



EUROPEAN COMMISSION  
EUROSTAT

Directorate C: National Accounts, Prices and Key Indicators  
Unit C-4: Price statistics. Purchasing Power Parities. Housing statistics

## **HICP COMPLIANCE MONITORING**

### **INFORMATION NOTE ON THE HARMONISED INDICES OF CONSUMER PRICES FOR ITALY**

**September 2014**

In the context of compliance monitoring and quality assurance, Eurostat reviewed the Harmonised Indices of Consumer Prices (HICP) for Italy. The index compilation practices were reviewed against HICP methodology and other guidelines and good practices in the field of consumer price indices.

This report takes account of publicly available information on the CPI and HICP for Italy and additional information collected by Eurostat prior to, during and after a visit to the National Statistical Institute of Italy (ISTAT) on 4 June 2013.

## **1. Introduction**

HICP compliance for Italy was assessed positively by Eurostat in 2007. In 2013, Eurostat reviewed again Italy's index compilation against HICP methodology and other guidelines and good practices in the field of consumer price indices. In addition to assessing the general compliance with HICP regulations, and in particular with regulations adopted since 2007, the 2013 review focusses on the follow-up of the previous compliance report's recommendations on data collection, representativity of the product and outlet samples, representativity of insurance weights and quality adjustment practices.

## **2. Data collection and validation**

### **2.1. Organisation**

The Italian Laws no 2421/1927 and no 621/1975 specify the responsibilities and tasks of the Central Statistical Institute (now National Statistical Institute, ISTAT), and Municipal Offices of Statistics (MOS) that contribute to the production of the national consumer price index (CPI). In 2013 more than 20 per cent of the consumption expenditure was covered by central price collection (ISTAT) and almost 80 per cent by price collection in the field (MOS). The law also specifies that the MOS collect prices in the chief towns of Italian provinces and in cities which have more than 30,000 inhabitants as well as a MOS (around 80 towns are now involved). Due to this restriction Eurostat had expressed concerns regarding the population coverage of the Italian HICP outside those municipalities in the previous compliance report.

Local price collection is computerised, and the standards and rules how the MOS should conduct the survey (e.g. sampling and replacements) are set by ISTAT. In addition to the local surveys by MOS, ISTAT collects prices centrally from internet sites and periodicals or receives them electronically from other sources.

Internet collection covers online shops, and in some cases the price observations collected from websites of traditional shops serve as estimates for prices in physical outlets. ISTAT does not do verifications to check if the prices collected from the internet are representative for physical outlets. However, internet price collection is cost-effective and it helps expand the geographical coverage of the Italian HICP to areas outside towns and cities.

### **2.2. Frequency**

Since 2010, all but a few prices are collected monthly. Some prices are collected less frequently, but with regular checks for possible price changes that would have to be introduced into the index without delay. These are typically prices which are fixed for a certain period and thus do not change from month to month. By contrast, other prices are collected more frequently; i.e. twice per month for fresh fruit, fresh vegetables, fresh fish, fuel, three times per month for passenger transport by railway, four times per month for passenger transport by air, sea and inland waterway.

The frequency of the Italian price collection is in line with the HICP requirements.

### **2.3.Data validation**

The validation process consists of two stages: municipal offices first make a preliminary check of the data – Italian statistical law requires that data are examined and validated by Municipal Commissions in each municipality – then data are validated at the central office (data editing, calculation and analysis of different indicators such as missing observation rates, replacement rates, and amount of collected discounts). Data are checked for consistency, outliers and errors (automatic procedures). External sources are also consulted to validate data, e.g. for energy data.

### **3. Prices**

In line with the HICP requirements, transaction prices (prices actually paid) are collected. For some products (e.g. Audio-visual, photographic and information processing equipment, passenger transport by sea, accommodation services) prices collected via the internet are used as proxies for transaction prices. It is assumed that the internet prices are valid also for product offers in physical outlets. ISTAT only observes prices on sites with a country code ‘.it’.

