

2015

CONSUMER PRICE INDICES

Basket, weight structure and survey updating

■ As every year, Istat updates the list of products included in the consumer price index basket. The updating takes into account the novelty emerged in the household spending habits and enriched, in some cases, the range of products which represent consolidated consumption.

■ The 2015 basket for the Italian consumer price indices for the whole nation (NIC) and for blue and white-collar households (FOI) is made up of 1,441 products (1,447 in 2014), which are grouped into 618 representative items (614 in 2014).

■ The 2014 basket for the Italian harmonized index of consumer prices (HICP) is made up of 1,457 (1,463 in 2014) products, which are grouped into 623 representative items (in 2014 they were 619).

■ Compared with 2014 the items *Gluten-free biscuits, Gluten-free pasta, Non-alcoholic beer, Vehicle sharing (car sharing and bike sharing) and Beverages dispensed by automatic vending machine* have been included in the basket for the first time.

■ Collection of prices of "*Ginseng coffee at the café*" will be added to that of *Hot drinks at the café*, as well as "*Fiscal counsel for dwelling taxes computation*" has been included in the representative item *Freelance business consultant honorary*.

■ The items *Navigation system - GPS, HiFi music centre, DVD player/recorder and Computer course* has been dropped from the basket.

■ In 2015, as in 2014, data coming from chief towns of 80 provinces are processed to estimate monthly inflation; the survey coverage, measured in terms of provincial population, is equal to 83.5% (83.3% in 2014).

■ Other 12 chief towns (one more than in 2014) participate in the territorial survey with regard to a subset of products (local tariffs and some services). The weight of this subset of products on the NIC basket is 6.8%. For these products, the coverage of survey, measured in terms of provincial population, is 91.9%.

■ In the chief towns, prices are collected in more than 41,300 statistical units (including outlets, enterprises and institutions) and rents are observed for about 8,000 dwellings.

■ In total 597,500 price quotes are collected each month; 501,900 of them are collected locally by Municipal Offices of Statistics (MOS) using Tablet PCs and sent to Istat and 95,600 are collected directly by Istat (of which about 13,000 prices collected using web scraping techniques for data collection on Internet).

■ Compared with 2014 and with regard to the Consumer price index for the whole nation (NIC), among the main special aggregates, the weight of *Services* increases at the expense of *Goods*; within goods, there is a growth of energy products, due to regulated products.

■ With regard to expenditure divisions, the relative weights increase for *Health, Housing, water, electricity, gas and other fuels, Communication* and, to a limited extent, for *Food and non-alcoholic beverages, Alcoholic beverages, tobacco, Education* and *Miscellaneous goods and services*. In contrast, the largest decreases of weights in absolute terms concern *Clothing and footwear, Transport, Furnishings, household equipment and routine household maintenance, Restaurants and hotels* and *Recreation and culture*.

■ As usual, weight structure updating has been carried out using National Accounts data which are classified according the new European system of national and regional accounts (Esa 2010).

■ In line with the release policy of Eurostat, starting from March 2015, the press release of final data will complete with a section on the analysis of the accuracy and the calculation methodology of the flash estimate of the Italian HICP.

The 2015 basket of goods and services

The 2015 basket for the Italian consumer price index for the whole nation (NIC) and for blue and white-collar households (FOI) is made up of 1,441 *products* (1,447 in 2014), which are grouped into 618 *representative items* (in 2014 they were 614). The 2015 basket for the Italian harmonized index of consumer prices (HICP) is made up of 1,457 products, which are grouped into 623 representative items (in 2014 they were 619)¹.

It is worth to mention that the *products* are the most elementary level of consumption aggregation structure for which prices are collected once or twice a month. The *representative items* are, within the *Consumption segments*, the sample of products or groups of products for which consumer price indices are calculated monthly.

