



**STATISTICAL OFFICE OF
MONTENEGRO**

METHODOLOGICAL GUIDELINES

CONSUMER PRICE INDEX

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Legal basis

The legal basis for the implementation of the survey of consumer price index is the [Law on Official Statistics and Official Statistical System of Montenegro](#) ("Official Gazette of Montenegro", No. 18/12, 47/19 and 23/25) and the [Annual plan of statistical survey](#).

METHODOLOGICAL GUIDELINES

The aim of the statistical survey

The aim of the Consumer Price Index (CPI) survey is to calculate inflation, as one of the most important macroeconomic indicators. The Consumer Price Index is an indicator of the average change in prices of a fixed basket of goods and services that households purchase for consumption and for the purpose of meeting their needs.

The index measures price changes over time, using the consumption structure of the base period for both compared periods (Laspeyres-type index). In addition to being used as a measure of inflation, it can be used for the adjustment of wages, pensions and social benefits, and it is also used as a deflator in the national accounts

Observation unit

Observation units include all types of retail outlets where the highest turnover is realized. These may include shops of all types and sizes, green markets, craft workshops, enterprises providing public services, catering establishments, sports and cultural-educational facilities, websites of retail outlets, etc. The list of retail outlets is defined at the beginning of the year and does not change during the year. Retail outlets where prices are collected are selected based on their market share and turnover by activity. The number of outlets, and consequently the number of recorded prices, depends on the size of the city and ranges from 3 to 8 prices for each product or service.

The criteria for selecting the number and type of shops in a city are:

- the type of product or service for which prices are collected;
- the number of inhabitants;
- the turnover achieved;
- the consistency of prices of the same product across different shops;
- continuous supply of goods in the shop;
- consumer habits;
- location.

The number of inhabitants and the type of products are the main criteria for selecting the number of shops by cities. Due to their continuous presence in the field and direct insight into the actual situation, price collectors, in cooperation with the Price Statistics Department, make the final decision on the selection of observation outlets. The selection of shops for price collection is updated annually.

The list of products for which prices are collected is uniform for the entire territory of Montenegro. The final list for price collection is determined by the Statistical Office, i.e. the Department of Price Statistics and External Trade, after consultation with price collectors, and no later than the end of November. The price collector selects a product that corresponds to the product description from the product list. If there are several different products in a shop that correspond to the description, the one that sells the most over a longer period of time is selected. For this reason, it is very important to consult the shop assistant when selecting the product. Once a product has been selected for price collection, it is not changed during the entire year.

In the selected shops, price collectors choose products that correspond to the specified product description and that sell the most in that shop. In the event that a retail outlet closes or the selected product disappears from the market for any reason, the price collector proceeds with selecting a replacement in accordance with the Price Collection Guidelines.

Coverage of the survey

Population coverage - The CPI covers consumption in the household sector according to the national concept, meaning that the index calculation includes expenditures of resident households on final consumption of goods and services, regardless of whether these expenditures are incurred within the territory of the country or abroad. Expenditures of non-residents, as well as the consumption of collective households, are not included in the CPI.

Geographical coverage - The weights cover the entire territory of Montenegro. The cities in which price collection is conducted have been selected taking into account their importance, determined on the basis of population size and their role within the geographical area to which they belong. Prices are collected in five cities representing the most important commercial centres: Podgorica, Nikšić, Bijelo Polje, Budva and Bar.

Product coverage – All goods and services purchased by the reference population for final consumption are included. The following are excluded: imputed rents for owner-occupied housing, expenditures on the purchase of dwellings and land and other investments and life insurance services.

The product list comprises 538 of the most significant goods and services of individual consumption. In order to ensure the principle of representativeness, the list of goods and services is regularly revised at the beginning of each year. The main criterion for including a good or service in the list is the share of the product group in individual consumption; therefore,

representative products have been selected for all ECOICOP classes whose share in total household consumption exceeds 0.1%.”

Weights

The weights used for the calculation of the Consumer Price Index (CPI) represent the relative share of selected goods and services in total household consumption on the domestic territory. In other words, they reflect the "importance" of a specific group of products within total household consumption in a given reference period.

The main data source for compiling weights for the calculation of the CPI is the Household Budget Survey (HBS), with household expenditures for individual consumption, classified according to the COICOP classification, used as the basis. The weights are updated annually through price adjustment in order to align the consumption structure with current prices. Data from the HBS are supplemented and verified using other statistical sources, such as national accounts, administrative sources, etc.

Classification

For the classification of products and the calculation of the Consumer Price Index, the European Classification of Individual Consumption by Purpose (ECOICOP) has been used since January 2017. In accordance with the ECOICOP classification, for the purposes of index calculation and dissemination, products are classified into five levels: total, division, group, class and sub-class.

