REPUBLIC OF SLOVENIA
STATISTICAL OFFICE

METHODOLOGICAL EXPLANATION

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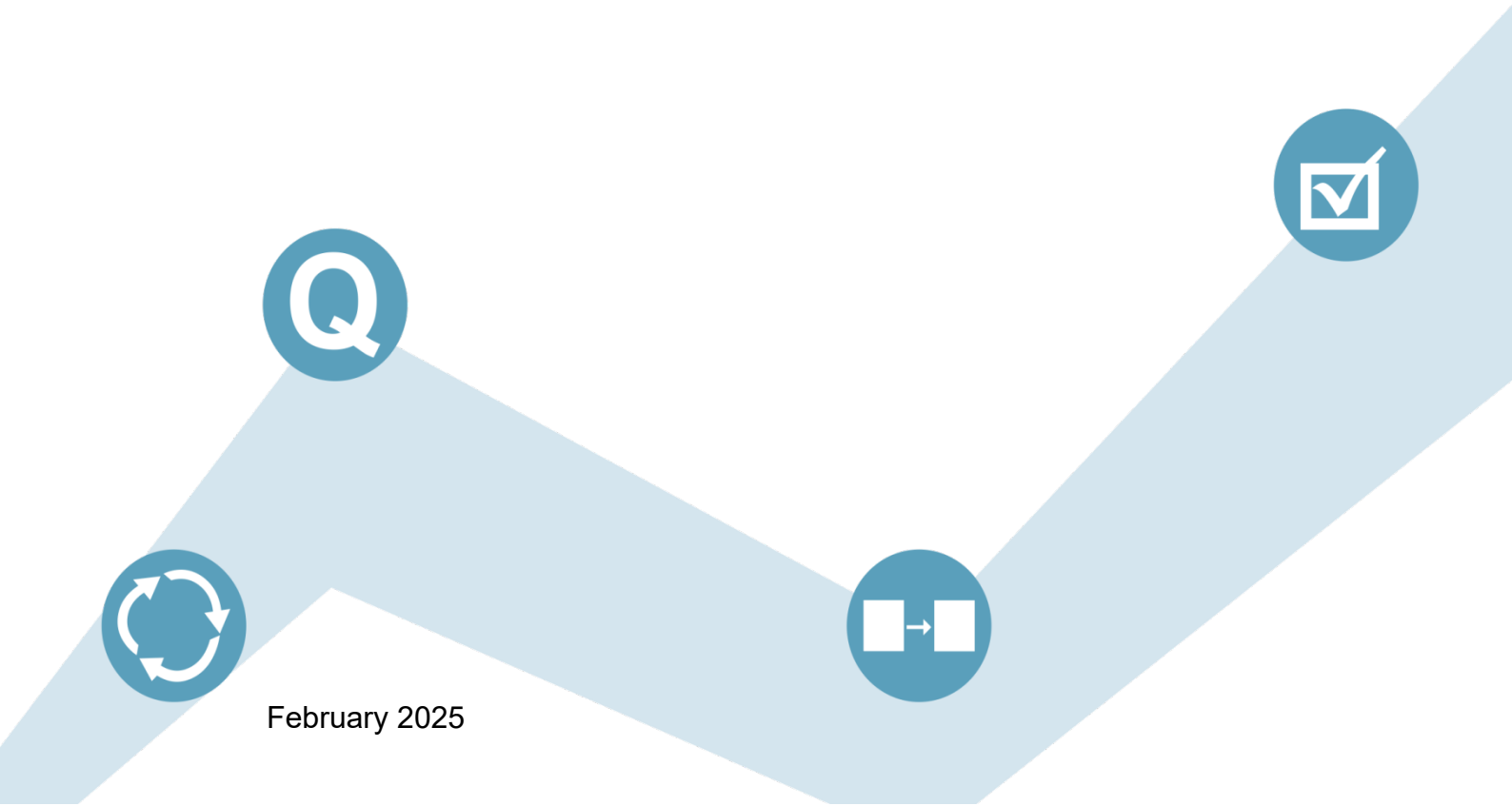
CONSUMER PRICE INDICES AND AVERAGE RETAIL PRICES

This methodological explanation relates to the data releases:

- Consumer price indices, monthly (First Release)
- Consumer price indices, detailed data, monthly (Electronic Release)
- Base interest rate, monthly (First Release)



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Content

1 PURPOSE

The purpose of publishing the data on consumer price indices is to present monthly trends in the prices of goods and services.