The updating operations of the 2015 basket are of different kind. With regard to operations which take more directly into account household expenditure behaviour changes, the following representative items (Table 1):

- ▶ *Gluten-free biscuits and Gluten-free pasta*, respectively, in the consumption segments *Packaged pastry products* and *Pasta, noodles and couscous*. Their inclusion has the aim to cover the growing demand of gluten-free food both from celiac patients and from other consumers;
- ▶ *Non-alcoholic beer* in the new sub-class *Low and non-alcoholic beer* whose consumption has been consolidated in last years and can get a large range of brands supplied by the main manufactures;
- ▶ *Vehicle sharing*, in the consumption segment *Hire of garages, parking spaces and personal transport equipment*. This item is made up of “*Car sharing*” and “*Bike sharing*” services, whose spread, in terms both of number of users and of number of uses, concerns more and more Italian cities;
- ▶ *Beverages dispensed by automatic vending machine* in the segment *Fast food and take away food services*, with the price collection of two distinct products, “*Coffee dispensed by automatic vending machine*” and “*Water dispensed by automatic vending machine*”.

Always in order to take into account changes in household expenditure behaviors and consequences of recent legislative measures, the following two items have been included, too:

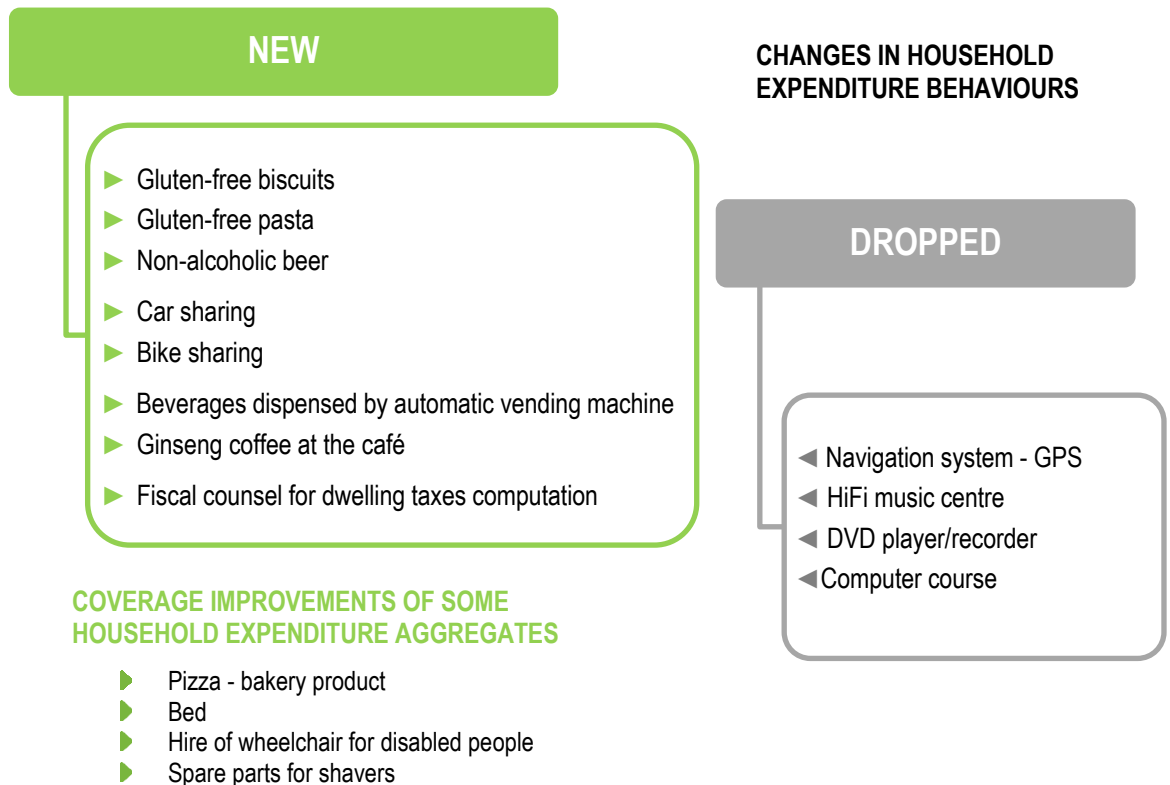
- ▶ “*Ginseng coffee at the café*”, which enhances the range of products within the representative item *Hot drinks at the café*;
- ▶ “*Fiscal counsel for dwelling taxes computation*” which is added to the service “*Fiscal counsel for the income tax return*” in the make-up of the representative item *Freelance business consultant honorary*.

