-urban set, provincial capitals, Autonomous Communities and the set formed by Ceuta and Melilla.
1992	- Indices were calculated for the entire nation, urban and non-urban set, provinces, Ceuta and Melilla, Autonomous Communities and the set formed by Ceuta and Melilla.
2001	- In this base the same indices are calculated as in Base 1992.

Basket of items

Base	Number of items
1936 (July)	Different in each provincial capital, varying between 95 and 139 items.
1958	181 items.
1968	255 items.
1976	378 items
1983	428 items.
1992	471 items.
2001	484 items.



Calculation formula

In the July 1936 base, the Lowe formula was used for the calculation of indices in provincial capitals; the index for the aggregation of capitals was obtained as an arithmetic average of these indices weighted by the population of the capital.

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

In Base 2001 the Laspeyres linked formula is introduced for the calculation of indices.

Consumption aggregations and weights by aggregations

AGGREGATIONS	WEIGTHINGS
Base July 1936	
Feeding	601
Clothing and footwear	94
Housing	146
Household expenditure	85
Expenditure n.e.c.	74
TOTAL	1.000

Base 1958	
Feeding	553,0
Clothing and footwear	136,0
Housing	49,6
Household expenditure	82,1
Expenditure n.e.c.	179,3
TOTAL	1.000

Base 1968	
Feeding	493,9
Clothing and footwear	139,4
Housing	79,5
Household expenditure	98,9
Expenditure n.e.c.	188,3
TOTAL	1.000

Base 1976	
Feeding	405,20
Clothing and footwear	81,71
Housing	140,01
Furniture and Household Equipment	77,51
Health	33,74
Transport	97,44
Culture	69,44
Other	94,95
TOTAL	1.000

Base 1983	
Feeding	330,27
Clothing and footwear	87,39
Housing	185,65
Furniture and Household Equipment	74,15
Health	23,93
Transport	143,81
Culture	69,60
Other	85,20
TOTAL	1.000

AGGREGATIONS	WEIGTHINGS
Base 1976	
Feeding	293,61
Clothing and footwear	114,79
Housing	102,80
Furniture and Household Equipment	66,84
Health	31,26
Transport	165,42
Culture	72,67
Other	152,61
TOTAL	1.000

Base 1976	
Food and non-alcoholic beverages	218,630
Alcoholic beverages and tobacco	32,170
Clothing and footwear	99,280
Housing	110,260
Furniture and Household Equipment	63,571
Health	28,062
Transport	155,760
Communications	25,729
Recreation and Culture	67,263
Education	14,444
Hotels, Cafes ans Restaurants	112,708
Other	69,124
TOTAL	1.000

Annex II. Subclasses content CPI, Base 2001

Group	01	FOOD AND NON-ALCOHOLIC BEVERAGES
Subgroup	011	FOOD
Class	Subclass	Description and content
0111		**Bread and Cereals**
	01111	Rice
		All types of rice, short and long grain; glazed, refined, or broken grain rice without any other transformation; pre-cooked rice; rice prepared with meat, fish, shellfish or vegetables.
	01112	Bread
		All kinds of bread made from wheat, rye, corn or any other cereal, shredded or not. Includes sliced bread, whole breads and special breads such as fire-baked or toasted bread, dietetic breads, bread sticks, …
	01113	Pasta products
		Noodles and other pastas for soup (alphabet, stars, shells, ...); macaronis, spaghetti, ribbons, fettuccini and the like.
		Fresh and frozen pasta for filling; pasta containing meat, fish, shellfish, cheese or greens: cannelloni, ravioli, tortellini, ...
	01114	Pastry-cooked products
		Maria type biscuits and other sweet or salted biscuits, loose or packed.
		Cakes, muffins, croissants, Danishes, tea biscuits and other pastry products.
		Cakes, cakes, egg yolks and other pastry products (except Soft Sweets).
		Fried dough such as churros and porras (loop or stick shaped fried dough); whole fresh and frozen pizzas.
	01115	Flours and cereals
		Wheat flour, barley, oats, rye and other cereals.
		Cereals in the form grain; cereals preparations (oat flakes, corn flakes…)
		Baby foods with less than 50% cocoa.
		Dough for the preparation of bakery and pastry products (puff pastry, pizza dough, dough for pasties and pies, ...).
0112		**Meats**
	01121	Beef
		Cow, heifer, ox and bull meat; fresh or refrigerated.
		Frozen beef.
	01122	Veal
		Veal and prime meat, fresh or refrigerated.
	01123	Pork
		Pig, suckling pig and piglet meat; fresh, refrigerated or frozen.
	01124	Sheep Meat
		Lamb, goat, baby goat and sheep meat; fresh, refrigerated or frozen.
	01125	Poultry Meat
		Chicken, hen, turkey, goose, duck, mutton, pigeon, quail…; fresh, refrigerated or frozen.
	01126	Cooked Pork Meat
		Serrano ham; chorizo, cured meat, cured pork loin, salami, blood sausage and other cured sausages.
		Bacon, blood sausage, lard, seasoned pork sirloin and other cold meat products that require cooking.
		All kinds of sausages (except fresh ones); foie gras and patés (except fish).
		Baked ham, turkey, chopped ham, mortadela, pork scratchings, shoulder of pork, truffled chicken and other cold cuts.
	01127	Canned and processed meat
		Fresh sausages; Meat cakes, pies, fore rib and pasties; croquettes containing meat or ham; Villarroy breasts.
		Meat concentrates, juices and gelatines.
		Packaged meat, tinned or hermetically sealed envelope products based on meat such as quail and stuffed partridge, prepared tripe, ...

