

Industrial Prices Indices base 2000

Introduction

The Industrial Price Index (IPRI) that is elaborated by the National Statistical Institute is one of the principal indicators for monitoring the economic situation.

The current system has as its base year the year 1990. The index corresponding to the month of January of 2003 will be the first index in the new 2000 base.

The industrial prices indices that are calculated in Spain are of Laspeyres. These indices are adequate for measuring the evolution of phenomenon in the short term, but they have the inconvenience of, with the passing of time, losing their representative nature and thus it is necessary to effect changes in the base to update their structure (product basket, weightings, panel of informing units,...). Moreover, the changes of the base are usually taken advantage of to introduce a series of improvements of a quantitative and methodological nature which, if carried out at a different moment, would distort the evolution of the indices.

During the years 2001 and 2002 the necessary work has been completed to establish the structure of the new index, which introduces important improvements with respects to the previous base.

This new design has had as fundamental objectives the following:

- Comply with European Union normative on short-term statistics.
- Adapt the design and the structure of the indicator to the current classification on economic activity and products.
- Offer information disaggregated to a territorial level, calculating indices for the Autonomous Communities.
- Extend and improve the coverage of the indices: including activities and products not investigated in the IPRI base 1990.

Regulations on short-term statistics

Regulation (EC) N° 1165/98 of the Council on short-term statistics establishes, for all the countries of the European Community and for a series of short-term indicators on industry, construction and services, a common framework for the elaboration of community statistics for analysing the evolution of the economic year. On the other hand, there exist subsequent dispositions that extend on this, the Commission Regulations relative to their application with respects to the definition of variables and of the large industrial sectors.

In these norms, parameters are established for each variable in relation with the gathering of data, periodicity of variables, level of detail, change of weightings and base year, availability term for each statistic, ...

Within the industry indicators contemplated in these Regulations appears the index of industrial prices in the domestic market

Classifications and definitions

The IPRI based on 1990 was elaborated using the National Classification of Economic Activities of 1974 (NCEA-74) for the branches of activity and the National Classification of Goods and Services of 1978 (NCBS-78) for products and varieties. At the time of the establishment of the indices these were the classifications in force, and the structural information available, from the Industrial Survey, followed these classifications

The previous classifications were substituted by the National Classification of Economic Activities of 1993 (NCEA-93) and by the National Classification of Products by Activities of 1996 (NCPA-96).

Since the entry into force of these classifications, based on 1990, the indices of industrial branches are calculated up to the level of 3 digits of the NCEA-93 (sections, subsections, divisions and groups), together with those of the headings of the classification of activities of 1974, and the products and varieties of the CNBS-78 were substituted by those of the PRODCOM (Community Production) product list.

In the new index the indices follow the NCEA-93 up to class level (4 digits) and the products follow the PRODCOM classification.

Together with the classification by branches of activity, which pays attention to the origin of the industrial goods and products, price indices are calculated for the sectors according to the economic destination of the goods. Data has been published for the headings of consumer goods, equipment goods and intermediate goods, classification based on the NCEA-74. In the new index these will be substituted by the indices of the Large Industrial Sectors, based on the NCEA-93.

Regulation (EC) N°586/2001 of the Commission establishes the definition of the Large Industrial Sectors (LIS), for which the short-term statistics must provide results.

These sectors are:

- Durable consumer goods.
- Non-durable consumer goods.
- Goods of capital.
- Intermediate Goods.
- Energy.

Moreover, the series of Consumer Goods is published as a weighted sum of the durable and non-durable consumer goods.

Indices have been calculated for these sectors based on 1990, thus the users will have available sufficiently long series for the analysis of the indices of these indices

IPRI information for the Autonomous Communities

In the new system of the industrial prices indices information will be provided for the different Autonomous Communities.

The change to the new base 2000 of the industrial prices indices is carried out at the same time as the change of the base of the Industrial Production Index (IPI). For this last indicator, a work group was created, formed by the statistics offices of the Autonomous Communities and the INE, with the objective of providing data for these territorial areas.

Thus, given that the branches investigated, the product basket and the sample of informants are the same for both the IPI and the IPRI, there is sufficient information to elaborate indices for these geographic areas that have sufficient quality and representatives. Moreover, there exists a need for having regional indices of the prices of products so as to use them as deflators for the IPI.