Number of goods and services by divisions:

01. Food and non-alcoholic beverages: 165
02. Alcoholic beverages and tobacco: 25
03. Clothing and footwear: 47
04. Housing, water, electricity, gas and other fuels: 22
05. Furnishings, household equipment and routine household maintenance: 80
06. Health: 18
07. Transport: 41
08. Communications: 9
09. Recreation and culture: 41
10. Education: 8
11. Restaurants and hotels: 54
12. Miscellaneous goods and services: 28

Method, timing and sources of data collection

Price collection

The collection of price data is defined in detail in the Price Collection Guidelines, which form an integral part of the methodology. The consumer price (retail price), which serves as the basis for index calculation, represents the price of a good or service valid at the time of purchase or provision of the service and includes all taxes and charges.

For approximately 85% of goods and services, prices are collected in the field at precisely defined time intervals and at predetermined observation outlets. Prices are collected by price collectors who live in the selected cities and are familiar with local market conditions.

For the purposes of the Consumer Price Index, prices are collected on a monthly basis during the following periods:

1. Food and non-alcoholic beverages: from the 3rd to the 9th and from the 15th to the 21st
2. Alcoholic beverages and tobacco: from the 3rd to the 9th
3. Clothing and footwear: from the 10th to the 13th
4. Housing, water, electricity, gas and other fuels: from the 14th to the 19th
5. Furnishings and routine household maintenance: from the 14th to the 19th
6. Health: from the 10th to the 13th
7. Transport: from the 20th to the 23rd
8. Communications: from the 10th to the 13th
9. Recreation and culture: from the 20th to the 23rd
10. Education: from the 3rd to the 9th
11. Restaurants and hotels: from the 24th to the 25th
12. Miscellaneous goods and services: from the 14th to the 19th

For the purposes of calculating the Consumer Price Index, prices are collected once a month within the specified periods, except for fuel prices, which are collected on a daily basis. Price collectors submit reports on product prices for the current month no later than the 26th day of the month.

For approximately 15% of goods and services, prices are collected centrally (by the Department of Price Statistics and External Trade) by the 15th day of the month. Methods of price collection vary depending on the type of good or service and (telephone interviews, website, or the use of special questionnaires).

Treatment of seasonal products

Seasonal products are goods and services that are available for purchase only during certain periods of the year, while in other periods they are either unavailable or purchased in negligible quantities. Seasonal products include fresh fruit, fresh vegetables, and men's and women's clothing and footwear.

In calculating indices for seasonal products, Commission Regulation (EC) No 330/2009 of 22 April 2009 is applied, which lays down detailed rules for the treatment of seasonal products.

A seasonal products matrix is established, whereby prices for products that are out of season are estimated. In the first month of the out-of-season period, the estimated price is equal to the typical (average) price recorded in the previous seasonal period. From the second month onwards, the estimated price is equal to the estimated price of the previous month, adjusted by the average change in recorded prices of all seasonal products that are in season within the same ECOICOP sub-group.

Price reductions

The sale of products at reduced prices (promotional prices or sales) is taken into account provided that the reduction is available to all consumers without any conditions and that significant quantities of the product at reduced prices are sold in the month in which prices are collected.

Price reductions that are conditional upon the purchase of another product, or that apply only to specific categories of consumers (such as pensioners or students), are not taken into account.

If a product has a lower price when purchased in cash compared to purchase on credit, the cash price should be recorded (the price that would be paid by a consumer who pays the full amount at the time of purchase).

Missing prices

If a product for which a price is to be collected (the selected representative product) is temporarily not available for sale, the price collector should obtain information from the retailer as to whether the shortage is temporary (i.e. the product exists in stock but is currently not available in the shop). In such cases, the shop should be revisited in order to record the price.

If the product is not available in stock, the price should not be recorded; instead, the price from the previous month should be carried forward, which must be explicitly stated in the report submitted to the Price Statistics Department. If the product is unavailable for more than two months, it should be replaced by another product. The product should also be replaced if the retailer indicates that the selected product will no longer be supplied, or if sales of the product have declined significantly.

Quality adjustment

As the CPI aims to measure 'pure' price changes, it should not be affected by changes in product quality. Therefore, prices must be adjusted for changes in the quality of goods and services in order to assess which part of the total price change is attributable to changes in product quality and which part represents a real price change.

If a new product differs significantly from the old product, the entire price change is attributed to the change in product quality. In our CPI, three main quality adjustment methods are applied:

- direct price comparison,
- explicit methods, and

- implicit methods.

The explicit methods applied include option pricing, adjustment for changes in package size, and expert judgement in quality adjustment. The main implicit method used is the bridge overlap method.

Data processing

Data processing begins with data verification, i.e. the checking of collected prices. The first level of price control is carried out by price collectors in the field, by comparing prices recorded in the current month with those from the previous month. Data on recorded prices and the reasons for price changes are submitted to the Department of Price Statistics and External Trade in Podgorica. After receipt of the data, validation of all recorded prices is performed. If necessary, statisticians from the Price Statistics Department contact the price collectors, who then verify 'suspicious' prices through additional field visits. In the event of a product change, price changes are adjusted for quality changes where necessary. After final validation, average prices are calculated for each city or territory.