Class	Subclass	Description and content
0112	01127	Meat based prepared meals and tinned ingredients for the preparation of paellas, stews, bean stews, ...
	01128	Other meats and Offal
		Hare, rabbit, venison, boar, pheasant and other fresh and frozen meats.
		Meat by-products: livers, gizzards, kidneys, brains, testicles, ...; leftovers: tails, snouts, heads, ...
0113		**Fish, crustaceans and molluscs**
	01131	Fresh and frozen fish
		Salt water and fresh water fish, fresh or frozen: tuna, anchovies, eel, elver, blue whiting, cod, red bream, white tuna, larger anchovies, mackerel, conger eel, gilt head bream, John Dory, horse mackerel, sole, sea bass, grouper, derbio, swordfish, monkfish, turbot, salmon, dogtooth bream, sardines, trout, ...
	01132	Crustaceans and molluscs
		Squid, chopitos, baby squid, voladores, chocos, jibias, sepias, octopus, chirlas, clams, oysters, cockle shells, vieiras, muscles, centollos, small crabs, crabs, shrimp, langostinos, cigalas, lobsters, carabineros, bogavantes, camarones, percebes, ... fresh, refrigerated and frozen.
	01133	Canned and processed fish
		Cured and salted cod; other fish (tuna, salmon, trout, anchovy, ...) dried, salted, smoked or in brine.
		All types of tinned fish and shellfish such as tuna, white tuna, sardines, anchovies, mackerel, mussels, cockle shells...
		Caviar, fish pâté, cod liver, fish roe...
		Frozen fish preparations, in bulk or tinned (breaded squid rings, breaded hake fillets, ...); flour covered fish products (pasties, pies, croquettes, pastries).
		Prepared meals based on fish and tinned ingredients for paella.
0114		**Dairy products, cheeses and eggs**
	01141	Milk
		Fresh, pasteurised or sterilised milk; whole, low fat and skimmed.
		Dehydrated, condensed and evaporated milk.
		Includes milk for babies, both liquid and dehydrated.
	01142	Other dairy products
		All types of yoghurts (solid or liquid): flavoured, with fruit, sweetened, ...; fermented milk based products (curd, kefir, ...).
		All types of deserts and drinks based on milk: custard, flan, milk shakes...
	01143	Cheeses
		Cured, semi cured and fresh cheese from any type of milk of mixes of different milks.
		Fresh cheese, Burgos cheese, Villalón, ...
		All types of cheese in portions and as spread, little cheeses and slices.
		Includes "petit suisse", grated cheese and the like.
	01144	Eggs
		Eggs from hens and other poultry.
		Liquid, dried or frozen egg yolks; dehydrated eggs as foodstuffs and other egg substitutes. Prepared omelettes.
0115		**Oils and fats**
	01151	Butter and Margarine
		All types of butter and margarine (even supplemented with milk, chocolate, ...), vegetable fat and other vegetable fat food stuffs, pure or mixed.
	01152	Oils
		All types of oil foodstuffs: olive, grape refuse, sunflower, soy, corn, peanut, palm, almond, coconut...

Class	Subclass	Description and content
0116		**Fruit**
	01161	Fresh fruit
		Oranges, mandarins, clementines, lemons, grapefruits and other citrus; bananas; apples; pears; peaches, nectarines, apricots, plums, paraguayas, avocados, cherries, sour cherries, persimmon and other fruits with a seed; strawberries, long stem strawberries, raspberries, black berries, red currant, grapes, blue berries and other berries; melons, water melons, kiwis, pineapples, coconuts, custard apple and other tropical fruits.
	01162	Canned and processed fruit
		Bulk or tinned olives, with seed or without, filled or not.
		Almonds, peanuts, hazelnuts, grapes and prunes, dried peaches and apricots, sunflower seeds, dried figs, chestnut, pine nuts and other non-crystallised nuts and raisins.
		Frozen and tinned fruits (natural or in syrup) pineapple, pear, apple, strawberry, plum, raspberry, peach, ... whole or sliced; fruit salads; fruit prepared in another manner.
		Fruit based baby products.
		Fruit marmalades, jams, compotes and gelatines are excluded.
0117		**Vegetables and potatoes**
	01171	Fresh vegetables
		All types of fresh vegetables: lettuce, escarole, endives, thistles, turnip greens, young garlic, celery, artichoke, Swiss chard, spinach, parsley, watercress, broccoli, cauliflower, cabbage, red cabbage, Brussels sprouts, green beans, peas, broad bean, cucumber, aubergine, courgette, onion, spring onions, carrots, beats, radishes, wild radishes, turnip, leeks, asparagus and all types of mushrooms, milk caps, ...
	01172	Dried vegetables
		Beans (dried beans, haricot beans, ...), chickpeas, lentils, dries peas, lupine, dehydrated and ground onion, capers, dried peppers and other dried, dehydrated, evaporated, chopped or pulverised vegetables.
	01173	Processed and canned vegetables
		Frozen vegetables, cooked or not.
		Tomatoes, peppers, red cabbage, chickpeas, spinach, mushrooms, carrots, ... all of these tinned or natural.
		Pre-cooked vegetable plates for immediate consumption (Russian salad, vegetable stew, ...); pickles (aubergines, small onions, gherkins, beats, ... in vinegar).
		Baby preparations based exclusively on vegetables and legumes.
	01174	Potatoes and their by-products
		Potatoes natural or barely processed (pealed and cut, pre-cooked, frozen, tinned, ...).
		Tapioca, sweet potato, yam and other fresh tubers, preserved, pre-cooked, frozen, tinned, ...
		Fried potatoes, mashed potatoes and products derived from potatoes.
0118		**Sugar, chocolates and jams**
	01181	Sugar
		Refined sugar, brown sugar, icing sugar,..., obtained from cane and from beat; artificial sugar substitutes.
	01182	Chocolates and jams
		Milk chocolate bars, by the cup, icing, with oils or cereals; chocolate substitute bars; chocolate truffles and bonbons; filled and non-filled chocolate bars.
		Jams, marmalades, preserves, gelatines, jellies, quince jellies, honey, cacao cremes, syrups, ...
		Candies, chewing gum and other sweets.
		All types of ice cream, ice lollies and ice cream cakes.
		Nougats, marzipan, polvorons, madeleines, ...; sugared almonds, caramel-coated almonds/peanuts, crystallised almonds and nuts, crystallised fruit , ...