The purpose of publishing the data on average retail prices of goods and services is to present the absolute level of the prices of selected goods and services most commonly bought by the resident population.

The main published statistics are:

- consumer price indices - inflation measure (CPI) by ECOICOP classification,
- harmonised indices of consumer prices (HICP) by ECOICOP classification,
- harmonized index of consumer prices at constant tax rates (HICP-CT) by ECOICOP classification,
- average retail prices of goods and services,
- base interest rate.

2 LEGAL FRAMEWORK

- Annual Programme of Statistical Surveys (LPSR) (only in Slovene)
- National Statistics Act (OJ RS, No. 45/95 and 9/01)
- Regulation (EC) 2016/792 of the European Parliament and of the Council of 11 May 2016 on harmonised indices of consumer prices and the house price index, and repealing Council Regulation (EC) No 2494/95(CELEX: 32016R0792)
- Commission implementing regulation (EU) 2020/1148 of 31 July 2020 laying down the methodological and technical specifications in accordance with Regulation (EU)2016/792 (CELEX: 32020R1148)

3 UNIT DESCRIBED BY THE PUBLISHED DATA

Units described by the published data are representative products (goods and services) or elementary aggregates (EA).

4 SELECTION OF OBSERVATION UNIT

Selected goods and services represent the most important share in the total consumption of an average consumer. Their price movement also best reflects the price movement for similar goods or services. These goods and services represent the so-called "basket" of goods, which contains representative products that are according to their characteristics and descriptions divided into

four groups: food products, non-food products, catering services and other services.

Units selected for the survey base on the threshold that determines which representative products will be included in the survey in an individual year. The basket comprises goods and services whose share in the total consumption of the households exceeds 0.1% and whose prices best reflect changes in the prices of similar products and the general price change.

A collection point is a business entity where goods and services are sold to potential customers. It can be a store, a market place, a crafts workshop, a service organisation, a retailer's website, etc. Business entities where the prices are collected are selected due to their market share and turnover by activities.

In each town on average five prices per non-food product or service are collected, which is about 11,000 prices per month.

For products from divisions 01 (Food and non-alcoholic beverages) and 02 (Alcoholic beverages and tobacco) by ECOICOP classification, we use prices from supermarket scanner data. Monthly around 70,000 prices are used for the price index calculation.

For products in the field of computer equipment, we use prices that we obtain with web scrapping. Monthly around 25,000 prices are used for the price index calculation.

The table below shows the number of elementary aggregates included into the survey annually.

Table 1: Number of elementary aggregates by year

Year	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
No. of EAs	711	717	725	744	749	761	768	780	781	785

5 SOURCES AND METHODS OF DATA COLLECTION

Data are collected monthly. In 2018, we introduced a new methodology for computing inflation, where the price movements of food, beverages and tobacco are shown through the Consumer Price Index (CPI) and the Harmonised Index of Consumer Prices (HICP) exclusively from the scanner data (retailer's transaction data). In other ECOICOP groups (from division 03 to 12), we collect prices in the field (traditional price collection) and for some non-food products we also use the supermarket scanner data (imitating the traditional collection). For the latter, the methodology for computing indices remained the same and the system of representatives remained unchanged.

More on changes in computing inflation in 2018 can be found here.

Classic price collection

Prices of the representative non-food goods and services (divisions 03–12 by ECOICOP classification) are collected by price collectors in Koper, Ljubljana, Maribor and Novo mesto. Some prices are also collected in other places in Slovenia, mostly by phone and via the Internet and from other databases of individual sellers of goods and services. The total number of collection points is around 1,350.