Calculation of average prices

The average monthly price of an individual product for a city is calculated as the unweighted geometric mean of prices recorded in retail outlets, according to the following formula:

$$P_{gk}^m = \left(\prod_i^n P_i^m \right)^{1/n},$$

where P_{gk}^m is the average monthly price for city g , of product k , P_i^m is the monthly price of product in outlet i , and n is the number of recorded prices in the city.

The average monthly price for Montenegro is calculated as the weighted geometric mean of the average monthly city prices, according to the following formula:

$$P_{tk}^m = \left(\prod_g^s P_{gk}^{m^{w_g}} \right)^{1/\sum w_g},$$

Where w_g is the weight of city, and s is the number of cities in which prices are collected.

The average annual price for all goods and services is calculated as the unweighted arithmetic mean of the average monthly prices.

Calculation of indices

Based on average prices, indices are calculated from the lowest level (product level) up to the level of the overall index, applying the following formulas:

for individual products

$$i^m_k = \frac{P_k^m}{P_k^o},$$

while for the calculation of monthly indices at higher levels of aggregation (classes, groups, divisions and the overall index), a Laspeyres-type formula is applied:

$$I_m = \frac{\sum_k w_k i^m_k}{\sum_k w_k}$$

where w_k is the weight, and i^m_k is the individual base monthly index of product k .

The calculation of the Consumer Price Index begins with the calculation of elementary aggregate indices. An elementary aggregate index is calculated as the ratio of average prices in the current period to prices in the reference period, with the geometric mean applied as the measure of central tendency.

Compliance with international recommendations

The Consumer Price Index compilation methodology is largely harmonised with the European Union recommendations on price index calculation.

Other definitions

The Consumer Price Index (CPI) is an indicator of the average change in prices of all goods and services used by households for consumption purposes. The CPI serves as the official measure of inflation in Montenegro.

ECOICOP (European Classification of Individual Consumption by Purpose) is a classification of products according to purpose, structured into 12 main divisions, as well as the corresponding groups, classes and sub-classes. It has been used in statistical data since January 2017 (Regulation (EU) No 2016/792).

A product refers to any good or service intended for consumption that can be purchased on the market.

Goods include all material products, while services refer to intangible activities that meet consumer needs and are not physically tangible.

The retail price is the final selling price paid by consumers for the purchase of a good or service.

Elementary aggregates represent products at the lowest level of aggregation, i.e. products in all retail outlets within a single geographical location.

The monthly inflation rate (current month compared to the previous month) measures the change in average prices in the current month compared to the average prices of the previous month. The monthly inflation rate may be influenced by seasonal effects.

The annual inflation rate (current month compared to the same month of the previous year) measures the change in average prices in the current month compared to the average prices in the same month of the previous year. In the presence of a stable seasonal pattern, seasonal effects do not affect the annual inflation rate.

The cumulative index (rate of change) measures the change in average prices in the current month compared to the average prices in December of the previous year.

The base index (rate of change) measures the change in average prices in the current month relative to the average of the base year.

The average annual index (rate of change) measures changes in average prices from the beginning of the year to the current month relative to the same period of the previous year (e.g. Jan–May 25 / Jan–May 24).

The current month is the month to which the data refer.

Confidentiality and obligation to protect individual data

All data collected in the field, as well as data obtained from other sources, constitute official confidential information and are regulated by Articles 53–60 of the Law on Official Statistics and the Official Statistics System ('Official Gazette of Montenegro', Nos. 18/12, 47/19 and 23/25). Pursuant to Article 59, access to confidential official statistical data is restricted to persons performing tasks and duties within the producers of official statistics, and only to the extent necessary for the production of official statistics. Persons performing tasks and duties within the producers of official statistics are required to sign a Declaration on Compliance with the Principle of Confidentiality.

Obligation to provide data

In accordance with the Law on Official Statistics and the Official Statistics System ('Official Gazette of Montenegro', Nos. 18/12, 47/19 and 23/25, Article 36), reporting units are obliged to provide accurate and complete data free of charge, in the content and format determined by the producer of official statistics, and within the deadlines set out in the annual plan.

Publication

Consumer Price Indices are published in accordance with the [Statistical Release Calendar](#) in the following publications:

- Monthly Release;
- Monthly Statistical Review;
- Statistical Yearbook;
- Montenegro in Figures.

On the MONSTAT website, in the Prices section, press releases on the Consumer Price Index are available from 1 January 2009, when the Cost of Living Index and the Retail Price Index were replaced by the Consumer Price Index, which represents the official measure of inflation in Montenegro. In the Data section, CPI, COLI and RPI data are available in the form of Excel tables, including data on the Cost of Living Index and the Retail Price Index for the period 2001 - 2008. [Consumer price index](#)

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