Class	Subclass	Description and content
0119		**Other Food Products**
	01191	Other Food Products
		Vinegar; salt; mayonnaise, fried tomato, ketchup, mustard, Tabasco and other sauces; garlic, pepper, cinnamon, paprika, saffron and other condiments.
		All types of soups and cremes prepared with meat, fish, vegetables, legumes, noodles, ..., in any kind of presentation; broth.
		Preparations for deserts such as powdered custards and flans.
0121		**Coffee, cocoa, infusions and substitutes**
	01211	Coffee, cocoa, infusions and substitutes
		Natural, roasted, dark-roasted or mixed; ground or not; normal or decaffeinated coffee. Instant, dissolvable, extracts, substitutes and essences of coffee.
		Cacao sweetened or not and powdered chocolate.
		Tea, lime blossom, camomile, pennyroyal, peppermint, valerian root and other infusions.
0122		**Mineral water, soft drinks and juices**
	01221	Mineral water, soft drinks and juices
		Mineral water with or without gas; sodas, unflavoured fizzy soft drinks and seltzer water.
		Lemonades, colas, flavoured fizzy soft drinks, isotonic beverages, ...
		Fruit juices, syrups and concentrates for the preparation of fruit based drinks.
		Excluding beer, wine and alcohol-free cider.

Group 02 ALCOHOLIC BEVERAGES AND TOBACCO

Subgroup	021	ALCOHOLIC BEVERAGES
Class	Subclass	Description and content
0211		**Spirits and liquors**
	02111	Spirits and liquors
		Brandy, cognac, anisette, rum, whisky, gin, vodka, eau-de-vie, vermouth and other spirits and liqueurs with or without alcohol.
0212		**Wines**
	02121	Wines
		All types of table wines: white, red, rose...
		Wines with high alcohol content such as Sherry wine, Malaga wine; desert wines: port, Madeira...
		Cider, Cava, champagne and other bubbly wines.
0213		**Beer**
	02131	Beer
		All kinds of beer, with or without alcohol.

Subgroup	022	TOBACCO
0221		**Tobacco**
	02211	Tobacco
		Cigarettes, cigars and small cigars, pipe tobacco, chewing tobacco and smoking paper.

Group 03 CLOTHING AND FOOTWEAR

Subgroup	031	CLOTHING
Class	Subclass	Description and content
0311		**Clothing garments**
	03111	Men's Outerwear
		Coats, overcoats, jackets, anoraks, down jackets, raincoats and other coat garments.
		Complete two piece and three-piece suits and jackets (sport jackets, blazers).
		Classic and sport trouser. Jeans, Bermudas and shorts included.
		Jerseys and the like (vests, jackets, pullovers…).
		Shirts, tee shirts, polos…
		Tracksuit, pants and shirts for sports, swim suits, snowsuits and other sports garments.
	03112	Men's Underwear
		Slips, underwear, vests, socks, pyjamas, robes and other underwear and garments for the home.
	03113	Women's Outerwear
		Coats, overcoats, jackets, anoraks, down jackets, raincoats and other coat garments.
		Cloth suits and jackets.
		Trousers, skirts and dresses.
		Jerseys and the like (vests, jackets, pullovers…).
		Shirts, tee shirts, blouses…
		Tracksuit, pants and shirts for sports, swim suits, snowsuits and other sports garments.
	03114	Women's Underwear
		Bras, panties, bodys, garters, tights, stockings, nightgowns, pyjamas, robes and other underwear and garments for the home.
	03115	Children's and babies garments
		All types of babies dress garments (polo neck jumper, girls under garment, tee shirts, cloth nappies, knit hats, panties, christening robes, jackets, bootees, pyjamas…).
		Coats, jackets, anoraks, water proofs…
		Dresses, skirts and all types of trousers (jeans, Bermudas, tights…).
		Jerseys and the like (vests, jackets, pullovers…).
		All types of shirts, blouses, tee shirts, polos…
		Vests, knickers, pants, panties, bras, socks, leotards and other underwear and garments for home.
		Tracksuit, pants and shirts for sports, swim suits, snowsuits and other sports garments.
0312		**Complements and Repairs**
	03121	Complements and Repairs
		All types of fabrics (cotton, wool, silk, synthetic fibres, blends…) destined to household clothes manufacturing.
		Buttons, zips, threads and other haberdashery items.
		Handkerchiefs, scarves, shawls, gloves, belts, aprons, babys, bibs, hats, caps and other textile complements.
		Repair, cleaning and rental of clothing.

Subgroup	032	FOOTWEAR AND ITS REPAIR
0321		**Footwear**
	03211	Men's footwear
		All types of men's footwear: boots, shoes, sneakers, sandals, slippers… of any material: leather, cloth, rubber…
	03212	Women's footwear
		All types of women's footwear: boots, shoes, sneakers, sandals, slippers… of any material: leather, cloth, rubber…

Class	Subclass	Description and content
0321	03213	Children's and babies footwear
		Baby footwear (except booties and cloth shoes).
		All types of boys and girls footwear: boots, shoes, sneakers, sandals, slippers... of any material: leather, cloth, rubber...
0322		**Footwear repair**
	03221	Footwear repair
		Repair of male, female and children's footwear.

Group 04 HOUSING

Subgroup	041	RENTAL OF HOUSING
Class	Subclass	Description and content
0411		**Rental of housing**
		Rental of housing
		Payments carried out by renters for furnished or unfurnished dwellings. Storage room and garage rentals for the dwelling.
		Excluded from rent are, whenever possible, payments for hot and cold water, electricity, city gas, natural gas, telephone, central heating, garbage collection, sewage fees and other household fees and contributions.
		Vacation rentals are excluded (homes rented for less than one month).

Subgroup	042	MAINTENANCE OF OWNED HOUSING
0421		**Materials for the conservation of the dwelling**
	04211	Materials for the conservation of the dwelling
		Includes materials for the maintenance and common repair of the dwelling carried out by the occupants. The type of materials can be:
		- Paint, wallpaper and wall tile coverings.
		- Small plumbing items (pipes, tubes, ...).
		- Floor coverings (parquet tiles, floor tiles, flagstones, ...); tiles and flagstones for covering chimneys and walls, ...
		- Glass, glazed doors, crystal, ...; plaster, lime, cement, mortar, specific, putty; varnishes and glues. Doors, inner doors, gates and windows.
		Materials for major renovations to the dwelling are included (investment).
0422		**Services for the conservation of the dwelling**
	04221	Services for the conservation of the dwelling
		Painting, paving and recovering services for floors and walls.
		Plumbing services (maintenance and repair of water and sewage pipes, gas installation pipes, heating pipes, ...).
		Glassworks, carpentry, glazing services; sanding work and parquet varnishes...
		Other services (carpentry work for interior decoration, installation of blinds and sunscreens, ...).
		Services for major dwelling repairs are excluded (investment).