Among dropped representative items, there are *Navigation system - GPS, HiFi music centre, DVD player/recorder* and *Computer course*. The exclusion of the *Navigation system - GPS* entails the elimination, within the classification scheme of basket products, of the consumption segment *Accessories for personal transport equipment* and of the upper aggregation (sub-class), which is equally named.²

¹ The difference between the two baskets is due to two elements: on one hand in the HICP basket (but not in the NIC/FOI one), contribution to the NHS for pharmaceutical products, specialist practices and services of medical analysis (six items) are included; on the other hand in the NIC/FOI basket (but not in the HICP one), Games of chance are included.

² It is worth to be stressed that the household expenditure for consumption of dropped items, although now insignificant, continues to be taken into account in the aggregate weight in which they were included. Likewise the weight of a consumption segment or of a sub-class/class of products, which are dropped, continues to be taken into account in the weight of upper aggregations. Furthermore, the exclusion of one or more representative items assumes the maintenance of an adequate coverage of the consumption segment, in which they were included, by the already-existing items or new items which become part of the basket; just as the exclusion of a product aggregation (consumption segment, sub-class, etc.) assumes the maintenance of an adequate coverage of upper aggregation, by the already-existing or new product aggregations.

TABLE 1. CONSUMER PRICE INDICES BASKET 2015: NEW AND DROPPED
Representative items and products



Aiming at improving coverage of several consumption aggregates (by the increase of number of items or products which represent them or by changes of already-existing items) the following news have been introduced:

- ✓ the representative item *Pizza - bakery product* has been included in the new sub-class *Pizza and quiche*, in the expenditure division *Food and non-alcoholic beverages*;
- ✓ the new item *Bed* has been added to the already existing items *Mattress* and *Wardrobe* in order to improve the coverage of the aggregate *Bedroom furniture*;
- ✓ the representative item *Physical examination (intra moenia)*³, in the sub-class *Specialist practice*, includes now the new service “*Orthopedist practice*”, which is added to the three already existing items “*Oculist practice*”, “*Cardiologist practice*” and “*Gynecologist practice*”;
- ✓ the item *Hire of wheelchair for disabled people* has been added in the new sub-class *Thermal-baths, corrective-gymnastic therapy, ambulance services and hire of therapeutic equipment*;
- ✓ the representative item *Hospital services - surgery*, previously made up of a single service “*Cesarean section*”, is now made up of other five new services “*Appendectomy*”, “*Extracapsular cataract extraction*”, “*Inguinal hernia repair*”, “*Arthroscopy*” and “*Binding and stripping of varicose veins*”;
- ✓ the item *Spare parts for shavers* increases the coverage of the consumption segment *Non-electrical appliances for personal care*, which already included the items *Shaving razor* and *Comb*.

In the updating of the basket, revisions of product denomination and of short and long description are included. The revisions have been carried out in order to adapt them to the changes in the characteristics products or to better guide data collection activity. Moreover, as it has already happened since some years, products short and long description updating has been carried out in

³ The specialist medical examination (intra moenia) refers to the examinations which can be carried out inside public hospital structures under freelance activities.

order to improve the comparability of average prices in the European context, within the European Commission project “Consumer Market Scoreboard”. This project aims at the extension of descriptive detail of current consumer price statistics system by integration among temporal indices (HICP) and Purchasing Power Parities (PPP). For 2015 short and/or long descriptions of 15 representative items and 38 products have been changed.

The new weighting structure

The weighting coefficients of indices are determined on the basis of the values of household final consumption expenditure as derived from National Accounts. Additional information used to define weights are originated from the Household Budget Survey, from other Istat surveys and from external sources, which have an auxiliary function⁴. National Accounts data, used for 2015 weight structure estimation, are classified according to the new European system of national and regional accounts (Esa 2010).

Price changes of goods and services included in the basket concur in the calculation of All-item index taking into account their weight in terms of the expenditure share sustained by household to purchase them. However, in order to measure the expenditure shares with reference to the value of the computation base period of indices (December 2014), household final consumption data, referred to the year 2013, are price-updating using the price changes measured between the year 2013 and December 2014.