For organising the time for collecting prices in individual months, products are classified into the following groups:

- non-food products (between 1st and 15th of the month),
- services (between 1st and 25th of the month),
- fuels (between 1st and 25th of the month).

Price collectors report the prices of products for the current month not later than by the 26th of the current month.

During the coronavirus (COVID-19) epidemic, retail prices of non-food goods and services were collected to a greater extent by phone and through the websites of providers. Higher quality of the indices was ensured by using scanner data.

Data from retailers' databases (scanner data)

The source of prices for food, beverages and tobacco from divisions 01 and 02 by ECOICOP are databases of biggest retailers on the Slovene market, which cover 84% of the market share of sales for food and non-alcoholic beverages and almost 81% of the market share of sales for alcoholic beverages and tobacco. SURS receives data from the biggest retailers weekly. Data of the first two whole weeks (ranging from Monday to Sunday) are used for index computation.

Web scraping

Prices of computer equipment are collected by using web scraping programs, which automatically download data from websites that are providing computer equipment.

In 2023, we changed the methodology for calculating indices for some elementary aggregates from ECOICOP classes 09.1.3.1 and 09.1.3.2. For the mentioned elementary aggregates in the field of computer equipment, we slightly changed the collection methodology (instead of targeted scraping, we introduced mass web scraping), we automated the classification according to the ECOICOP classification and introduced classification into homogeneous groups of products, which are the basis for calculating chain-type indices.

Data for the survey are not obtained from administrative sources.

6 DEFINITIONS

Consumer Price Index (CPI) is a measure of inflation in Slovenia. It measures changes in retail prices of goods and services from the point of view of expenditure intended by the domestic population for final consumption at home and abroad (national concept). Due to large methodological similarities, the CPI in Slovenia practically does not differ from the HICP.

Harmonised Index of Consumer Prices (HICP) is the european inflation measure and it measures changes in retail prices of goods and services from the point of view of the expenditure intended by consumers (domestic and foreign) for final consumption in the territory of Slovenia (domestic concept). It is the comparable index of consumer prices produced by each EU Member State and used for international comparison of consumer price inflation.

Harmonised Index of Consumer Prices at Constant Tax Rates (HICP-CT) is the index with constant tax rates from the base period to the observed period. It measures changes in consumer prices without the effect of changes in tax rates and excise duties on products in the observed period. If tax rates change, the impact of changes reflects in the difference between the HICP and the HICP-CT. Considering that tax rates are introduced at the same time and in full, the implicit contribution of tax rates to inflation is seen.

COICOP/HICP (*Classification of Individual Consumption by Purpose / Harmonised Index of Consumer Prices*) is a classification of products by purpose classified into 12 main groups (divisions) adapted to the needs of the harmonised index of consumer prices.

ECOICOP (*European Classification of Individual Consumption According to Purpose*) is a classification of products by purpose classified into 12 main divisions and associated groups, classes and sub-classes. It is used in data from January 2017 on (Regulation (EU) 2016/792 of the European Parliament and of the Council).

Retail price is the final selling price that customers pay to purchase a product or a service. It includes the prescribed tax as well as all other duties.

Data from retailers' databases (scanner data) are obtained from retailers. It is the data collected through point-of-sales terminals in shops. They contain a GTIN, product description, turnover and quantity information in a known period.

GTIN code is a *Global Trade Item Number*.

List of goods and services (“basket”) is a detailed list of elementary aggregates, together with their descriptions and units of measure, for which prices are collected.

Interest rate is the price of money. It describes how many percent of the principal borrowed for one year is the interest. It is usually fixed for a period of one year.

Base interest rate is the annual interest rate to maintain the value of financial liabilities and obligations in domestic currency and ensures the preservation of the real value of financial liabilities.

Current month is the month to which the data relate.

Weights are shares of consumption of individual goods or services in the total consumption and are intended for measuring the impact of the change in the price of individual goods or services in the total change of the index.

