

## Basic concepts and definitions

The **Consumer Price Indices (CPI)** cover the monetary expenditure on goods and services for final consumption, for all types of resident households, with the exception of institutional households, in order to provide as relevant and accurate a picture of inflation as possible. The CPI can be regarded as a method for measuring, broadly, the prices of a fixed expenditure pattern.

The **Harmonised Index of Consumer Prices (HICP)** is a set of EU consumer price indices calculated according to a harmonised approach and a single set of definitions. The HICP has mainly been conceived to assess price stability in the euro area and price convergence in the EU, but also for comparisons of inflation at European level. Starting with January 2016, the HICP series are released with 2015=100 as the reference year.

**Expenditure item** – a group of expenditures incurred by consumers for meeting concrete needs for consumption of food goods, non-food goods or services

**Weight** – a measurement coefficient used to calculate a(n) (aggregated) synthetic index for a set of elements that are not directly measurable, whose function is to determine the relative importance of each element in the surveyed statistical set

**Monthly inflation rate** – the increase in consumer prices in one month compared to the previous month

**Monthly average inflation rate** – the average of monthly price increases. It is calculated as a geometric mean of the chain-base monthly Consumer Price Indices, from which the comparison base equal to 100 is subtracted.

**Annual average inflation rate** – the increase in consumer prices in one year compared to the previous year. This rate is calculated as a ratio, expressed as a percentage, between the average price index of one year and that of the previous year, from which 100 is subtracted. In their turn, the average price indices of the two years are determined as simple arithmetic means of the monthly indices for each year, calculated against the same base (October 1990=100).

**Annual inflation rate** – the increase in consumer prices in one month of the current year compared to the same month of the previous year. This rate is calculated as a ratio, expressed as a percentage, between the price index of one month of the current year and that of the same month of the previous year, calculated against the same base, from which 100 is subtracted.

## Legal framework

The legal basis for the observation and recording of prices and tariffs includes Law No 226/05.VI.2009 on the organisation and functioning of official statistics in Romania, published in Official Journal No 397/11.VI.2009, Government Decision No 957 of 18.VIII.2005 on the organisation and functioning of the National Institute of Statistics, published in the Official Journal of Romania No 810/07.IX.2005, as subsequently amended, as well as the Government Decision on the Annual National Statistical Programme, which is published annually in the Official Journal.

Regulation (EU) 2016/792 of the European Parliament and of the Council on HICP is the legal framework for determining the Harmonised Indices of Consumer Prices, calculated through methodologies that are comparable at European level, which take into account the national consumption specificities and the variation of prices in each country.

## Coverage

The prices measured are those actually paid by consumers, so they include sales taxes on products, such as the Value Added Tax.

The CPI is calculated based on the elements included in the direct consumption of the population and excludes:

- consumption from own resources, representing the equivalent value of the quantities of products consumed by the population and which come from sources other than purchases (from the stock, from own production, received as gifts etc.);

- investment and accumulation expenditure (the purchase of dwellings, building materials used in the construction of new dwellings or in the carrying out of major repairs on old dwellings), insurance rates, fines, gambling, taxes etc.;
- expenditure relating to payment for work on household production (ploughing, sowing, weeding, work in the garden, orchard and vineyard, harvesting, haymaking, the medical treatment of animals etc.);
- the CPI excludes interest and credit charges, regarding them as financing costs rather than consumption expenditure.

## Data collection

The observation and recording of prices is carried out in the 42 county seats from which 68 survey centres were selected based on the number of inhabitants. The units where prices/tariffs are recorded were selected at local level, from the survey centres, taking into account the volume of sales of goods and services provided. The nomenclature includes approximately 7200 units, which must be maintained as much as possible in order to ensure the continuity of the observation of prices.

## The method of calculating the CPI

The CPI is calculated as a fixed-base Laspeyres-type index. As of January 2017, the fixed-base monthly indices are calculated using the average prices of 2015 (year 2015=100) and the weights of the same year, which are determined on the basis of the average expenditure from the Family Budget Survey.

The general formula for calculating the Laspeyres-type index is:

$$L_{lo} = \sum I_{lo} \left( \frac{p_o q_o}{\sum p_o q_o} \right)$$

$L_{lo}$  = the aggregated index of the current month ( $l$ ) of 2017 against the reference year 2015;

$I_{lo}$  = the indices of the current month against the 2015 average by level of aggregation;

$\frac{p_o q_o}{\sum p_o q_o}$  = the weights relating to the levels of aggregation (the relative importance of the monthly average expenditure per household for 2015).

### ***The calculation of price indices at variety level:***

$$i_{v_i} = \frac{p_l^{v_i}}{\overline{p_o^{v_i}}} \bullet 100$$

$p_l^{v_i}$  = the price of the  $i$  variety recorded in the current month ( $l$ );

$\overline{p_o^{v_i}}$  = the annual average of the prices of the  $i$  variety in 2015.

The price of the  $i$  variety recorded in the current month ( $p_l^{v_i}$ ) is calculated as a simple arithmetic mean from the three decadal recordings, namely:

$$p_l^{v_i} = \frac{p_{l_1}^{v_i} + p_{l_2}^{v_i} + p_{l_3}^{v_i}}{3} \quad \text{or} \quad p_l^{v_i} = p_{l_2}^{v_i}$$

where:

$p_{l_1 \dots l_3}^{v_i}$  = the nominal prices relating to the three decades observed in the current month, for the  $v_i$  variety.

The second formula applies to most assortments of non-food goods and services, for which the collection is only carried out from 10th to 17th of the reference month.

