

8. PRICES

The price indices are calculated as **sample indices**, i.e. the calculation thereof is based on prices of **selected representatives** (of 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 all 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, 2010 and 2015).

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 use the national version called the Classification of Products (CZ-CPA) of the Statistical Classification of Products by Activity in the European Union, Version 2.1 (CPA Ver. 2.1), which is linked to the national version Classification of Economic Activities (CZ-NACE) of the Statistical Classification of Economic Activities in the European Community, Rev. 2 (NACE Rev. 2). The national version of the international Classification of Types of Constructions (CZ-CC) is used for price indices of construction production. Consumer price indices are derived on the basis of the European Classification of Individual Consumption by Purpose (ECOICOP) – see https://ec.europa.eu/eurostat/ramon/nomenclatures/index.cfm?TargetUrl=LST_NOM_DTL&StrNom=COICOP_5&StrLanguageCode=EN&IntPckKey=&StrLayoutCode=HIERARCHIC. 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 are further recalculated to comply with the breakdown of the Standard International Trade Classification, Rev. 4 (SITC, Rev. 4).

Notes on Tables

Table 8-1 Annual averages of producer and consumer price indices

Agricultural producer price index

Agricultural producer prices are measured monthly by means of the statistical questionnaire on agricultural producer prices at approximately 500 selected agricultural producers (cooperatives, private farms, and state organisations). Prices are adjusted to be free of VAT. The survey measures trade contractual prices (excluding own consumption) for domestic as well as foreign markets, excluding freight costs related to the transport to the purchaser.

In the course of 2017, the agricultural producer price index underwent a standard comprehensive revision. Since January 2018, the agricultural producer price indices have been calculated based on weighting schemes derived from the average revenues in 2014, 2015, and 2016. The price base applied is the average of the year 2015.

Weights of seasonal and non-seasonal agricultural commodities differ in various months of the year and therefore the index calculation employed a two-dimensional weighting scheme as a matrix. One dimension is for vertical aggregation from the level of representatives upward to the highest level. The second dimension is for twelve months of the year. Then the sum of weights of the highest aggregation for each month of the year is equal to the nominal sum of 1 000. Variable monthly weights have been used for the calculation of agricultural producer price indices.

Agricultural input price index

The agricultural input price index (AIPI) for goods and services is 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 2015; the weighting scheme corresponds to the structure of agricultural costs in the same year.

Forestry (roundwood) price index – only forest owners

The roundwood price index, can be also found as the raw timber price index, has been calculated quarterly from average strike (contractual) prices, excluding VAT, reached in individual quarters of the surveyed year. Reported strike prices are for deliveries of roundwood (raw timber) for the domestic market (excluding own consumption and exports).

In 2011, within an occasional revision of the forestry (roundwood) price index – owners, a weighted average for the calculation of average prices was introduced for four 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 11 non-coniferous sorts.

In the course of the year 2016, a standard comprehensive revision of the calculation methodology of roundwood price indices was carried out. The index base and price base applied is the 4th quarter of 2016. Within the revision, a new weighting scheme was set for the assortments of roundwood according to the respondents-reported overview of the annual revenues on the separate questionnaires for 2013, 2014, and 2015. Price indices according to the new structure are published since the 1st quarter of 2017.

Industrial producer price index

Industrial producer prices are surveyed monthly based on the data from selected organizations (approximately 1 200 on selected representatives (approximately 5 000). Reported prices are prices agreed upon between a supplier and a customer residing in the Czech Republic (excluding VAT, excise duty, costs of transport to the customer, and the transport-related costs) and invoiced for rather important business deals. The prices are measured between the 1st and 20th 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 sections B to E.

In 2016, a standard comprehensive revision of industrial producer price indices was carried out. From January 2017, on the basis thereof, price indices have been calculated applying weights for 2015. The weights were set based on the structure of domestic sales (revenues) of industrial producers for the year 2015.

Now the indices have the price base of December 2015 = 100. Price indices beginning from the four-digit level of the CZ-CPA upwards are chained to the new index base of the average of 2015 = 100 and to the current base of the average of 2005 = 100, ensuring thus continuation of the current time series of the indices. Information on the revision of the industrial price indices can be found at the CZSO website at: www.czso.cz/csu/czso/revisions_producer_prices.

Price index of constructions

Price indices of constructions are calculated quarterly from price indices of construction works calculated from prices reported in statistical questionnaires (reports).

In 2017, an occasional revision of price indices of construction production was carried out. Since 2018, price indices are published that are calculated on the basis of index schemes, which are based on the average production structure of the construction production from 2011 to 2016. The year 2015 is the base period of the time series published and the average for 2015 is the base price level. Because of the applied chaining method, published time series of price indices cannot be aggregated by means of weights anymore.

In 2019, the questionnaire included 136 price representatives. The network of reporting units was established by purposive sampling of about 600 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 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.

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 survey of wages and salaries in the construction production and price statistics is the source of information on wage expenses (labour costs). 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 for construction.

Services producer price index

The services producer price index (SPPI) is a business-cycle indicator measuring the gross change in the trading price of a number of services produced and provided for intermediate consumption. It serves for monitoring of price movements and to measure inflation pressure on the services market. The index objective is to measure the average monthly changes in prices of selected market services dedicated mostly to the business sphere on the domestic market. The prices monitored are the contractual prices, or catalogue ones, respectively, adjusted to be free of VAT.