Class	Subclass	Description and content
Subgroup	043	OTHER SERVICES RELATED WITH HOUSING
0431		**Distribution of water**
	04311	Distribution of water
		Cold water consumption and distribution expenses; water contract, rental and reading of the meter.
0432		**Collection of waste, sewage and other services**
	04321	Collection of waste, sewage and other services
		Payments for the collection and destruction of garbage and garbage collection tax.
		Sewage fees; filtering and treatment services for residual waters; emptying and cleaning of black wells and septic tanks.
		Community expenses: doormen, gardening, stair lighting and cleaning, lift maintenance, common building areas insurance...
Subgroup	044	ELECTRICITY, GAS AND OTHER FUELS
0441		**Electricity**
	04411	Electricity
		Electrical energy expenses; expenses related to the electric contract, rental and reading of the meter...
0442		**Gas**
	04421	Gas
		City gas and natural gas expenses; expenses related to the gas contract, rental and reading of the meter, ...
		Butane, propane, etc, expenses. as well as rental and reading of meters, bottles and containers for these gasses.
0443		**Other fuels**
	04431	Other fuels
		Gas-oil, fuel oil, kerosene and other liquid fuels, as well as the expenses for contract, rent and reading the meters.
		Expenses on coal, coke, coal agglomerates, wood, vegetable coal, peat and other solid fuels.

Group 05 FURNITURE AND HOUSEHOLD EQUIPMENT

Subgroup	051	FURNITURE AND OTHER ITEMS
Class	Subclass	Description and content
0511		**Furniture and other items**
	05111	Furniture
		All types of tables and chairs, of wood or other materials (living room, kitchen, terrace, garden, ...).
		Three-seater sofas, modular or not; sofas, armchairs, sofa-beds, ...
		All types of bookshelves, sideboards, consoles, bar furniture, desks, glass cupboard and other living room, dining room, daily living room, foyer and office.
		Beds, cribs, bunk beds, mattresses, ...
		Closets, commode, dressing tables, night tables and other bedroom furniture.
		Cots, beds, playpens, high chairs and other baby specialty furniture.

Class	Subclass	Description and content
0511	05112	Other items
		All types of lamps (standing, hanging, table, appliqué, ..., whether or not they are halogen).
		Art and decoration objects.
		Rugs of all types and fabric, carpets, cork, area rugs, adhesive tiles, ... as well as the installation of these materials.
Subgroup	052	HOUSEHOLD TEXTIL E ITEMS
0521		**Household Textile Items**
	05211	Household Textile Items
		Curtains, net curtains, blinds made of fabric... ; mattresses, pillows, cushions...; bed sheets (sheets, blankets, eiderdown, bed spread...); tablecloth stores, tablecloths and napkins; towels of all types and sizes, bathrobes and other textile items for the household.
Subgroup	053	HOUSEHOLD APPLIANCES AND REPAIRS
0531		**Household appliances and repairs**
	05311	Refrigerators, washing machines and dishwashers
		Refrigerators with or without freezer; freezer; washing machines, washer-dryers and drying machines; ironing machines and dish washing machines of all types. Installation included.
	05312	Cookers and ovens
		All types of cookers: electric, gas, mixed, wood and coal burning and all types of burners, gas, electric ; stove tops: gas, electric or mixed. Their installation is included.
	05313	Heaters and air conditioning apparatus
		All types of apparatus for changing the temperature such as: bed pan, stoves, boilers, radiators, solar panels, air conditioners, refrigerators, fixed fans, ...
		Water heaters or thermoses; humidifiers, smoke extractors and purifiers, ... as well as their installation.
	05314	Other household appliances
		Rug, floor and wall cleaning apparatus.
		All types of machines for sewing, knitting and stitching.
		Blenders, squeezers, electric coffee-makers, irons and other small electrical appliances.
	05315	Repair of household appliances
		Repair and accessories for electrical appliances.
Subgroup	054	COOKING AND HOUSEHOLD UTENSILS
0541		**Cooking and household utensils**
	05411	Crystal ware, dinner service and silverware.
		Complete dinner services as well as loose pieces (plates, soup dishes, trays, ...) made out of any material (crystal, ceramic, porcelain, ...).
		Complete crystal wear, wine glasses, glasses, cups, coffee sets and other objects in glass or crystal for household and decoration.
		Complete sets and individual pieces of cutlery in stainless steel, aluminium, nickel silver, silver and all kinds of metals.
	05412	Other cooking and household utensils
		Sets of saucepans and kitchen utensils, pressure cookers, casseroles, pans, small saucepans, ... in any material.
		All types of frying pans, non electrical coffee makers and other non electrical apparatus for preparing and seasoning food.

Class	Subclass	Description and content
Subgroup	055	TOOLS AND ACCESSORIES FOR THE HOUSE AND GARDEN
0551		**Tools and accessories for the house and garden**
	05511	Tools and accessories for the house and garden
		Power tools (drill, lawn mower…) or non power tools (hammer, screwdriver, spanner…) and non electrical accessories (locksmith items, components for radiators, curtain bars and rails…) for the home and garden.
		All types of light bulbs and fluorescent tubes for illumination, switches, cables, doorbells, plugs, electric batteries and other electric material used in the household.
Subgroup	056	OTHER GOODS AND SERVICES FOR THE HOUSEHOLD
0561		**Non-durable household goods**
	05611	Household cleaning items
		Detergents and softeners for clothes washing, manual or automatic.
		Kitchen or cleaning soaps. Detergents and brighteners for washing dishes manually or with a machine.
		Bleaches and liquids used for cleaning the household (glass cleaners, oven cleaners…).
		Waxes and varnishes for floors and for furniture, polishes and dyes for shoes, insecticides, stain removers, ammonia, air fresheners…
	05612	Other non-durable household goods
		Paper household items and the like such as table cloths, napkins, plates and glasses.
		Papers and cardboards for filters; vacuum cleaner bags; cellulose, aluminium or plastic kitchen paper; garbage bags…
		Cleaning items such as: brooms, dust pans, mops, brushes for the household (clothes, footwear), kitchen towels, floor cloths…
0562		**Domestic service and other services for the household**
	05621	Domestic service and other services for the household
		Cash remuneration (excluding payments to the Social Security) by persons employed in the household (cooks, maids, au pairs, chauffeurs, gardeners, secretaries…). Domestic service work clothes.
		Dry cleaning, laundry and ironing household items (except garments).