Weight reference (base) period is the period, usually the selected year, to which the estimated values of consumption, used for calculating weights, refer.

Price reference (base) period is the period, the prices of which are in the index calculation compared to the prices of the current period. In our case the price base period is December of the previous year (since 1994).

Index reference (base) period is the period, usually the selected year, in which the index base is set to 100.

Non-durable goods are products with very short durability, usually up to one year (e.g. food, beverages).

Semi-durable goods are products with durability of about one year. They must not be very valuable (e.g. clothing and footwear).

Durable goods are products with long durability. At the same time they can be quite valuable (e.g. furniture, means of transport).

Seasonal products are goods and services that are available for purchase in some period of the year but are not available for purchase, or are purchased in small or negligible volumes, for certain periods in a typical annual cyclical pattern. Seasonal products include fresh fruits, fresh vegetables, women and men garments, footwear, heaters and air conditioners, equipment for sport, recreational and sporting services (participation) and package holidays.

Fuels and energy is one of the special groups which is composed of items for heating and lightning (045 Electricity, gas and other fuels) and motor fuels (0722 Fuels and lubricants).

7 EXPLANATIONS

7.1 CLASSIFICATIONS

Between 1997 and 2016, we were using the Classification of Individual Consumption by Purpose (COICOP/HICP) for classifying products and calculating consumer price indices. In 2000, the classification was harmonised with the final version of COICOP, which was adopted in 1999.

Since January 2017, we have been using the ECOICOP - European Classification of Individual Consumption according to Purpose for classifying products and calculating consumer price indices.

According to the mentioned classification ECOICOP for the purpose of calculating and publishing indices, we classify products into 5 levels:

- **Total**
- **Division** (e.g. **01** Food and non-alcoholic beverages),
- **Group** (e.g. **1** Food),
- **Class** (e.g. **1** Bread and cereals) and
- **Sub-class** (e.g. **1.1** Rice).

Since January 2017, consumer price indices are published to the level of the sub-class (5-digit level), except in cases when the weight is less than 0.1% (flagged with … as not available). The time series is calculated from 2000 on. Due to some differences in the classification of products into groups according to COICOP and ECOICOP, for the 2000–2016 period minor differences in the calculated indices for groups and classes may occur.

Since 2000, we have been calculating indices also for the following special groups:

- goods,
- non-durable goods,
- semi-durable goods,
- durable goods,
- services,
- fuel and energy (electricity, gas and other fuels and fuels and lubricants for personal transport equipment),
- total without alcoholic beverages and tobacco,
- seasonal products, and
- total without seasonal products.

Since 2001 also for these special groups:

- food, beverages and tobacco (food and non-alcoholic beverages, and alcoholic beverages and tobacco),
- total without food, beverages and tobacco (total without food and non-alcoholic beverages, and alcoholic beverages and tobacco) and
- total without fuels and energy (total without electricity, gas and other fuels and fuels and lubricants for personal transport equipment).

In 2009, we added another three special groups:

- total without food and energy (total without food and non-alcoholic beverages, electricity, gas and other fuels, and fuels and lubricants for personal transport equipment),
- actual rentals for housing and services for maintenance and repair of the dwelling, and

- services without actual rentals for housing and services for maintenance and repair of the dwelling.

7.2 DATA PROCESSING

DATA EDITING

Data are statistically edited with the combination of systemic corrections and imputation procedures. For the imputation the logical imputation methods are used.

For more, see the general methodological explanations Statistical data editing.

During the coronavirus (COVID-19) epidemic, some prices could not be collected or services were not provided. In such cases, prices were compiled in accordance with Eurostat recommendations. So in some subgroups the published indices are less reliable than usual. For products that are still available in the market, the missing prices were imputed by using the price changes of similar products or of the nearest higher aggregate. For products and services that are no longer transacted, the missing prices were imputed with all reliable price indices. In some cases, where there are reasons to expect that the prices will be the same once the situation will revert back to normal, the carry forward method was used. For series with seasonal patterns (flights, accommodation services, package holidays), imputation with monthly change of the previous year was used.