The aggregate services producer price index comprises partial price indices of selected services by the Classification of Products in the following divisions 49, 50, 52, 53, 58, 61, 62, 63, 64, 65, 68, 69, 70, 71, 73, 74, 77, 78, 80, 81, 82. They are price indices of the following market services: land transport services and transport services via pipelines, water transport services, warehousing and support services for transportation, postal and courier services, publishing services, telecommunications services, computer programming, consultancy and related services, information services, financial services, except insurance and pension funding, insurance, reinsurance and pension funding services, except compulsory social security, real estate services, legal and accounting services, services of head offices; management consulting services, architectural and engineering services; technical testing and analysis services, advertising and market research services, other professional, scientific, and technical services, rental and leasing services, employment services, security and investigation services, services to buildings and landscape, office administrative, office support and other business support services.

Since January 2018, base indices of market services prices have been calculated with a new index base, i.e. the average for 2015 = 100 and using new weights based on the sales structure in 2015. The time series of base indices with the price base of the average for 2005 = 100 was terminated as at December 2017 and replaced by the time series with the price base of the average for 2015 = 100. The indices, that have been published so far, were not revised.

Export and import price indices

These indices have been compiled for the Czech Republic since 1993. At present, the weighting scheme includes selected price representatives of which approximately 2 510 are exported products, raw materials, and supplies and 2 870 are imported ones; they contribute in an important way to the value of trade in rather significant groups of commodities traded in international trade, both exports and imports.

Average prices for 2015 are the price base of the indices. In 2017, a standard revision of the calculation of international trade price indices was carried out. Since the reference period of January 2018, export and import price indices have been calculated using a new weighting scheme based upon international trade in goods (change of ownership) structure of 2015 and with the price base of the average of 2015 = 100.

The existing time series of the indices based on the average for 2005 = 100 was recalculated to the price base of the average of 2015 = 100. The newly calculated indices are since January 2018 chained to the aforementioned time series of the indices in order to provide for continuation of the time series. The chaining period is December 2017.

The prices are measured monthly at approximately 600 selected reporting units engaged in exports and at about 630 reporting units active in imports. For exports, the prices measured are FOB prices at borders of the Czech Republic and for imports, these are the prices invoiced by external suppliers. 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 average monthly exchange rate of the Czech National Bank and are measured free of customs duty, VAT, and excise duty.

Consumer price index of goods and services

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 "Inflation, inflation rate – methodology" which is available at the CZSO website at: www.czso.cz/csu/czso/what_is_it_inflation_resp_inflation_rate.

The consumer basket includes about 700 concrete products and services (representatives) according to the European Classification of Individual Consumption by Purpose (ECOICOP) 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 2016 household budget statistics.

The average prices from December 2017 are prices of the base period. Since 2017, the year 2015 has been the base for the price index.

Consumer prices are measured once a month by employees of the Czech Statistical Office in a network of selected reporting 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 for selected types of real estate

Real estate acquisition tax returns from a database of fiscal authorities (internal revenue authorities) are the source of data. The price index is the ratio of two average unit-purchasing prices (for multi-dwelling buildings and family houses in CZK/m³; for dwellings and building plots in CZK/m²) 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 2010 (whole year period) was selected as the base period for the index construction. In 2013, a revision of real estate price indices was carried out, within which a new, more realistic weighting schemes were

developed for all surveyed types of real estate. The weights of building plots and multi-dwelling buildings are based on relative shares of sums of estimated prices (appraisal values) of real estates under given categories for the years 2009–2011 (for weights to be more robust). The weights of dwellings and family houses are made as a combination of outputs from the sums of estimated prices (appraisal values) and data from the Population and Housing Census on the numbers of dwellings and of family houses. Weights of dwellings and of family houses for regions are taken as relative ratios of real transaction volumes.

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.

Table 8-4 Selected price indices for 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 by 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 are shown. Until the end of 2010, the prices were calculated as a simple arithmetic mean of prices of individual business cases (transactions) implemented in the whole period of the reference quarter.

In 2011, a weighting average was 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 mean. The time series published before 2011 are not fully comparable.

Table 8-7 Consumer prices of selected goods and services

Consumer prices of selected price representatives are average consumer prices for the Czech Republic in 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 2018.

Table 8-8 Consumer price indices for goods and services

The group indices for consumer prices are broken down as defined by the level 3 of the ECOICOP.

Table 8-9 Consumer price indices of goods and services for the total population of households and for households of pensioners in 2019

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

Table 8-10 Harmonized indices of consumer prices

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 could be measured to be used as a criterion for the accession to the European Monetary Union..

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 rental, on the contrary to the national index of consumer prices, which does not include revenues from purchases by foreigners yet includes the imputed rental.

The HICP uses chain weights, which are modified in December of each year. National accounts data (final monetary consumption of households) are the source for updates. Average of the year 2015 is used as the price index base.

Indices are given within 12 divisions of the ECOICOP.

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Further information can be found on the website of the Czech Statistical Office at:

– www.czso.cz/csu/czso/inflation_consumer_prices_ekon