Group 06 HEALTH

Subgroup	061	MEDICINES, OTHER PHARMACEUTICAL PRODUCTS AND THERAPEUTIC MATERIAL
Class	Subclass	Description and content
0611		**Medicines, other pharmaceutical products and therapeutic material**
	06111	Medical and other pharmaceutical products
		Medicines and medicinal preparations, serums, vaccines, vitamins, and minerals, cod and halibut liver oil, oral contraceptives.
		Clinical thermometers, dressing, surgical tape, bandage, gauze and similar products; syringes, first aid kits, hot water and ice bags, medical socks products such elastic socks, knee socks and ankle socks, both knit as well as rubber. Alcohol, Mercurochrome, hydrogen peroxide, prophylactics, diaphragms, ...

Class	Subclass	Description and content
0611	06112	Therapeutic material
		Glasses and prescription lenses and contact lenses, hearing aids and other auditory aid apparatus, glass eyes, artificial body parts, orthopaedic body suits, corsets and other orthopaedic apparatus; orthopaedic footwear, trusses, surgical girdles, cervical collars, medical massage apparatus, treatment lamps, wheelchairs with or without a motor, cars for disabled people, crutches, orthopaedic canes. Includes dental prosthesis and dentures but not the cost of their placement, as well as the repair of therapeutic apparatus and material.
Subgroup	062	NON-HOSPITAL MEDICAL AND PARAMEDIC SERVICES
0621		**Non-hospital medical and paramedical services**
	06211	Non-hospital medical and paramedical services
		General and specialist medical consultations, house calls, surgery consultation, community clinic, outpatient hospital consultations, radiological, cardiology and ultrasound examinations.
		X-rays, urography, mammogram and all types of laboratory analysis, as well as X-rays at X-ray centres.
		Services rendered by medical assistants, doctors and nurses (taking of blood pressure, ...); midwives, podiatrists, acupuncturists, chiropodists, physiotherapists, opticians, speech therapists, medically prescribed corrective gymnastics; expenses on rehabilitation techniques; short wave; magnetoscopia, thermal baths and water therapy. Alternative health.
0622		**Dental services**
	06221	Dental services
		Tooth extractions, orthodontics, fillings, periodontics, endodontics, bridges, plates, crowns, dental prosthesis placement, oral cleaning and other services rendered by dentists specialised in oral hygiene and dental assistants.
Subgroup	063	HOSPITAL SERVICES
0631		**Hospital services**
	06311	Hospital services
		Administration, lodging, food and beverage; supervision and care by non-specialised personnel (health assistants), first aid and reanimation, medicines and other pharmaceutical products, therapeutic equipment and apparatus supply.
		General or specialised medical consultations (dialysis, radio therapy, chemotherapy, IUD implants), surgeons and dentists, medical analysis, assistant doctors services, such as nurses, midwives, pedicure, opticians, physiotherapists, speech therapists, chiropractor, ... Transfusions, dialysis, ...
		Transport in hospital ambulances

Group 07 TRANSPORT

Subgroup	071	VEHICLES
Class	Subclass	Description and content
0711		**Automobiles**
	07111	Automobiles
		Cars, vans, off-road vehicles, ... destined for the personal transport of household members. The cost of acquisition, matriculation, VAT ... of these vehicles is excluded.

Class	Subclass	Description and content
0712		**Other Vehicles**
	07121	Other Vehicles
		Cost of acquisition, matriculation, VAT, ... of all kinds of motorcycles, vespas, sidecars, snow mobiles, ...
		All kinds of bicycles.

Subgroup	072	GOODS AND SERVICES RELATIVE TO VEHICLES
0721		**Maintenance spare parts and accessories**
	07211	Maintenance spare parts and accessories
		New or used tyres, spark plugs, shock absorbers, batteries, belts, filters and other replacement parts for vehicles acquired directly by the household.
		Specific products for cleaning and maintaining vehicles such as paints, covers, rugs, ash trays, beautifiers, security bars...
		All kinds of bicycle parts.
0722		**Fuels and Lubricants**
	07221	Fuels and Lubricants
		All types of gasoline, gas oil, fuels and mixtures, ... for all sorts of vehicles.
		Oils and lubricants (including additives), brake and transmission fluids, antifreeze... purchased by the household.
0723		**Maintenance and repairs services**
	07231	Maintenance and repairs services
		Change of oil and filter, wash, tune-up, wheel balancing and other services related to the maintenance and/or repair of the vehicles carried out in shops or by mechanics. Includes both the cost of materials and labour.
		Tow truck service, M.O.T. and other revisions.
0724		**Other services relative to vehicles**
	07241	Other services relative to vehicles
		Expenses at car parks, purchase of Parking Regulations card, expenses on parking meters and the like.
		Bridge, tunnel, highway tolls, ...
		Driving school, fees for exams and those paid for the renewal of driver's licenses and obtaining driver's licenses.
		Rental of garages when they are independent of the lodging; vehicle rentals without driver.
		Other expenses on services related to the car.

Subgroup	073	TRANSPORT SERVICES
0731		**Railway Transport**
	07311	Railway Transport
		Local rail and inter-urban trains: payments for tickets, luggage, couchette and berth services; transport of vehicles.
		Metro and tram tickets and passes when these are used exclusively for these means of transport.
0732		**Transport by road**
	07321	Transport by road
		Tickets for public bus, microbus and trolley bus and the passes used exclusively for these means of transport.
		Urban taxi expense.
		All types of school transport both urban and interurban.
		Interurban bus and taxi: transport of persons and luggage; car rental with driver.

Class	Subclass	Description and content
0733		**Air transport**
	07331	Air transport Air transport of persons and luggage.
0734		**Other transporting services**
	07341	Other transporting services Transport of persons, luggage, personal vehicles and accommodation services on boat, ferry, ... Expenses on other transport services such as funiculars, cable cars, consignment and transport of luggage. Expenses on transport passes, when the passes are useful for more than one method of transport; metro bus.