Table 2: Share of imputed prices during the coronavirus epidemic

Month	CPI	HICP
April 2020	18.3%	22.7%
May 2020	5.6%	4.6%
June 2020	2.6%	1.4%
November 2020	10.3%	11.3%
December 2020	9.8%	10.6%
January 2021	8.6%	6.7%
February 2021	4.9%	2.7%
March 2021	4.7%	2.2%
April 2021	5.2%	3.0%
May 2021	0.3%	0.3%

A detailed overview of the subgroups where the indices are less reliable and what method was used can be found here.

For the mentioned reasons, in some subgroups the published indices are less reliable than usual. The Statistical Office of the Republic of Slovenia draws attention to less precise estimates by flagging them with a special sign.

If the table contains estimated indices, publishing limitations are determined by the number of actually collected prices during the coronavirus (COVID-19) epidemic. In such cases it holds:

- when the share of collected prices is more than 50%, the estimate is of acceptable precision and therefore published without limitations;
- when the share of collected prices is less than 50%, the estimate is less precise and is flagged for caution with letter M.

WEIGHTING

With weighting adjustment we want to achieve representatives of the sample, so that the weighted data give us as good population estimates as possible in a given period.

Weighting for the CPI is based on the data from the Household Budget Survey (HBS). These data are supplemented and verified with other statistical and non-statistical sources. Weights are changed every year.

Weights for 2025 are based on average allocated assets from the HBS for 2022 recalculated to prices of December 2024. Weights for 2024 are based on the final data for 2023 and recalculated to the difference between the average of 2023 and December 2024, which is also the price reference period.

Elementary aggregates from ECOICOP divisions 01 and 02 are weighted according to retailers' turnover in the previous year.

SEASONAL ADJUSTMENT

Seasonal adjustment is not applicable.

7.3 INDICES

The CPI has been the official inflation rate in Slovenia since 1998. It is used for indexation of wages and other social transfers to the growth in prices in Slovenia. Previously, this function was performed by the retail price index.

The HICP is used to compare inflation rates across the EU. It is also used as the official rate of the European Central Bank (ECB) to ensure price stability in the Economic and Monetary Union (EMU). Slovenia has been calculating it since 2001.

Traditionally collected data

After all prices are collected in a particular month, we calculate average prices and indices.

The average price for each individual non-food product or service in the locality is calculated from prices collected in all places of observation in that locality with geometric mean.

The average national price of each non-food product or service is calculated with weighted arithmetic mean from previously calculated average prices in the locality.

From average national prices in each current and base month (December of the previous year) we calculate *individual index* for each elementary aggregate.

Data from retailers' databases (scanner data)

An average unit value price for an item at a GTIN code per individual retailer is calculated by dividing the turnover per item by quantities sold per item.

From unit value prices at a GTIN code, which compose an EA, we calculate a geometric mean of price relatives per individual retailer. Monthly price of an item is compared to the price of that same item in a previous month at a GTIN code. We use the unweighted Jevons formula:

For every EA per retailer we calculate a chain-linked index. From the monthly chain-linked EA indices per individual retailer, we calculate an *individual index* per elementary aggregate with weighted arithmetic mean. Weights of retailers represent the market share (turnover) of individual retailer per individual EA.

Data collected through web scraping

Scraped data with relevant prices from the web are classified into homogeneous groups within each elementary aggregate. First, we calculate the weighted arithmetic mean of each homogeneous group. The weight represents the share of an individual shop for the selected sales segment. Then we calculate the monthly index for each homogeneous group. These monthly indices are aggregated to the level of the elementary aggregate with a weighted geometric mean. The weight in this case represents the number of products in each homogeneous group. Finally, with chaining of monthly indices (we use the chained Jevons index) we calculate the index of a current month over a base period.

Aggregation of indices

From individual indices we calculate with weighted arithmetic mean aggregate indices, i.e. indices of groups (by ECOICOP) and the total price index.