Table 2 shows the 2015 weighting structures by expenditure division of NIC, HICP and FOI indices and their differences. Ordering expenditure divisions according to their relative weights, the three indices, with exception of *Health*, show relatively small differences. For all indices the expenditure divisions with a comparatively higher weight are those of *Food and non-alcoholic beverages* and *Transport*.

TABLE 2. WEIGHTS USED FOR CALCULATING CONSUMER PRICE INDICES, BY EXPENDITURE DIVISIONS
2015, percentage values

Expenditure divisions	Weights		
	NIC	HICP	FOI
Food and non-alcoholic beverages	16.5266	17.5648	16.0822
Alcoholic beverages, tobacco	3.2606	3.4691	3.6258
Clothing and footwear	7.0229	8.1002	7.5771
Housing, water, electricity, gas and other fuels	11.5963	12.3585	11.6761
Furnishings, household equipment and routine household maintenance	7.6036	8.1145	6.7783
Health	8.4390	4.0036	7.2681
Transport	13.8039	14.6884	15.6865
Communication	2.5408	2.7079	2.7132
Recreation and culture	7.8524	6.2208	8.3436
Education	1.2085	1.2876	1.3863
Restaurants and hotels	11.1555	11.8779	10.4402
Miscellaneous goods and services	8.9899	9.6067	8.4226
ALL ITEMS	100.0000	100.0000	100.0000

⁴ It should be note that, for not availability of sufficiently robust estimates of provincial consumption, in the first stage of indices aggregation the consumer price indices, chief towns of provinces contribute to the calculation of regional indices taking into account the relative importance of the province in the region in terms of population. For the calculation of this set of weights which are based on provincial population data, in 2014, 2011 Census data have been used.

In the case of the NIC index, the expenditure divisions with the highest relative weight are *Food and non-alcoholic beverages* (16.5%), *Transport* (13.8%), *Housing, water, electricity, gas and other fuels* (11.6%)⁵ and *Restaurant and hotels* (11.2%).

The differences among the weighting structures of NIC, FOI and HICP indices are largely due to the different definition of the economic aggregate of reference for the three indices. This issue has relevant implications for determining the weight of the expenditure division *Health* and in particular the weight of pharmaceutical products. The NIC and FOI indices include expenditure incurred by public administration for the household consumption of pharmaceutical products and health services, whereas it is excluded from the calculation of the HICP. Therefore the weight of *Health* in the basket of the harmonised index of consumer prices (4.0%) is significantly lower than the weight calculated for the national indices.

With regard to changes in the weighting structure of the NIC index, between 2014 and 2015, the highest increase in absolute terms concerns the expenditure division *Health* (+0.7402 percentage points). This increase has been determined both by the relative importance ("expenditure effect") of this group of products, as measured in the National Accounts of 2013 compared to the previous year, and by the "revaluation effect" by which the expenditure in 2013 is reported to the index computation base period (December 2014). The increase observed for the weight of *Household water, electricity, gas and other fuels* (+0.7147 percentage points) was entirely due the rise of the corresponding expenditure whose impact on the weighting structure was only partly off-set by the "revaluation effect". Finally, increases have been registered for weights of *Communication* and, although modestly, of *Food and non-alcoholic beverages* (for which the high increase of household expenditure is almost countered by the "revaluation effect"), *Alcoholic beverages, tobacco, Education* and *Miscellaneous goods and services*, (Table 3).

Looking at the divisions of which weight in the NIC basket has reduced in 2015, the largest decrease concerns the weight of *Clothing and footwear* (-0.9497 percentage points), entirely due to the decline in the relative share of expenditure observed between 2012 and 2013. A large decrease has also been registered for the weight of *Transport* (-0.3630 percentage points); this decrease is due both to the decline of its share of expenditure and to the price dynamics, which in 2014 (in contrast to what happened in the previous year) was lower than All-item inflation rate. An almost equal decline has been registered for the weight of *Furnishings, household equipment and routine household maintenance* (-0.3178 percentage points), whereas lower decreases concern *Restaurants and hotels* and *Recreation and culture*.

