

## 8. PRICES

The price indices are calculated as **sample indices**, i.e. the calculation is based on prices of **selected representatives** (goods and services) monitored in a **sample of reporting units**. The individual price indices for the representatives are aggregated into aggregate indices for groups of representatives, and then further into an aggregate index for the whole set of the representatives. The aggregation is carried out by means of a weighted arithmetic mean of individual indices. Structural indicators of value (production, sales, turnover, purchases, household expenditure, etc.) of respective representatives or a group of representatives are used as constant weights in the calculation. These structural indicators are determined from data of the base ("zero") reference period (e.g. year 2005 and 2010).

Price indices (monthly and quarterly ones) are calculated from prices measured in the reference period set (around the middle of a month for monthly indices, in the 2nd month of a quarter for quarterly indices). Annual indices are calculated as an arithmetic mean of the indices (in the case of agricultural producer prices as a weighted average) for individual months/quarters of the year, related to a selected price base, which is considered to be a constant base for a certain period of time.

The individual producer price indices (except for price indices of construction production) use the Classification of Products (CZ-CPA), which is linked to the Classification of Economic Activities (CZ-NACE). Consumer price indices are derived on the basis of the international Classification of Individual Consumption by Purpose (COICOP) – see the overview of statistical classifications and nomenclatures in force in the introduction to the Yearbook. Export and import price indices are constructed according to the Harmonized Commodity Description and Coding System (a system for classifying goods in international trade) and calculated to comply with the SITC (Standard International Trade Classification published by the UN).

### Notes on Tables

#### Table 8-1. Producer and consumer price indices

##### Agricultural producer price index

Agricultural producer price index is derived monthly from nominal prices of selected products. Agricultural producer prices are measured on 95 basic agricultural products (62 crop products, including fruit and vegetables, and 33 animal products) at about 500 selected agricultural producers. Exercise prices of selected products (classified under the CZ-CPA divisions 01 and 03) dedicated exclusively for the domestic market are measured. The prices are VAT adjusted. Average prices of the observed products are calculated as a simple arithmetic mean of prices of individual producers.

A constant weighting scheme is laid down to calculate individual, group, and aggregate price indices. The scheme is derived from the structure of sales and amounts of agricultural products in respective months of 2005. Average annual indices are calculated using a separate constant weighting scheme compiled on the basis of data on sales of products and amounts (and their aggregates) for 2005 in total. The price base of the indices is average 2005 prices.

##### Agriculture input price index

Since 2002 the AIPI has been calculated in compliance with the Eurostat methodology. This method of calculation is based on a combined price index, comprising of price indices of **"Goods and services consumed in agriculture"** and **"Goods and services contributing to agricultural investments"**.

The price base applied is the average of the year 2005; the weighting scheme corresponds to the structure of agricultural costs in 2005.

##### Forestry (roundwood) price index – only forest owners

The roundwood price index has been calculated every quarter from average (contractual) prices, excluding VAT, of roundwood for domestic market (excluding own consumption and exports).

In 2011, within an extraordinary revision of forestry price indices – owners there was a weighted average for the calculation of average prices introduced for four the most important assortments of roundwood (logs, quality III A/B – spruce; logs, quality III C – spruce; logs, quality III D – spruce; timber, quality V – timber for the pulp production – spruce). Average prices of other sorts are still calculated as a simple arithmetic mean. The index is calculated of 16 coniferous sorts and 12 non-coniferous sorts from 46 reporting units. The base period is Q1 2011. Time series published prior 2011 cannot be compared in full.

Methodological notes on the aforementioned changes are available at the web page: [www.czso.cz/csu/2012edicniplan.nsf/p/7007-12](http://www.czso.cz/csu/2012edicniplan.nsf/p/7007-12) (Czech only).

##### Industrial producer price index

Industrial producer prices are collected monthly based on the data from selected organizations (approximately 1 100) on selected representatives (approximately 4 600). Reported prices are prices agreed upon between the supplier and consumer residing in the Czech Republic (excluding VAT, excise duty, costs

of transport to the customer, and this transport related costs) and invoiced for rather important business deals. The prices are measured between the 1st and 18th calendar day of the reference month.

The industrial producer price index is calculated from reported prices applying constant weights. The index measures the average price development of all industrial products manufactured and sold on the domestic market in the Czech Republic. Industrial products are products manufactured by activities classified under the CZ-NACE divisions B to E.

In the course of 2011 a standard complete revision of industrial producer price indices was carried out. Since January 2012, on the basis thereof, price indices have been calculated applying new weights for 2010.

Price indices beginning the four-digit level of the CZ-CPA upward have been chained to the current bases of the average of 2005 = 100 and December 2005 = 100, which provides for continuation of the current time series of the indices. Detailed information on the revision of the industrial price indices can be found at the CZSO webpages at: [www.czso.cz/eng/redakce.nsf/i/revision\\_of\\_industrial\\_producer\\_price\\_indices](http://www.czso.cz/eng/redakce.nsf/i/revision_of_industrial_producer_price_indices).