For a number of products the lowest available price is observed each month, and not the price of a same product as the previous time. In the previous compliance report Eurostat had expressed reservations about this approach, in particular in the case of telecom services and of newspapers and periodicals.

Regarding the latter ones, the Italian HICP reflects also price changes resulting from occasional supplements, which consumers are obliged to purchase, and therefore follows changes of the minimum price to which the information is made available to consumers. With a view to the standards as regards the treatment of inducements, Eurostat continues to have reservations concerning this approach.

Reduced prices are entered into the index calculation if they are available to all potential consumers. Special discounts for owners of fidelity cards with fee or granted to specific social groups are disregarded. Starting from January 2014, discounts for owners of fidelity cards that are free of charge are taken into account. In the national CPI, temporary reductions are only taken into account if they last more than three months—a different approach from the HICP.

Prices linked to income are taken into account according to the income distribution of households. Price changes due to changes in households’ income are reflected in the index. For some services, where the total price is composed of a fixed and a variable component, ISTAT transforms the fixed annual amount to a monthly price taking into account the average duration of the service provided (i.e. for kindergarten).

Missing price observations are imputed either by carrying forward the last observed price if it appears appropriate or they are estimated by using price developments within the same stratum or COICOP class. For the product prices collected by MOS, if the price cannot be observed in two consecutive months, a new item is selected to replace the disappeared item.

## **4. Price administration and taxes**

Italy provides Eurostat with annual updates on the stratification of HICP sub-indices according to whether they are fully or mainly administered; these are used for the calculation of the HICP Administered Prices. Prices of a wide range of products are either directly set or significantly influenced by the government: e.g. services related to the dwelling, passenger transport services, energy, pharmaceutical products and postal services.

ISTAT transmits to Eurostat HICP at constant tax rates according to the requirements. In their compilation methodology, the tax changes that become effective on the first day of a month are included into the index of the same month, while tax changes entering into force at later dates are reflected only in the following month's index. This practice is compliant with the methodology referred to in Commission Regulation (EU) No 119/2013.

## **5. Weights**

At the highest level of aggregation (COICOP divisions, groups and some classes), weights are based on annual National Accounts (NA) expenditure data (referring to year t-2). For the calculation of weights at aggregation levels of some COICOP classes unpublished information from the National Accounts from the years t-4 to t-2 (moving average) as well as other reliable sources (HBS, foreign trade, industrial production and tourist flows, other ISTAT surveys, external sources) are used to distribute the weight to the relevant classes. Weights are price-updated to December t-1 starting from the lowest aggregation levels. The Italian HICP already had annual weights updates before the adoption of the weights regulation based on the National Accounts as the main source, and thus, Italy had already been compliant with the core requirements before the adoption of 1114/2010. However, in some cases the weight reference period is more than 12 months (i.e. 3 years) at levels below the COICOP groups.

The Italian weights data sources do not yet allow distinguishing internet purchases from total expenditures. Eurostat welcomes ISTAT's efforts to include the additional stratification of internet purchases into the Household Budget Survey.

Italy is divided into 20 regions. Regional expenditure weights are estimated using data from National Accounts and HBS. Regional expenditure weights are used to aggregate national indices from municipality level indices.

## **6. Sample design**

The product basket is established using purposive sampling. The sampled products are assigned to consumption segments according to consumption purpose and, if deemed necessary, then stratified even further. For each consumption segment, the representative items are chosen centrally by ISTAT. The list is provided to the MOS and supplemented by detailed descriptions. The MOS then select the most sold product offer based on the information obtained in the shop or on their own judgement. Each representative item is supplied with an exhaustive description that drives the choice of the MOS and in particular of the data collectors in order to identify the most sold product offer (variety + brand + package).

The outlet sample is established using purposive sampling by MOS according to rules set by ISTAT. The sampling uses information from census, business plans, business registers or other available sources. The online shop sampling and internet price collection is done by the central office.