Group 08 COMMUNICATIONS

Subgroup	081	COMMUNICATIONS
Class	Subclass	Description and content
0811		**Postal services**
	08111	Postal services Payments for sending letters, post cards or packages, fees for postal giro, post office box, ...; purchases of unused stamps, pre-paid post cards and airmail letters; sending of mail and packages via private transport services, messenger services.
0812		**Telephone equipment and services**
	08121	Telephone equipment and services Acquisition of land lines and fax land lines, automatic answering machines and other land line accessories for telephones, as well as their repairs. Purchases of mobile telephones and their accessories, as well as their repairs. Telegrams, telex, fax and similar services and fees for telegraphic gyros. Expenses on calls at call centres, booths and other public telephones. Expenses generated by the use of private telephones: expenses on calls, rental and installation of telephones, expenses on contracting, changing the owner or the residence… Connection fees and expenses generated by the use of mobile telephones. Internet connection or other communications networks quotas.

Group 09 RECREATION AND CULTURE

Subgroup	091	REPAIR OF AUDIOVISUAL, PHOTOGRAPHIC AND IT EQUIPMENT
Class	Subclass	Description and content
0911		**Sound and video apparatus**
	09111	Sound and video apparatus
		Radio receivers, radio alarm clocks, transistors, radio cassettes, walkman, transmission-reception apparatus, ham radio operator apparatus, ... ; record players, cassette recorders--players, CD players, hi-fi stack systems and their components (equalisers, amplifiers, speakers, ...); microphones, headphones, ...
		Television sets, television antennae and satellite dishes.
		Video recorders and players.
0912		**Photographic and cinematography equipment**
	09121	Photographic and cinematography equipment
		Photographic cameras, flashes, tripods, lenses, filters, developing equipment and other photographic accessories.
		Mounted and mobile cameras and with microphones, video cameras, film and slide projectors, screens, filters and light measures, visors and other cinematography accessories.
0913		**IT equipment**
	09131	IT equipment
		Personal computers, monitors, printers, scanners, modems, CD-ROMS and other computer accessories, software, calculators, typewriters and other text editor machines.
0914		**Support for the register of image and sound**
	09141	Support for the register of image and sound
		Recorded sound (records, compact-disc, cassettes, ...) and video (video tapes, DVD, ...) mediums, both recorded and not.
		Computer disks and CDs
		Plates and negatives without printing, cartridges and discs for photographic and cinematography use, flash bulbs and photography paper, chemical preparations for photographic use.
0915		**Repair of audio-visual, photographic and IT equipment**
	09151	Repair of audio-visual, photographic and IT equipment
		Repair of audio-visual, photographic, cinematography and information treatment equipment.

Subgroup	092	RECREATIONAL AND SPORTING ARTICLES, FLORISTS AND PET SHOPS
0921		**Recreational and sporting items**
	09211	Games and Toys
		All types of toys: dolls, soft toys, cars, construction games, puzzles, Plasticine, disguises, gag items, Christmas items …
		Card games and board games; chess games and the like.
		Electronic games, video games and computer games for television.
	09212	**Other recreational and sporting items**
		Sporting, gymnastics and physical education equipment such as balls, rackets, sticks, skates, weights, football or ski boots, underwater goggles, ammunition for hunting or sport, fishing rods and equipment; beach and outdoors equipment; camping equipment, ...
0922		**Florists and pets**
	09221	**Florists and pets**
		Plants, flowers, bushes, ... natural or artificial; seeds, fertilisers, pots, ... Including shipping expenses for flowers and plants.
		Purchase of pets.
		Feed; veterinary products, for beautifying and cleaning animals; collars, leashes, muzzles; Dog cages, cages, aquariums and other items for pets.
		All types of services for pets: veterinarians, cleaning, hair dressers, boarding, burial…

Class	Subclass	Description and content
Subgroup	093	RECREATIONAL, SPORTING AND CULTURAL SERVICES
0931		**Recreational and sporting services**
	09311	Recreational and sporting services
		Expenses on sporting events (football stadiums, race tracks, horse race tracks, basketball or tennis courts,, ...), in amusement parks, fairs, guided tours, bowling alleys, non-gambling recreation machines and cable car ski lifts.
		Recreational and sporting equipment and accessories rental.
		Group or individual aerobics, dance, ski, swimming lessons...
0932		**Cultural services**
	09321	Cultural services
		Expenses on tickets for the following events and/or places:
		- cinemas and theatres
		- operas, concerts, ballets, zarzuelas and other musical performances
		- circuses, light and sound performances, bullfights, ...
		- museums, exhibits, art galleries and monuments
		- national parks, zoos, botanical gardens, aquariums, natural reserves, ...
		- libraries, periodicals libraries, media libraries...
		Quotas for television or radio, ambience music, video club quotas, ham radio licenses and radio and television licenses.
		Photographic services (developing, printing, enlarging, copying, photo portrait...), musicians and clowns services for private events.
		Rental of cultural goods such as televisions, videos, computers...
Subgroup	094	BOOKS, NEWSPAPERS AND PAPER
0941		**Books**
	09411	Books
		Entertainment books, atlas, dictionaries, encyclopaedias, colouring books, albums and binding of books
		Text books.
0942		**Press and magazines**
	09421	Press and magazines
		All types of newspapers, magazines and other periodical publications.
0943		**Stationery**
	09431	Stationery
		Posters, congratulations and visiting cards, post cards, maps, calendars, ...
		Notebooks, envelopes, agendas, pens, correction fluid, staplers and staples, clips, sheets of paper, drawing and painting materials, material for manual activities, ...
Subgroup	095	ORGANISED TRIP
0951		**Organised trip**
	09511	Organised trip
		Holidays with travel, accommodation, foods and transfers, ...; organised excursions and visits.