### **Price indices of constructions by the CZ-CC**

The price index of constructions is calculated quarterly from price indices of construction works calculated from prices collected in national statistical questionnaires.

In 2011 an extraordinary revision of price indices of construction production was carried out. Since 2012 price indices published are to be calculated on the basis of new index schemes, which are based on the average production structure of the construction production in the period 2007 to 2010. The reference period of the time series published is the year 2005 and the base price level is the average for 2005. Time series of price indices cannot be aggregated anymore by means of weights because of a chaining method applied.

In 2012 the questionnaire included 141 price representatives. The reporting network was established by purposive sampling of about 720 respondents of all size classes and different legal forms, plus some assembly-specialised enterprises providing air conditioning, lifts, and steel structures (CZ-NACE divisions 25, 28, 33, 41, 42, 43, and 80).

The quarterly reported prices (implemented in the second month of the given quarter on the territory of the CR) are prices agreed in between the supplier and the customer for a unit of construction works carried out by own staff of the reporting unit, working company owners, persons working on agreements on work, and collaborating self-employed persons without employees. In addition to material necessary for the work being performed, they include all other costs needed to perform the activities under survey, excluding costs of site equipment and VAT.

The Classification of Types of Constructions (CZ-CC) is used to classify prices of constructions.

### **Construction cost index**

The construction cost index is calculated quarterly and falls into the group of secondary statistics, which do not have their own questionnaire based survey. The quarterly calculation reflects the price development in direct and indirect costs of construction works. The direct costs include, first of all, prices of materials, machinery, and energies, development of which is taken from the industrial producer price statistics. The source of information on wage expenses is the survey of wages and salaries in the construction production and price statistics. The direct costs also include transport costs, development of which is monitored by the market services price statistics. The indirect costs are production and administration overhead costs. Their development is derived from the price and production indices of construction.

### **Price index of market services**

Since January 2009 market services price indices have been constructed, calculated, and published according to the CZ-CPA.

The aggregate price index of market services is calculated in relation to other price indices. It includes the following price indices of market services in the business sphere (i.e. services provided mutually among enterprises): freight transport, storage and cargo handling, postal and courier services, telecommunication services, programming and consultancy services, information services, financial and insurance services, real estate services, legal and accounting services, architectural and engineering services, advertising and market research services, other professional, scientific, and technical services, rental services, employment agency services, security and investigation services, services of building and landscape management, administrative services, and other support services.

Prices of market services, which are aggregated into the aggregate price index, include selected services listed in the following CZ-CPA divisions: 49, 50, 51, 52, 53, 61, 62, 63, 64, 65, 68, 69, 71, 73, 74, 77, 78, 80, 81, and 82. The surveys are carried out by means of state statistical questionnaires at approximately 550 selected reporting units providing market services mainly to the business sphere.

A constant weighting scheme is laid down to calculate individual, group, and aggregate price indices. It is derived from the structure of sales in 2005. The price base is average 2005 prices.

The constant weight of the aggregate index is the sum of the weights for individual services areas in 2005.

## **Export and import price index**

This index has been compiled for the Czech Republic since 1993. The weighting scheme now includes about 2 050 representatives for exports and 2 100 representatives for imports, which significantly contribute to the volume of the implementation of individual significant groups of external trade. The price base is average 2005 prices. Export and import price indices for the period from January 2005 to December 2006 were recalculated during the 2006 revision; the originally published indices for 2005 and 2006 are now invalid.

The prices are measured monthly at approximately 580 and approximately 590 reporting units engaged in exports and imports, respectively. The export prices measured are free-at-frontier prices (free to the Czech Republic frontiers); the import prices are prices invoiced by the foreign supplier. If a price representative is traded in several countries, the reporting units give average prices as a weighted arithmetic mean of prices obtained in significant commercial transactions (weighted by the quantity of products in physical units). The prices are converted into CZK by means of the relevant monthly exchange rate of the Czech National Bank and are measured free of customs duty, VAT, and excise duty.

## **Consumer price index**

Trends in consumer prices are measured on consumer baskets based on a set of selected kinds of goods and services paid for by the population. Consumer baskets are described in detail in the document "Consumer price indices, revision 2010" which is available at the CZSO web page at:

[www.czso.cz/eng/redakce.nsf/i/consumer\\_price\\_indices\\_revision\\_2010](http://www.czso.cz/eng/redakce.nsf/i/consumer_price_indices_revision_2010).

The consumer basket includes about 700 concrete products and services (representatives) according to the national classification of the CZ-COICOP based on the international Classification of Individual Consumption by Purpose (COICOP). The base reference period weights for the calculation of group and aggregate indices are derived from the structure of household expenditure derived from 2010 household budget statistics.

The basic price base is average prices of December 2011. Since 2010 the price index base has been the year 2005.

