

## Prices

Statistical price surveys have been performed in Italy since the time of Italian Unification. At the time, Italy had a mainly agricultural economy, and therefore it is no surprising that the first traces of price statistics were just for agricultural products. The price statistics on the purchase of retail goods by the population were also one of the first signs of statistical interest in the subject, an interest which has developed considerably over the years, in Italy as in other European countries.

Consumer price statistics provide an indirect overview of the lifestyle and consumption evolution in the Italian society in the last two-century history. In the earliest years, the most detailed statistics covered food products; necessary to meet primary needs, these evoked great interest in a society which was generally less well off than it is today. Over the years, thanks to economic development, the range of purchased goods and services by the population has modified, along with the field of observation of surveyed and gradually updated by Istat to fit the social and economic changes that have taken place in the Country.

The time series presented here cover both producer and consumer prices for agricultural products.

Regarding agricultural products, this section presents the price levels of producer prices for the main products sold by farmers from 1861 to 2015 and, for the period between 1972-2015, the percentage rates of change of the average annual indices for producer prices purchased and sold.

With reference to consumer prices, a first group of time series shows the average price levels paid by final consumers for certain food products; a second group presents the consumer price indices for blue- and white-collar households for the period between 1861-2015 (base year 1913=1) and the respective percentage rates of change.

The percentage variations of the national consumer price index for the entire population, from the years 1955-2015, are also reported.<sup>1</sup>

### Output prices for agricultural products

Before Istat foundation, information on the output prices for agricultural products were collected by the Agricultural Statistical Office at the Ministry of National Economy; since 1928 the responsibility for processing and publishing these statistics has passed to ISTAT, then known as the Central Statistical Institute.

The presented series start from 1861 and refer to annual average prices received by farmers for the sale of their products, and are composed by average quotations related to the most representative markets by type of product.

Price recording stayed almost unchanged over time. Prices were – and still are – recorded in the various provinces by Chambers of commerce, industry, craft trades and agriculture and are then submitted to ISTAT on a monthly basis.

Since 2000 data are no longer submitted by the Chambers of commerce in paper form but through a computerised procedure, up until 2009 the information was sent by email, and afterwards the data registration and transmission has taken place through the Indata accessible website. Considering the peculiar nature of these figures, and in order to ensure the entire territory is represented, the choice of markets considers also the level of production for each product.

The indices have, however, undergone significant changes. The producer price indices for agricultural products at first sale and those on the prices of goods and services purchased by farmers for their business were first calculated using 1928=100 as base year. In order to create consistent series both in terms of the range of products and methodology, the series presented here start from 1972. In that year –

<sup>1</sup> The series of the Harmonised consumer price index was available for a shorter period only (1997-2015), and therefore is not presented in this volume.

following decisions made by Eec countries – when the base year was set in 1976=100, the products in the two indices were completely revised, and where necessary items to make the statistics comparable on an international level were introduced.

In 2000 further changes occurred and the base year was shifted to 1995=100. The innovations introduced by the European System of Accounts (ESA95) and by the Economic accounts for agriculture in the field of measuring agricultural production \*\*\*\*made it necessary to extend the scope of the general price index for products sold by farmers. Furthermore, the structure and the summary levels for price statistics were also reviewed, in order to bring the whole system closer to the new agricultural accounts structure. From January 2013 the price indices for agricultural products have been calculated using a base of 2010=100.

### *Warnings for time series comparisons*

- In 1976 the product range was overhauled to ensure comparability on an international level.

## **Consumer prices**

The index numbers for consumer prices measure the variations over time of the prices of goods and services destined for final household consumption. The recording of the information on prices levels, necessary to calculate these indicators, is an essential part of a statistical survey that has only been conducted systematically since 1926, with the creation of the Central Statistical Institute. In previous years, the monthly recording of prices was performed by the Directorate-General for Employment with reference to some of the most widely consumed food products. The survey drew on a wide range of sources: Chambers of Commerce, price lists and market reports published by some municipalities, and consumer cooperatives.<sup>2</sup> The first attempt to set out general criteria for recording prices was made in 1920, the year in which cost of living indices (in base year 1920=100) were calculated independently by 25 municipalities in the Kingdom of Italy for the first time (D'Acunto 2006).