The product and outlet samples are reviewed each year in December. Technically, the review is carried out using an internet platform which the MOS and ISTAT staff can access.

The list of representative items is revised annually and is updated with new goods and services based on the sources considered for the weights estimation, analysis of possible consequences of changes in the legislative framework, suggestions from the MOS, consumer associations and central staff.

The procedure to identify newly significant goods and services initially requires analysing changes in legislation, data from the HBS, other ISTAT surveys and other sources. Price collectors and Consumers Associations are also involved in the discussion. Newly significant goods are included in the HICP every 12 months using the approach described above.

According to the requirements, all 4-digit level indices—as defined by the Classification of Individual Consumption by Purpose (COICOP) adapted for the HICP—with a share in total expenditure of at least one part of a thousand are covered in the Italian HICP. The COICOP classes that are excluded have a weight of less than one part of a thousand in total expenditure.

## **7. Index structure and aggregation method**

The list of products for which prices are collected has both loose and tight product descriptions. The products are further broken down to consumption segments, which are defined at the level of elementary aggregates. Each segment includes one or more representative items.

Geometric means are used to calculate elementary aggregates at the municipal level. Further aggregation to the national level is carried out using explicit expenditure weights.

The only bundled products included in the HICP are package holidays. Other bundled products are not included due to insufficient information to calculate their weights.

## **8. Quality adjustment**

Decision on the need of quality adjustment is taken on a case-by-case basis. In these cases where there are agreed European standards, methods classified as B-methods (in accordance with Article 5 of Regulation no 1334/2007) are applied. In particular:

- Direct comparison is carried out in some cases for clothing and footwear, in some cases for processed or fresh food, for products for which the best seller approach is adopted such as electronic games, DVD movies and fuels.
- For most of the products for which prices are centrally collected by ISTAT, direct comparison within the specific stratum is conducted.
- A combination of bridged overlap and class mean imputation is adopted in some cases for clothing and footwear.

- Quantity adjustment is adopted only when the difference between a product offer in a month and a product offer in the following one, is due exclusively to a difference in the package size.
- Direct comparison in combination with monthly deletion and replenishment is used for tablet PCs.
- For new cars, direct comparison or reconstructed overlap is applied in the case of minor changes and overlap is applied in the case of major changes.

Eurostat welcomes ISTAT's efforts to use quality adjustment methods classified as A or at least B methods in more product groups.

## **9. Treatment of special product groups**

### **9.1. Seasonal items**

Italy implemented the standards on the treatment of seasonal items in 2011, when the corresponding regulation came into force. Previously, minimum average prices for fresh fruit and vegetables were taken into account. These prices were then taken to the index as a moving average over 13 months. For clothing and footwear, the last full price was carried forward during the out-of-season month. With the implementation of the new standards, prices of seasonal products are collected during the in-season period; otherwise they are estimated using counter-seasonal estimation. For clothing and footwear, the price in the first out-of-season month is the last price without sales reduction. This practice is in line with the current requirements. For fresh fruit and vegetables the price in the first out-of-season month includes already an imputation which is not fully in line with the current requirements.

### **9.2. Cars**

The Italian index for cars includes only purchases of new cars; purchases of used cars are excluded. List prices are collected from specialised magazines, internet sites and emails directly from manufacturers and importers. ISTAT does not have information on transaction prices.

The car sample is stratified by province, brand, fuel type and market segment (micro cars, city cars, etc.). Replacements take place within the same stratum and the new model version is directly compared to the old one. In case of a model change, the simple overlap or a reconstructed overlap method is applied.

In its previous compliance assessment, Eurostat had expressed reservations about the retrospective price collection for the previous month. Eurostat welcomes ISTAT's efforts to estimate the weight of used cars and include them into the HICP.

### **9.3. Passenger transport by air**

Flight prices are collected centrally. The index comprises domestic, European and intercontinental flights. Offers of low-cost carriers are also taken into account.