Consumer prices are measured once a month by employees of the Czech Statistical Office in the reporting network of selected stores and other outlets (about 8 500) in selected districts (LAU 1) of the Czech Republic and in the Capital City of Prague.

### **Table 8-2. Price indices of selected types of real estate**

The source of data is real estate transfer tax returns administered by internal revenue authorities. The price index is the ratio of two average unit-purchasing prices (family houses in CZK/m<sup>3</sup>, building lots in CZK/m<sup>2</sup>) for two different time periods. Table shows the types of real estates, for which sufficient price information is available in the source database.

The year 2005 was selected as the base period for the index construction. In 2008 a revision of real estate price indices was carried out, within which a new, more realistic weighting scheme was developed for all surveyed types of real estate. The weights of building lots are based on relative shares of sums of absolute assessed values of real estate under given categories for the years 2004–2006 (for weights to be more robust). There is a compromise for the weights of family houses – they are a combination of outputs from the sums of absolute assessed values and data from the Census on the number of family houses.

### **Table 8-3. Selected industrial producer price indices**

The table presents selected groups as defined by the third level of the CZ-CPA. In some cases, divisions defined by the second level of the CZ-CPA are shown as well.

### **Table 8-4. Selected price indices of market services**

Selected items of the third level of the CZ-CPA (groups) are given here, and in certain cases items in even more detailed classification (classes, categories, and sub-categories) are shown.

### **Table 8-5. Prices of selected agricultural products**

The current system of statistical surveying has been in use since 1991. The prices are measured in the network of selected agricultural producers. The prices determined are mostly nominal prices of selected agricultural products related to main (specified) quality grades. Prices of vegetables and fruit refer to top quality only. The reported price is a simple arithmetic mean of prices of individual significant contracts, which were implemented around the middle of the reference month.

### **Table 8-6. Roundwood prices of selected assortments (only for forest owners)**

Average prices of selected roundwood products (assortments) derived from figures reported in quarterly price surveys. Since 2007 the sample of representatives has been changed. Till the end of 2010 the prices were calculated as a simple arithmetic mean of prices of individual contracts implemented in the whole period of the reference quarter.

Since 2011 a weighting average has been introduced for logs, quality III A/B – spruce and timber, quality V – spruce. Average prices of other assortments mentioned are still calculated as a simple arithmetic average. The time series published before 2011 are not comparable in full.

**Table 8-7. Consumer prices of selected goods and services**

Consumer prices of selected price representatives are nation-wide average consumer prices related to December of a given year, which are, in nature, average values of individual varieties of the respective representative. Their arrangement in Table is based on the revised consumer basket structure that has been in force since 2012.

**Table 8-8. Consumer price indices of goods and services**

The group indices of consumer prices are broken down as defined by the level 3 of the CZ-COICOP.

**Table 8-9. Consumer price indices of goods and services for the total population of households and for households of pensioners in 2012**

The consumer price indices refer to the twelve CZ-COICOP divisions for total households and for households of pensioners.

**Table 8-10. Harmonized index of consumer prices (HICP)**

Harmonized indices of consumer prices (HICPs) were formed in the EU in response to the need to establish comparable indices of consumer prices, so that inflation trends in the EU Member States, to be used as a criterion for the accession to the European Monetary Union, could be measured.

There are certain differences between the structure of the consumer basket for the national index of consumer prices of the Czech Republic and the structure of the consumer basket for the HICP. The HICP weights include revenues from purchases executed by foreigners in the Czech Republic, but do not include the imputed rent, on the contrary to the national index of consumer prices, which does not include revenues from purchases by foreigners yet includes the imputed rent.

The HICP uses chain weights, which are altered in December every year. National accounts data (final monetary consumption of households) are the source for updates. Average of the year 2005 is used as the index price base.

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More detailed information on producer price indices, consumer price indices, external trade price indices, and prices of real estate is available in other CZSO publications issued in accordance with the Catalogue of Products 2013 in the thematic group ECONOMY, subgroup Prices, inflation:

- 7001-13 "Price Indices of Construction Works, Price Indices of Constructions, and Indices of Construction Costs" (Czech-English) – February 2014
- 7004-13 "Industrial Producer Price Indices" (Czech-English) – January 2014
- 7005-13 "Agricultural Producer Prices Indices" (Czech only) – January 2014
- 7008-13 "Market Services Price Indices in the Business Sphere" (Czech-English) – January 2014
- 7009-13 "Prices of Observed Types of Real Estate" (Czech only) – December 2013
- 7103-13 "Consumer Price Indices (Cost of Living) – Detailed Breakdown" (Czech-English) – January 2014
- 7201-13 "Export and Import Price Indices in the Czech Republic" (Czech-English) – February 2014

Further data can be found on a webpage of the Czech Statistical Office at:

- [www.czso.cz/eng/redakce.nsf/i/prices\\_inflation](http://www.czso.cz/eng/redakce.nsf/i/prices_inflation)