From 1927, in accordance with Royal Decree no. 222 dated 20<sup>th</sup> February, subsequently converted into Law (no. 2421/1927), the calculation of cost of living indices was attributed to the Central Statistical Institute, which took on the duty of designing the survey, harmonising calculation methods for summarising the indices and supervising the calculation of the indices themselves.

According to the new legislation, municipalities with a population of over 100,000 inhabitants were obliged to set up Municipal Statistics Offices (UCS) with the task of recording prices.<sup>3</sup> Food product prices were collected every week at the most popular shops for blue- and white-collar households. The recording of clothing prices was conducted – according to a pre-established calendar – in the months when most articles of clothing were bought; while the price of rentals, electricity, gas and other types of fuel took place on an annual basis.

In order to improve the reliability and comparability of the information gathered, after the Second World War several modifications were made to the survey: in each municipality responsible for recording prices, a sample of sales points was defined, taking account of the various types of shop (according to the particular local organisation of retail outlets) and their distribution in the territory. Furthermore, the frequency of the survey was changed to every ten days for food products and monthly for clothing, in addition to a range of services relating to personal care. Prices for rentals, durable goods and other services, including public services, took place on a quarterly basis. Since then, as part of subsequent changes to the base year for consumer price indices, further innovations have been made to the organisational aspects of the survey.<sup>4</sup>

Today, consumer prices are recorded by two different methods: a territorial survey, conducted by the UCS (which covers most goods and services in the basket) and a centralised survey, performed directly by ISTAT. This latter survey covers goods and services which have the same price for the whole national territory (tobacco products, some types of medicine, etc.) or which are representative of markets with particular offer and demand characteristics.

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<sup>2</sup> For an in-depth analysis of the evolution of the technical characteristics of the recording of prices in the first century since Italian Unification, please see section 2, regarding retail prices, in: ISTAT. 1958. *Statistics surveys in Italy from 1861 to 1956*, 716-sgg. Rome: ISTAT. (Statistics yearbooks, series VIII, vol. 7).

<sup>3</sup> In the municipalities without this office, prices were recorded by another suitable office.

<sup>4</sup> For a complete description of the innovations made to the survey as part of the various changes of base year up until 2004, please refer to D'Acunto (2006).

During 2010, the process of reorganising the survey was completed. The collection of data through the UCSs is now performed using *tablet* PCs and specific *software* developed by ISTAT; while data are submitted in real time using third generation mobile communications technology (UMTS, “Universal Mobile Telecommunications System”). The centralised survey, on the other hand, relies on online databases or specialised *websites* (for air and train tickets, postal services, etc.) for a large part of the information used.

All product prices are recorded on a monthly basis, with the exception of products which show higher price volatility, which are measured twice a month (e.g. fuel). The survey period covers the first twenty-one days of the month and preliminary inflation estimates are published by the end of the same month; definitive figures are published by the middle of the following month.

The evolution of the survey has been accompanied over time by an improvement in the information made available to users. The first construction of a national cost of living index, (in base June 1927=100), published in the *Prices bulletin*, saw 47 large urban areas involved, with the UCSs compiling a typical weekly shopping budget each month, according to uniform instructions sent out by the Central Statistical Institute.<sup>5</sup> In later years, the survey was extended to cover additional areas, reaching 68 cities in January 1929.

In order to calculate the cost of living, the family budget was divided into the following five expense areas: food, clothing, lodging, heating and light and, lastly, miscellaneous expenses.

Following the interruption caused by the Second World War, the publication of cost of living indices continued in the extraordinary supplement to the Official Gazette, the *Prices bulletin*; the construction method was still based on calculating the cost of purchasing a range of goods and services considered to represent the consumption of a typical household, composed of five members. From 1954, however, along with the cost of living index, ISTAT began to produce a new indicator of inflation dynamics (consumer price index for the whole population, NIC - CIP) founded on a more modern approach to consumer price indices. The index is calculated (in base year 1953=100) using a summary of elementary price indices for a wide range of final goods and services. Overall, 267 consumer prices were included in the new index, grouped into 38 expense categories, in turn summarised into 10 consumption classes. The most important product class is the first, relating to food and tobacco products, which covers 105 items. The calculation method used for the consumer price index was also extended to the cost of living index when the base year was shifted from 1938=1 to 1961=100; the cost of living index thereby took on the characteristics of a subpopulation index, in that – in contrast to the first index which covers the entire population – it only covered households whose reference person is a non-agricultural employee; from 1968, in fact, the cost of living index took on the new name of consumer price index for blue- and white-collar households (FOI).