**The calculation of price indices at assortment level**, as a geometric mean of variety indices, according to the formula:

$$I_{I/15}^{S_i} = \sqrt[n]{\prod_{i=1}^n i_{v_i}} \quad n \leq 68$$

n = the number of price/tariff collection centres.

**The calculation of indices at the level of groups of food goods, non-food goods and services**, as a weighted arithmetic mean of indices at the level of expenditure items included in the group, namely:

$$I_{I/15}^{C_i} = \sum I_{I/15}^{P_i} \left( \frac{w_o^{P_i}}{\sum w_o^{P_i}} \right)$$

$I_{I/15}^{C_i}$  = the index of prices at group level in the current month (*I*) against the 2015 average;

$I_{I/15}^{P_i}$  = the index of prices at expenditure item level in the current month (*I*) against the 2015 average;

$w_o^{P_i}$  = the weight of the  $P_i$  expenditure item;

$\sum w_o^{P_i}$  = the weight of the group of goods and services.

### Conceptual differences between the CPI and the HICP

#### ○ The form of presentation of aggregation items

**In the national system**, in order to build the CPI, a nomenclature of goods and services structured on 54 food good items, 112 non-food good items and 50 service items which are significant for the consumption of the Romanian population is used.

**In the European system**, in order to build the HICP, a classification of expenditure according to purpose (COICOP – Classification of Individual Consumption according to Purpose), which regroups the items of the national system, is used. The COICOP ensures the comparability of indices at European level and is structured, in accordance with Regulation (EU) 2016/792, on 12 detailed divisions, 47 groups, classes, sub-classes.

#### ○ The scope and the geographical coverage of the population

The **CPI** uses the “national” principle of consumption, monitoring the consumption expenditure of residents, regardless of whether it is incurred within or outside the country.

The **HICP** measures the changes in the evolution of the prices of goods and services that occurred on Romanian territory. The “domestic” principle is used to build the HICP, taking into account the consumption of all the households on national territory, regardless of nationality, residential or social status, except foreign embassies on Romanian territory.

#### ○ The weighting system

The weights used to calculate the Consumer Price Indices are obtained from the Family Budget Survey and result from the structure of the monthly average expenditure incurred by a household to purchase goods and pay for services necessary for meeting living needs. The structure of the expenditure incurred by the population is yearly analysed and updated. As of January 2017, the CPI is calculated using the weights resulting from the structure of the average expenditure incurred by a household in 2015.

Commission Regulation (EU) No 1114/2010 as regards minimum standards for the quality of **HICP** weightings has entered into force since 2012. For 2017, the implementation of the Regulation means the use of data on household final monetary consumption expenditure from the **national accounts** relating to 2015 and the expenditure from the 2015 **Family Budget Survey** to calculate the weights of the harmonised indices. The weights calculated in this manner are then updated to the prices of December 2016.

## ○ **The reference period of the indices**

For the **CPI**:

- when calculated against the previous month of the same year, the index shows the evolution of prices from one month to another;
- when calculated against the month of December of the previous year, the index shows the evolution of prices from the beginning of the year;
- when calculated against the same month of the previous year, the index shows the evolution of prices, removing the seasonal nature of this evolution.

For the **HICP**:

- the index is calculated and published against the average of the year 2015 (2015=100). This reference period of the index is used for the complete time series of all HICP indices and sub-indices, according to Commission Regulation (EU) 2015/2010. All EU Member States comply with this rule for comparability reasons, regardless of the reference base of national indices and the weighting system used. This means that complementary calculations are performed on the same data in order to obtain an index with the 2015 average as the reference base;
- also for comparability reasons, the weights used by each country to calculate the HICP are expressed in the prices of the month of December of the previous year.

## **Forms of dissemination and data access**

The data are published every month and are not seasonally adjusted. The following indicators result from the processing of the collected data:

- the all-items CPI and the CPI by main groups of (food and non-food) goods and services;
- the monthly average inflation rate;
- the monthly inflation rate;
- the annual inflation rate;
- special aggregations for various internal and International bodies;
- the HICP according to the COICOP structure.

Furthermore, a series of partial indices calculated by excluding certain items from the CPI are published:

- the all-items CPI excluding alcoholic beverages and tobacco;
- the all-items CPI excluding fuels;
- the all-items CPI excluding products whose prices are regulated;
- the all-items CPI excluding vegetables, fruit, eggs, fuels and products whose prices are regulated<sup>1</sup>;
- the all-items CPI excluding vegetables, fruit<sup>2</sup>, eggs, fuels and products whose prices are regulated, beverages and tobacco.

The data on the HICP are published in the Prices Statistical Bulletin.

The indices are disseminated on paper or electronic support, according to the deadlines set out in the Work Programme, namely:

- a press release, 10-12 days after the end of the month concerned;
- the Prices Statistical Bulletin and the Monthly Statistical Bulletin;
- on an annual basis: the Romanian Statistical Yearbook;

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<sup>1</sup> Products whose prices are regulated: medicines, electric energy, natural gas, heat energy, rail transport, water transport, mail and courier, radio-TV subscription, issuance of identity cards, driving licences, passports, water, sewerage, sanitation, urban public transport, rents set by local administration

<sup>2</sup> In order to more accurately meet the need to analyse inflation, as of September 2014, the fruit group includes, besides fresh fruit, citrus and other Southern fruit.

- electronically, on the NIS website (<http://www.insse.ro>);
- electronically, on the Eurostat website (<http://ec.europa.eu/eurostat/web/main>);
- in the TEMPO database – online:  
<http://statistici.insse.ro/shop/index.jsp?page=tempo2&lang=ro&context=40>;
- through the International Co-operation Directorate, to international bodies.