Each aggregate index (December of the previous year = 100) calculated in this way and all other indices derived from this index and calculated with weights of the base period and with the same coverage of products are *Laspeyres' indices* of fixed type. Indices calculated on the basis of weights from various periods and with different coverage of products are *chain indices*.

To provide longer time series, indices are calculated to an index reference period (base year). In previous years indices were first linked through the index reference period 2000 = 100, then through the index reference period 2005 = 100. Since 2016 indices have been linked through a new index reference period year 2015 (average 2015 = 100).

All indices are now derived and calculated through the 2015 average. We are calculating following indices:

- ***Monthly index*** shows price changes in the current month compared to the previous month,

- ***Index in the current year*** shows price changes in the current month compared to December of the previous year,
- ***Annual index*** shows price changes in the current month compared to the same month of the previous year,
- ***Annual average index*** shows price changes in the current year compared to the same period of the previous year,
- ***Average index in the current year*** shows price changes in the current year compared to December of the previous year,
- **12-month average index** shows price changes in the last 12 months compared to the average of the previous 12 months.

For more, see the general methodological explanations Index numbers.

BASE INTEREST RATE

The monthly base interest rate for a certain month is calculated as the arithmetic average of the last twelve monthly rates of growth of consumer prices, to one decimal place.

Februarys monthly base interest rate equals to Januarys.

The annual base interest rate for a certain month is calculated from the monthly base interest rate to two decimal places in a similar way taking into account the actual number of days.

7.4 PRECISION

The survey is not conducted on the basis of a random sample.

7.5 OTHER EXPLANATIONS

If there is no occurrence of event or data are not available, missing data are replaced with the sign »-« or the sign »...«.

From 2023, data on the Harmonised Index of Consumer Prices at constant tax rates (HICP-CT) are no longer published in a separate release, but the tax changes are explained as part of the CPIs first release for December.

8 PUBLISHING

Data are published in the Prices and inflation - **Consumer prices – inflation.**

Consumer price indices and harmonised indices of consumer prices and growth rates according to ECOICOP classification, average retail prices of goods and services, purchasing power and time needed to purchase goods and base interest rates are published.

- First Release (Prices and Inflation, Consumer Prices – Inflation): »Consumer price indices, monthly«,
- First Release (Prices and Inflation, Consumer Prices – Inflation): »Base interest rate, monthly«,
- Electronic Release (Prices and Inflation, Consumer Prices – Inflation): »Consumer price indices, detailed data, monthly«.

9 REVISION OF THE DATA

9.1 PUBLISHING OF PRELIMINARY AND FINAL DATA

Provisional data are not disseminated. Only final data are published.

9.2 FACTORS INFLUENCING COMPARABILITY OVER TIME

There are no breaks in time series, so all points in time are comparable.

Comparability of average retail prices of products or services with the same description in time (during the year and particularly over a longer period) is not complete due to the revision of the list of data collection points, the revision of the sample of goods and services (list of products the prices of which are collected) and the changing quality of goods and services over time. For this reason, comparability of average prices in time is also limited. For certain products (e.g. cars, technical products, etc.), in the case of major changes in their quality prices are corrected.

Methodological explanation on revision of statistical data is available on

http://www.stat.si/dokument/5299/RevisionOfStatisticalDataMEgeneral.pdf.

The data imputation methods used during the coronavirus (COVID-19) epidemic continues to provide data comparability over time. Imputations respect seasonal patterns of the series, so there is no impact on annual indices and growth rates.

10 OTHER METHODOLOGICAL MATERIALS

Methodological materials on SURS's website are available at https://www.stat.si/statweb/en/Methods/QuestionnairesMethodologicalExplanationsQualityReports.

Quality reports for the survey Retail prices of goods and services (CENE - DPC/M) can be found under theme Prices and inflation, subtheme Consumer Prices – Inflation

Eurostat's methodological explanations are available at the links below:

- Reference Metadata in Euro SDMX Metadata Structure (ESMS)
- National Reference Metadata in Euro SDMX Metadata Structure (ESMS)