Extend and improve the coverage of the index

The moment of the change of the base is the adequate time for analysing and studying the changes occurred in the industrial sector during the period of time elapsed between the two bases, and for trying to improve the coverage and representative nature of the indicator.

In the index base 2000 some activities have been included that were not investigated in the previous base, like the production of wines, the number of products has been extended, as has the number of informing units and elemental data.

In the following chart the indices of the two bases are compared.

	IPRI - 1990	IPRI - 2000
Articles or varieties	1.200	1.500
Informants	6.000	8.000
Elemental data	20.000	26.000

Characteristics of the new IPRI base 2000

OBJECTIVE AND PRINCIPAL USES

The industrial prices indices have as their objective the measurement of the evolution, month by month, of the prices of the products manufactured by industry in the first phase of their commercialisation. We are dealing with a

dynamic indicator where the emphasis is placed on the measurement of the variations and not of the levels.

The industrial prices indices have diverse uses. Highlighting, amongst them, the following:

Direct use as an indicator for the analysis of price inflation in the different stages of production. Furthermore, it is a useful tool for investigators or companies for analysing certain products or markets.

Indirect use as a deflator, to convert data valued at current prices into data valued at constant prices, or for deflating the series valued pursuant to the Industrial Production Index.

Prices object of measurement and transactions to be observed

The notion of price measured by the IPRI needs to be defined with precision. At the same time, it is necessary to delimit the combination of transactions that originate said prices.

The prices measured by the indices have the following characteristics:

- 1** All the technical and commercial criteria determinant of the prices (quality, quantity, type of buyer or client...) must remain fixed throughout time.
- 2** They are output sales prices, without including transport or commercialisation costs.
- 3** We are dealing with a price where the VAT is excluded, but, however, where the remaining net taxes of subsidies tied to production are included.
- 4** They are current effective prices for a given day. Consequently, list or catalogue prices are not considered.
- 5** Prices assigned to a given model are observed, not average prices nor unitary values.
- 6** They are prices obtained by the products sold and not the prices paid for the material consumed.

In relation with the economic transactions that originate the existence of industrial prices, it is convenient to highlight the following:

- 1** It takes into account the genuine sales that originate effective prices. It does not take into account the transactions within one same company that solely gives rise to accounting prices.
- 2** It includes sales to companies from the same branch (gross sector), to companies from other branches, to wholesalers, retailers, Public Administrations and end consumers.

3 It only takes into account the sales of products manufactured and sold in the domestic Spanish market. It excludes, thus, the sales of imported products and sales in foreign markets.

It only observes sales of industrial products manufactured by industrial establishments. It excludes sales of industrial products manufactured by non-industrial establishments that produce them as accessories.

Scope and coverage

The coverage of the index extends to all the industrial sectors, excluding construction. It investigates the branches of the extractive industries, manufacturers and production and distribution of gas and electricity, which correspond to sections C, D and E of the National Classification of Economic Activities 1993 (NCEA-93).

From the point of view of territorial scope, the index provides data relative to the national total and by Autonomous Communities.

The sales prices of the models are the prices current on the 15th of each month or the day immediately before in the event of no transaction having been carried out on the former.

Products, varieties and sub-varieties

Firstly, price indices are calculated by branch of activity, which correspond with the headings of a national classification of activities.

Disaggregated to its lowest level, a class of the NCEA-93, each activity is represented by one basket of products, constituted by one or various products from one classification of products. Each basket of products corresponds with a basket of products of the Industrial Production Indices. At the same time, the products are disaggregated into varieties that are goods that present physical homogenous characteristics and a very similar evolution in their prices, and that normally correspond with the last level of disaggregation of the classification of products

Finally, we find ourselves with the sub-varieties, which are the specific models of a variety that are manufactured by a given establishment. Thus, the elemental data on the prices refer to the sub-varieties.

Aggregation formula

The usual practice in the majority of countries for the elaboration of a price index is to use the Laspeyres formula, with fixed weightings for the year taken as the basis of the comparison.

In the case of the price indices, this methodology implies that the indices are elaborated considering as constant the relative structure of the quantities sold in the base year.