Group 10 EDUCATION

Subgroup	101	EDUCATION
Class	Subclass	Description and content
1011		**Pre-primary and primary education**
	10111	Pre-primary and primary education
		Nursery and pre-school education.
		Primary education and equivalent special education.
1012		**Secondary education**
	10121	Secondary education
		Obligatory Secondary education and equivalent special education. Covers 1st, 2nd, 3rd and 4th year of O.S.E.
		General Secondary education. Covers 1st and 2nd year of School Leaving Exam
		Professional Training and equivalent Second Degree special education. Covers intermediate formative cycles and of specific Professional Training
		Second degree special education. Covers Plastic arts and Design (intermediate), music and dance education (intermediate singing, ceramics, conservation and restoration of intermediate degree; applied arts and artistic professions; official school of languages.
1013		**Tertiary education**
	10131	Tertiary education
		University education and equivalent. Education received in some of the following levels: university diplomas, technical engineering and architecture, university degrees, advanced engineering and architecture, higher military education, occupational therapy (health); tourism; commercial air lines pilot; higher ecclesiastical studies and postgraduate and masters courses, offered in public universities, doctorates, non-post graduate university degrees lasting three or more years (equivalent to official degrees).
		Third degree Professional Training. Covers the following academic years: experimental Professional Training plan (professional modules III), specific Professional Training of a higher degree (Primary and secondary education), civil aviation (commercial airline pilot).
		Third degree special education. Covers the following academic years: Plastic arts and Design (grade higher), music education and dance (higher degree), dramatic arts (Primary and secondary education), singing (higher degree), conservation and restoration of cultural goods.
1014		**Education not definable by level**
	10141	Education not definable by level
		Adult education programs which grant education system degrees and do not have previous study requirements.
		Masters not offered by universities.
		Languages in academies or with private teachers.
		Information technology in academies or with private teachers.
		Regular payments, matriculation and/or registration of all students in the educational system for tutoring help received in both schools, as well as offered in academics or by private tutors.
		Competitive exam fees and preparation; typing, ...

Group 11 HOTELS, CAFES AND RESTAURANTS

Subgroup	111	RESTAURANTS, BARS AND CAFES
Class	Subclass	Description and content
1111		**Restaurants, bars and cafes**
	11111	Restaurants, bars and cafes Lunches and dinners in restaurants. Food Services supplied by bars, cafeterias and the like. Drinks in discotheques. Sale of pre-cooked food and catering services, pre-cooked dishes to take home (paellas, pizzas, baked chicken, ...); ready to consume products supplied by machines (sandwiches, coffees, ice creams, refreshments, ...), products purchased from mobile stands.

Subgroup	112	HOTELS AND OTHER ACCOMMODATION
1121		**Hotels and other Accommodation**
	11211	Hotels and other Accommodation Accommodation services in hotels, motels, guest houses, hostels, inns, residences and shelters. Accommodation services in camping sites, including caravan sites. Rental of chalets, apartments and bungalows, as long as they are for less than one month per quarter. Holiday resorts, recreation centres and mountain services. Accommodation services in boarding houses, student residences, upper and lower schools, student shelters, ...

Group 12 OTHER GOODS AND SERVICES

Subgroup	121	GOODS AND SERVICES FOR PERSONAL CARE
Class	Subclass	Description and content
1211		**Personal Care Services**
	12111	Personal Care Services Hair dressers services (hair cut, wash, dye, perm, highlights…) and personal beauty (hair removal, manicure, pedicure, sauna, massage, UV rays, ...).
1212		**Personal Care Items**
	12121	Personal Care Items Apparatus, items and products for personal care both durable (hair dryers, electric face shavers, electric leg shavers…) as well as non durable (bath gels, toothpaste, colognes, shampoos, cosmetics, cremes, paper napkins, nappies, toilet paper, ...).

Subgroup	122	PERSONAL EFFECTS
1221		**Jewellery, imitation jewellery and time-keeping instruments**
	11211	Jewellery, imitation jewellery and time-keeping instruments Watches, earrings, necklaces, rings, bands, bracelets, cuff links and other jewellery and imitation jewellery items. Includes their repairs.

Class	Subclass	Description and content
1222		**Other Personal effects**
	12221	Other Personal effects
		Travel items (suitcases, briefcases, travel bags…), bags and hand bags for personal use (hand bags, dossiers, wallets, backpacks, coin purses, shopping carts, ...).
		All types of items for babies (except furniture): prams, hanging chairs, braces, car seats, baby backpacks, pacifiers, bottle heaters, sterilisers, ...
		Smokers items (lighters, pipes, filters for stems, ...); personal items (sunglasses, canes, umbrellas, fans, key chains…); funeral items (coffins, tomb stones…).
Subgroup	123	SOCIAL SERVICES
1231		**Social services**
	12311	Social services
		Expenses in old persons homes, foster homes, homes for the disabled, rehabilitation centres…
		Elderly and disabled persons home care.
		Counselling, psychological orientation and child adoption services for families.
		Expenses on day care and child care centres.
Subgroup	124	INSURANCE
1241		**Insurance for housing**
	12411	Insurance for housing
		Payments for dwelling insurance made both by owners as well as by renters occupying the dwelling, including fire, theft, water damage, ...
1242		**Medical Insurance**
	12421	Medical Insurance
		Quotas paid to non-compulsory medical insurance, paid directly to private health care institutions and all types of agreements or the like. School insurance.
1243		**Car insurance**
	12431	Car insurance
		Insurance related to personal transport covering the vehicle and it's occupants. Also includes travel and luggage insurance.
1244		**Other insurance**
	12441	Other insurance
		Burial insurance, civil responsibility insurance covering third parties and their assets...
Subgroup	125	FINANCIAL SERVICES
1251		**Financial Services**
	12511	Financial Services
		Bank fees, loan fees, safety deposit boxes, brokerage fee for purchasing shares, credit card fees, fees paid to consultants or financial or fiscal advisors, ...
Subgroup	126	OTHER SERVICES
1261		**Other services**
	12611	Other services
		Legal services fees (solicitors, barristers, ...), freelance professional services, expenses on notary, agencies.
		Parent Associations.
		Expenses carried out in placement offices, expenses for reproduction, emission of duplicates, validating permits, funeral services, expenses of church and courts, newspaper advertisements, private detectives, marriage agencies, payments for coat checks, parking attendants, payments for obtaining documents, ...

Annex III. Calculation of aggregate indices

As of January 2003, with the new CPI Base 2001 calculation formula, the indices referred to December of year (*t-1*) start off equal to 100 in December of that year.

Since the published CPI series should be given continuity, a link must be made to the future each year.

Therefore, the index published in month m of year *t*, in Base 2001, is obtained multiplying the index for December of (*t-1*), in Base 2001, by the index for month *m* of year *t* referred to December of (*t-1*), divided by 100:

$$_{01}I^{mt} = {}_{01}I^{dic(t-1)} \times \frac{{}^{dic(t-1)}I^{mt}}{100}$$

The indices referred to December of the prior year (not published) are always additive, so that with them any geographic or functional groups index can be calculated.