TABLE 3. NIC INDEX: WEIGHTING STRUCTURE BY EXPENDITURE DIVISION
2014 and 2015, percentage values and absolute differences

Expenditure divisions	2014	2015	Absolute difference	Spending effect	Revaluation effect
Food and non-alcoholic beverages	16.3728	16.5266	0.1538	0.3660	-0.2122
Alcoholic beverages, tobacco	3.1690	3.2606	0.0916	0.0937	-0.0021
Clothing and footwear	7.9726	7.0229	-0.9497	-1.0016	0.0519
Housing, water, electricity, gas and other fuels	10.8816	11.5963	0.7147	0.8888	-0.1741
Furnishings, household equipment and routine household maintenance	7.9214	7.6036	-0.3178	-0.3772	0.0594
Health	7.6988	8.4390	0.7402	0.6205	0.1197
Transport	14.1669	13.8039	-0.3630	-0.1995	-0.1635
Communication	2.2992	2.5408	0.2416	0.1610	0.0806
Recreation and culture	8.0176	7.8524	-0.1652	-0.2645	0.0993
Education	1.1481	1.2085	0.0604	0.0518	0.0086
Restaurants and hotels	11.4030	11.1555	-0.2475	-0.3472	0.0997
Miscellaneous goods and services	8.9490	8.9899	0.0409	0.0082	0.0327
ALL ITEMS	100.0000	100.0000			

⁵ It is pointed out that, in Italy, as in Europe, items in the division *Housing, water, electricity, gas and other fuels* exclude dwelling purchase, as it is an investment and not a consumer item, while they consider actual rentals for housing, which regard about 16.5% of Italian households according to 2011 Census data (the remaining 83.5% of households own their dwellings, or occupy them as usufructuary or free of charge).

Considering the weighting structure by special aggregates, in 2015 the relative weights of the two main components have undergone slight changes, confirming the downward trend of weight of goods in household consumption behaviours: goods down from 54.7% to 53.5% (the weight was 58.6% in 2005), services rise from 45.3% to 46.5% (their weight was 41.4% in 2005) (Table 4).

Concerning goods aggregate, the weight of Energy increases (from 8.6% in 2014 to 9.3% in 2015), due to the component of regulated energy products. The weight of *Food including alcohol* increases although slightly (from 17.4% in 2014 to 17.6% in 2015) whereas the weight of Tobacco substantially holds steady. On the contrary, the weight of *Non energy industrial goods* decreases markedly; this weight reduction is mainly due to the decline of weights of *Durable goods* (which include cars) and *Semi-durable goods* (which include clothing and footwear), as a consequence of the corresponding expenditure declines.

Concerning services aggregate, the largest weight increases have been registered for *Services - miscellaneous* (from 10.2% to 11.1%), *Services related to communication* (from 1.8% to 2.1%) and *Services related to housing* (from 7.7% to 8.0%): the increase of weight *Services related to housing* mainly reflects the change of the household expenditure in 2013, only partially off-set by the price dynamics observed in last year.

The weight of *All items index excluding energy and unprocessed food (Core inflation)* declines (-0.9830 percentage points).

TABLE 4. NIC INDEX: WEIGHTING STRUCTURE BY SPECIAL AGGREGATES
2014 and 2015, percentage values and absolute differences