ISTAT implemented the rules of Regulation (EC) No 2601/2000 on the timing of entering purchaser prices into the index for airfares in December 2007.

#### **9.4. Telecommunications**

ISTAT applies a consumer profile approach for both fixed and mobile telecommunications services and for internet services. Each profile is represented by the cheapest tariff plan, assuming that monthly changes of tariff plans are possible and realistic. Costs for the change of tariff plan, if they occur, are distributed over several months and not entered into the index with the full amount in the month when they have to be paid by the consumer. SMS are included. Indices for mobile internet services and public telephony services are calculated separately.

In the previous compliance assessment, Eurostat had expressed reservations about the assumption that changes in the lowest available price for each profile are representative of telecommunication services consumption as a whole. Eurostat continues to be concerned about the risk that price decreases for telecommunications could be systematically overestimated. Since telecommunications continue to have a significant downward impact on the all-items inflation rate, Eurostat is concerned about the related risk of underestimating the inflation rate.

#### **9.5. IT equipment**

The product sample for IT equipment is segmented according to consumption purpose approach and further stratified by brand and model. Among different models, the development of the lowest average price, based on price observations in different shops, is included in the index. Prices are collected centrally on the internet. Web scraping techniques have been tested and introduced for almost half of the products in the sample.

Whilst the downward impact of IT equipment on the overall inflation rate is less pronounced than in the case of telecommunications, Eurostat is concerned about the risk of underestimating inflation in this product group.

#### **9.6. Insurance**

The compilation of insurance indices is based on a consumer profile approach. Profiles and their weights are defined on the basis of data obtained from the National Association of Insurance Companies.

Eurostat welcomes the efforts of ISTAT to carry out further analysis of insurance profile weights, including comparisons with alternative data sources, in order to ensure that insurance weights are representative.

### **10. Planned changes**

ISTAT is investigating the possibilities to move towards a probabilistic sampling approach both for outlets and product selection. Such an approach is expected to have a positive effect on the geographic distribution of the price collection.

ISTAT is planning to implement the use of scanner data in two phases. The implementation will be preceded by parallel calculations over a full calendar year and corresponding assessment.

ISTAT is carrying out research on the possibility of using web scraping techniques for further products in order to compensate for the shortage of resources available for price collection.

Eurostat welcomes ISTAT's plans to implement the COICOP level 5 in accordance with the roadmap agreed at EU level.

## **11. Overall assessment**

Eurostat considers that the methods used for producing the Italian HICP are of a satisfactory standard. The Italian data pass all standard HICP validation tests – they are internally consistent. The representativity of the Italian HICP in terms of accuracy and reliability seems generally adequate. Some issues about which Eurostat expresses its concern are unlikely to have a major impact on the all-items inflation rate. The Italian HICP should be considered broadly comparable to the HICPs of other EU countries.

Eurostat's recommendations from the previous compliance report have been partially followed, and the quality of the HICPs has improved during recent years.

The issues to be followed up are:

- Eurostat recommends verifying whether the lowest available price approach for consumer profiles is representative of the consumption of such products as a whole (e.g. for telecommunication services and IT products).
- Central data collection heavily relies on information collected on the internet. Eurostat recommends verifying regularly whether those price observations are good approximations for transaction prices.
- When new outlets are identified on the internet, the Italian outlet structure (including internet shopping) should be assessed to check if it continues to be correctly represented in the HICP.
- Package holidays are observed only from price lists. Eurostat recommends checking regularly if they correctly represent price developments of last minute and advance bookings.
- Further analysis should be carried out in order to assess whether collecting rents for apartments only is sufficiently representative of the whole rentals market.
- ISTAT should continue investigating an appropriate approach to estimate weights and collect transaction prices for used cars.
- ISTAT should continue to observe bundled products and include them in the HICP if they become representative.
- Eurostat recommends including the full amount of fees for services extending over several months in the HICP in the month when the service can commence. This concerns in particular kindergartens.