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

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

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

p_i^t y p_i^0 they are prices in the current period and in the base period, respectively

q_i^0 they are the quantities sold in the base period

Given the levels of aggregation mentioned above, indices are calculated for each one of the sub-varieties, varieties, products, branches of activity and a general index. The indices of the sub-varieties are basic indices of prices obtained as the quotient of the price in t and the price in the base year. The index of the variety is obtained as a simple arithmetic average of the indices of the sub-varieties that form same. From here, the calculation of the indices of the products, branches and of the general index is effected using the weighted arithmetic average (Laspeyres formula).

Base Year

The year taken as the base is 2000. The architecture of the index (weightings, basket of representative products,..) reflects the industrial structure in said year

Weightings

The weightings have been calculated in accordance with the importance of the branches of activity and of the products during the year 2000 from the structural information of the industrial sector furnished by the Annual Industrial Survey on Companies (ISC) and on products (ISP).

For the activities of the NCEA-93, class, group, division, sub-section and section, according to the value of the turnover of the ISC-2000, corrected for sales in foreign markets.

For the products, according to the production value furnished by the ISP-2000, according to the definition of the PRODCOM list.

Nomenclatures

The index uses the official classifications in force.

On the other hand, Regulation (EC) N°586/2001 of the Commission establishes the definition of the Large Industrial Sectors (LIS), for which the Short-term Statistics must calculate results.

These large sectors are:

- Durable consumer goods
- Non-durable consumer goods
- Capital goods
- Intermediate Goods
- Energy

Moreover, the Consumer Goods series is calculated as the weighted sum of durable and non-durable consumer goods.

The LIS basically attends to the economic destination of the industrial goods and products.

To specify the branches of activity the National Classification of Economic Activities (NCEA-93) is followed.

To specify the products, the National Classification of Products by Activities of 1996 (NCPA-96), whose last level of disaggregation for the industrial sector is constituted by the PRODCOM (Community Production) list that is used on the surveys on industrial production.

Basic surveys

The primary information for the calculation of the indices is obtained from a continuous survey directed at industrial establishments.

For each product and variety of the basket a selection of establishments has been carried out that represents the greater part of their production. In general, it has been sufficient to include establishments with 20 or more employees.

The survey, which investigates more than 8000 establishments every month, is realised by means of personalised questionnaires, through a mixed method of mail and interviewing agents.

The response rate attained for the first preview of the index is above 90%, and it increases throughout the revisions of same.

Link of the series

The change of the base of the industrial prices indices implies a rupture, at least theoretically, with the previous indices, due to the fact that a dual change takes place: a new basket of representative products and a new weightings structure are used, thus the measurement of the prices is different from one system to the other.

The link attempts to solve this rupture obtaining a continuous series for each heading, thus indices are calculated with the old and with the new system.

All the series of the NCEA-93, up to the group level, which the INE had been publishing, have been linked, the general index and those pertaining to the LIS (large industrial sectors). These linked series commence in the year 1975 or in October of 1991, depending on whether they already existed in the 1974 base or solely in the 1990 base. On the other hand, the series of the former National Classification of Economic Activities (NCEA-74) are no longer published.

The link for the series consists in multiplying the former series by a link constant which means that in the base year, in this case 2000, the average of the indices is 100.

$$K = \frac{1200}{\sum_{t \in \text{año } 2000} I^{1990, t}}$$

These coefficients have been obtained independently for each series, thus none is a weighted aggregation of its components in periods prior to the link, the year 2002.

This link has the advantage of its simplicity and, on the other hand, guarantees that we maintain the published variation rates for all the periods prior to the link.

During the link period, in our case the year 2002, apart from publishing the indices based on 1990, we have calculated the indices based on 2000, with the new structure of products, informants and weightings, and the indices for the Autonomous Communities. In this manner, with the diffusion of the data pertaining to January of 2003, the indices for 2002 in the new base of 2000 are published. This will allow us to offer, for the indices of 2003, the annual variation rates with respects to the indices in the new base of 2002 instead of the linked indices and, moreover, the annual variations for all those headings that did not exist in the former base and in the indices by Autonomous Communities.