Over time, the range of goods and services recorded by the survey has been gradually extended to take account of the evolution of the structure of consumption. Already when the base year was moved to 1976=100, the number of products making up the reference basket<sup>6</sup> for consumer prices rose to nearly 800, grouped under 500 items (some of which were composed of one or more products of the same type). The survey’s territorial coverage was also extended to all municipalities that were provincial capitals and some of the larger towns that were not classed as capitals.

In more recent years, the process of innovation in these statistics has been strongly influenced by the need for ever greater harmonisation on a European level of the methods used to calculate inflation. From January 1999 the architecture of the indices was redefined, adopting a structure for the products in the basket based on the EU Coicop (Classification of Individual Consumption by Purpose) classification system, which divides products into 12 expense categories. At the same time, ISTAT abandoned the fixed base index method and switched to the chained index method, which involves the annual updating in December of the calculation base<sup>7</sup>, and which therefore allows the survey design to adapt to the household consumption habits<sup>8</sup> in a constant and rapid manner.

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<sup>5</sup> The reconstruction for the years up to 1927 was obtained by integrating the information from the surveys performed by the Municipality of Milan and numerous other cities.

<sup>6</sup> A reconstruction of the evolution of the basket of consumer prices from 1928 to the present day is published on the ISTAT website at: <http://www.istat.it/en/archive/179926>.

<sup>7</sup> The new series of indices have 2015=100 as “reference base” for NIC, FOI and IPCA indices.

<sup>8</sup> When the annual consumer price index base is changed, ISTAT sends municipal offices the list of products to be recorded; each product is accompanied by a series of information (description, official quantity for which the price is to be recorded, unit of measurement in which the official quantity is expressed and in which the quantity recorded must be expressed) which specify certain characteristics necessary to direct the work of the UCSs and surveyors (for example, packaging or general technical characteristics). When the product basket is revised, the weighting structure for indices is also affected, in order to take any changes in expenses for consumers into account.

## Warnings for time series comparisons

The series of transformation coefficients for monetary values, from 1861 to 2015 in 2015 Euros, has been obtained starting from the consumer price indices for blue- and white-collar households, known as cost of living up until 1967.

The variations in the purchasing power of money over time can be calculated, with sufficient reliability, using the summary price index figures relating to particular aggregates of goods and services, adopted to measure the average price variations that form over time in transactions between economic operators and final consumers.

To transform the amounts expressed in current values, taken from one or more different years, to 2015 values, coefficients must be created in correspondence with the years in which the monetary values in question were expressed. For example, to transform an amount of 100 nominal euros in 1937 (193,627 lire of the time) into 2015 values,<sup>9</sup> the 1937 coefficient is used, as shown below in Figure 1:

**Figure 1 – Use of revaluation coefficients: calculation examples**

Current Euros		2015 Euros	
Year	Value	Coefficient	Revalued value
c.1	c.2	c.3	c.4 = c.2 X c.3
1937	100	1894,9244	189.492,44

It is important to emphasise that these coefficients are calculated and published only for the purposes of historical analysis, and do not constitute official values to be used for monetary revaluations for legal purposes (updating fees, family benefits, etc.). For official terms, please refer to the dedicated area of the ISTAT website (<http://www.istat.it/it/archivio/30440>).

- For the years from 1943 onwards, free market prices have been considered for food products, while legal prices have been referred to for the pre-war years.
- For some types of product (bread and pasta from 1944 to 1949 and oil and sugar from 1944 to 1950), the prices represent the average between legal prices and free market prices, weighted according to the quantity sold in the two markets.

<sup>9</sup> When applying revaluation coefficients it is important to take care to the use of rounded values. In principle, the conversion into euros of the amounts to be revalued, relating to years prior to the *changeover* and therefore expressed in lire, must be performed last. However, considering the characteristics of the series presented in this volume, for the sake of clarity, in the example in question the lire-euro conversion was performed before revaluation. In this case, to avoid (default) rounding errors affecting the final results, unrounded figures should be used with maximum decimal precision.