Special aggregates	2014	2015	Absolute difference	Spending effect	Revaluation effect
Food including alcohol:	17.3611	17.6032	0.2421	0.4600	-0.2179
Processed food including alcohol	10.7103	10.7365	0.0262	0.0640	-0.0378
Unprocessed food	6.6508	6.8667	0.2159	0.3960	-0.1801
Energy:	8.5796	9.3467	0.7671	1.1748	-0.4077
Regulated energy products	3.8202	4.6766	0.8564	0.9851	-0.1287
Non-regulated energy products	4.7594	4.6701	-0.0893	0.1897	-0.2790
Tobacco	2.1807	2.1840	0.0033	-0.0003	0.0036
Non energy industrial goods:	26.5510	24.4136	-2.1374	-2.3933	0.2559
Durable goods	8.0901	7.3312	-0.7589	-0.8960	0.1371
Non-durable goods	7.4391	7.0570	-0.3821	-0.4325	0.0504
Semi-durable goods	11.0218	10.0254	-0.9964	-1.0648	0.0684
Goods	54.6724	53.5475	-1.1249	-0.7588	-0.3661
Services related to housing	7.7009	8.0193	0.3184	0.3436	-0.0252
Services related to communication	1.8206	2.1410	0.3204	0.2186	0.1018
Services related to recreation, including repair and personal care	17.4131	17.2405	-0.1726	-0.3520	0.1794
Services related to transport	8.1924	7.9231	-0.2693	-0.2977	0.0284
Services – miscellaneous	10.2006	11.1286	0.9280	0.8463	0.0817
Services	45.3276	46.4525	1.1249	0.7588	0.3661
ALL ITEMS	100.0000	100.0000			
All items excluding energy and unprocessed food (Core inflation)	84.7696	83.7866	-0.9830	-1.5708	0.5878
All items excluding energy, food, alcohol and tobacco	71.8786	70.8661	-1.0125	-1.6345	0.6220
All items excluding energy	91.4204	90.6533	-0.7671	-1.1748	0.4077
Grocery and unprocessed food	20.0277	19.9953	-0.0324	0.1978	-0.2302

With regard to regulated products, the weight of *Regulated goods* registered an increase (from 6.4% to 7.3%); on the contrary, the weight of *Regulated services* decreased (from 6.8% to 6.7%) (Table 5).

TABLE 5. NIC INDEX: WEIGHTING STRUCTURE BY REGULATED AND NON-REGULATED PRODUCTS
2014 and 2015, percentage values and absolute differences

Regulated and non-regulated products	2014	2015	Absolute difference
Non-regulated goods	48.2395	46.2975	-1.9420
Regulated goods	6.4329	7.2500	0.8171
Goods	54.6724	53.5475	-1.1249
Non-regulated services	38.5693	39.8000	1.2307
Regulated services	6.7583	6.6525	-0.1058
Services	45.3276	46.4525	1.1249
ALL ITEMS	100.0000	100.0000	

Finally, concerning products by purchase frequency, the weight of *Low-frequency purchases* decreased (-0.3146 percentage points) whereas the weight of *Medium-frequency purchases* rose (+0.1487 percentage points); the weight of *High-frequency purchases* increased slightly (40.4% from 40.3% in the previous year) (Table 6).

TABLE 6. NIC INDEX: WEIGHTING STRUCTURE BY PURCHASE FREQUENCY
2014 and 2015, percentage values and absolute differences

Purchase frequency	2014	2015	Absolute difference
High-frequency purchases	40.2664	40.4323	0.1659
Medium-frequency purchases	42.8566	43.0053	0.1487
Low-frequency purchases	16.8770	16.5624	-0.3146
ALL ITEMS	100.0000	100.0000	

Geographical basis and coverage rate

In 2015 the geographical basis of the survey is made up of 80 municipalities (19 regional chief towns and 61 provincial chief towns) - which participate in the indices calculation of all representative items included in the basket - and of other 12 municipalities (one more than in 2014) participating in the survey for a subset of products which includes local tariffs (water supply, solid waste, sewerage collection, gas for domestic use, urban transport, taxi, car transfer ownership, canteens in schools, public day nursery, etc.) and some local services (building worker, football matches, cinema, theatre shows, secondary school education, canteens in universities etc.).

On the whole, the coverage of the index, in terms of resident population in the provinces whose chief towns take part in the survey, is 83.5%. The participation of provincial chief towns is total for six regions (Valle D'Aosta, Trentino Alto Adige, Veneto, Friuli-Venezia Giulia, Emilia-Romagna and Umbria) but it is still incomplete for the others, in particular in Puglia (40.7%) and Sardinia (53.8%); in Molise, no chief towns participate in the consumer price survey.

At the macro-area level, coverage is total in the North-East; it is equal to 90.4% in the North-West, 83.3% in the Centre, 66.3% in the South and 74.7% in the Island.