However, the published indices based in 2001, are not additive, so that in order to obtain an index based in 2001 for group A, in month *m* of Year T, based on the indices of their components A1 and A2, the following steps must be followed:

Obtain the indices referred to December of the year prior to the index, for each component A1 and A2. This is carried out by dividing the published index for month *m* of Year T, by the index published in December of the prior year:

$$_{dic(t-1)}I_i^{mt} \quad \frac{{}_{01}I_i^{mt}}{{}_{01}I_i^{dic(t-1)}} \times 100 \qquad i = 1,2.$$

1. Add the indices obtained in the previous step using the existing weights for the indices reference period (*m,t*). With this, the index for group *A* is obtained, referred to December of (*t-1*):

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

2. Calculate the index with Base 2001 for group *A*, as a product of the index published December of the prior year, by the group index obtained in step 2 and divide it by one hundred:

$$_{01}I_A^{mt} = {}_{01}I_A^{dic(t-1)} \times \frac{{}^{dic(t-1)}I_A^{mt}}{100}$$

Annex IV. Calculation of accumulated effects

As of January 2003, with the new CPI Base 2001 calculation formula the indices referred to December of year (*t-1)* part from a value equal to 100 in December of that year, for all groups levels.

The accumulated effects in month *m* of year *t* can be calculated as the product of the variation by the weighting, since both the index for the item (or lot) *I* and the general index for December of (*t-1*) coincide, and are equal to 100:

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

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

$$= \Delta_i^{mt/dic(t-1)} \text{ x } {}_{(t-1)}W_i$$

Like the accumulated effect in December of year *t* coincides with the annual effect in December of year *t*, in the month of December of each year it is possible to carry out an analysis of the CPI by means of the annual variation rates and the weights.

Annex V. Linked series

CPI-Base 2001			CPI-Base 1992		
Group	**01**	**FOOD AND NON-ALCOHOLIC BEVERAGES**			
Subgroup	011	FOOD	Subgroup	11	FOOD
Class	0111	BREAD AND CEREALS	Class	110	BREAD AND CEREALS
Subclass	01111	RICE	Subclass	110A	RICE
Subclass	01112	BREAD	Subclass	110C	BREAD
Subclass	01113	PASTA PRODUCTS	Subclass	110E	PASTA FOOD PRODUCTS AND OTHER CEREAL BASED PRODUCTS
Subclass	01114	PASTRY-COOKED PRODUCTS	Subclass	110D	PASTRY-COOK PRODUCTS
Subclass	01115	FLOURS AND CEREALS	Subclass	110B	FLOURS AND LIGHTLY PROCESSED CEREALS
Class	0112	MEATS	Class	111	MEAT
Subclass	01121	BEEF	Subclass	111A	BEEF
Subclass	01122	VEAL	Subclass	111B	VEAL
Subclass	01123	PORK	Subclass	111C	PORK
Subclass	01124	SHEEP MEAT	Subclass	111D	SHEEP MEAT
Subclass	01125	POULTRY MEAT	Subclass	111E	POULTRY MEAT
Subclass	01126	COOKED PORK MEAT	Subclass	111F	COOKED PORK MEAT
Subclass	01127	CANNED AND PROCESSED MEAT	Subclass	111G	CANNED AND PROCESSED MEAT
Subclass	01128	OTHER MEATS AND OFFAL	Subclass	111H	OTHER MEATS AND OFFAL
Class	0113	FISH, CRUSTACEANS AND MOLLUSCS	Class	112	FISH
Subclass	01131	FRESH AND FROZEN FISH	Subclass	112A	FRESH AND FROZEN FISH
Subclass	01132	CRUSTACEANS AND MOLLUSCS	Subclass	112C	FRESH AND FROZEN CRUSTACEANS AND MOLLUSCS
Subclass	01133	CANNED AND PROCESSED FISH	Subclass	112B	DRIED, SMOKED, CANNED AND PROCESSED FISH
Class	0114	DAIRY PRODUCTS, CHEESES AND EGGS	Class	113	MILK, CHEESE AND EGGS
Subclass	01141	MILK	Heading	11	MILK
Subclass	01142	OTHER DAIRY PRODUCTS	Subclass	1133	OTHER DAIRY PRODUCTS
Subclass	01143	CHEESES	Subclass	1134	CHEESES
Subclass	01144	EGGS	Subclass	113D	EGGS
Class	0115	OILS AND FATS	Class	114	OILS AND FATS
Subclass	01151	BUTTER AND MARGARINE	Subclass	114A	BUTTER AND MARGARINE
Subclass	01152	OILS	Subclass	114B	EDIBLE OILS
Class	0116	FRUIT			
Subclass	01161	FRESH FRUIT	Subclass	115A	FRESH FRUIT
Subclass	01162	CANNED AND PROCESSED FRUIT	Subclass	115B	DRIED FRUITS, OLIVES, CANNED FRUIT AND JUICES
Class	0117	VEGETABLES AND POTATOES			
Subclass	01171	FRESH VEGETABLES	Subclass	115C	FRESH VEGETABLES
Subclass	01172	DRIED VEGETABLES	Subclass	115D	DRIED VEGETABLES
Subclass	01173	PROCESSED AND CANNED VEGETABLES	Subclass	115E	PULSES AND FROZEN, CANNED AND PROCESSED VEGETABLES
Subclass	01174	POTATOES AND THEIR BY-PRODUCTS	Subclass	116A	POTATOES AND THEIR BY-PRODUCTS
Class	0118	SUGAR, CHOCOLATES AND JAMS			
Subclass	01181	SUGAR	Subclass	117A	SUGAR
Subclass	01182	CHOCOLATES AND JAMS			
Class	0119	OTHER FOOD PRODUCTS			
Subclass	01191	OTHER FOOD PRODUCTS			
Subgroup	012	NON-ALCOHOLIC BEVERAGES	Subgroup	12	NON-ALCOHOLIC BEVERAGES
Class	0121	COFFEE, COCOA, INFUSIONS AND SUBSTITUTES	Class	118	COFFEE, COCOA, INFUSIONS AND SUBSTITUTES