Concerning the basket subset including local tariffs and some local services – whose weight on the NIC basket is equal to 6.8% – with the participation of the other 12 municipalities, the coverage of the survey, measured in terms of provincial resident population, rises to 91.9%; the participation become total for 12 regions and, with the exclusion of Sardinia, it increases in the remaining regions; in Molise, the participation remains nothing.

Price survey methods

Data contributing to the calculation of monthly consumer price indices are traditionally collected through two distinct surveys: the local survey, carried out by municipal statistics offices, under Istat supervision and coordination, and the central survey, carried out directly by Istat.

Local survey

In the 92 chief towns (80 for the full basket and 12 for a subset of product), taking part in the 2015 survey, prices are collected in more than 41,300 statistical units (including outlets, enterprises and institutions) and rents are observed for about 8,000 dwellings. 501,900 prices are sent monthly to Istat by Municipal Offices of Statistics each month (500,600 in 2014).

4.3% of the current elementary items (little more than 419,200) comes out from the annual update of municipal price collection plans: 2.6% is accounted for new products, while the remaining 1.7% is accounted for products already included in last year basket for which new elementary items have been selected.

Central survey

In 2015, prices collected each month directly by Istat are 95,600; among these, about 13,000 are collected using *web scraping* techniques for consumer electronics products price collection on Internet.

The percentage of products observed directly by Istat, calculated according to the weight assigned to each product within the NIC, is 23.1% in 2015 (22.6% in 2014). The prices of the products belonging to the expenditure division *Communication* are exclusively monitored by Istat, while prices of products included in the divisions *Food and non-alcoholic beverages* and *Clothing and footwear* are exclusively collected by the Municipal Offices of Statistics.

Changes in the central price collection activities in the occasion of the 2015 changing base regard - as usual - the revision of the samples in their composition, numbers and weighting structure, as well as the introduction of methodological improvements. Some of the main changes are described below.

Within the expenditure division *Transport*, with regard to *Passenger Transport by air*, some features of the survey design has been revised. In detail, the sample stratification by country destination and type of carrier (domestic, European and intercontinental routes by traditional and low cost carriers) has been revised using the low cost carrier list identified by the Istat survey on Transport by air. Further, the identification criterion of observed routes has been better defined (no longer considering the route from city to city but that one from airport to airport) in order to improve both the current survey and the test of the use of *web scraping* techniques for airfare price collection on Internet.

With reference to *Recreation and culture*, the consumer electronics products basket, which has been frequently revised in last years, is adequately large and representative. Therefore, there are neither new items nor dropped items among those already existing in 2014.

Finally, again within *Recreation and culture*, with regard to the class *Newspaper and periodicals*, the stratification criteria for newspaper of national circulation have been revised in order to update the national newspaper sample and to improve the coverage.

Changes in indices release

At the end of 2014, the extension process of NIC data dissemination has been finished, with the publication of COICOP group (3 digits) indices of municipalities and macro areas and the release of special aggregates and purchase frequency indices of macro areas. With the dissemination of these series – available from data referred to January 2011 and published in I.Stat, Istat data warehouse, under the theme Prices, sub-theme Consumer prices (<http://dati.istat.it/>) – the uniformity of detail of NIC indices at different territorial levels (municipality, region and macro area) has been reached: for all three levels, in fact, indices by expenditure division and group of products (COICOP 2 and 3 digits), by special aggregates and by purchase frequency are now available to users. Further, NIC regional weights by expenditure divisions (COICOP 2 digits), meeting users' requirement for a greater detail at territorial level of weight data, up to now published only at national level.



With reference to HICP indices, In line with the release policy of Eurostat, starting from March 2015, the press release of final data will be completed with a section on the analysis of the accuracy and the calculation methodology of the flash estimate of the Italian HICP.

Finally, in the first months of 2015, HICP indices referred to population subgroups, identified by expenditure level, – already published by press release from 2013 – will be made available in the data warehouse I.Stat. In detail, quarterly indices from data referred to the first quarter of 2006 onwards and the weighting structures used from 2006 onwards will be disseminated.