



Quality Report for the Consumer Price Index, 2016



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1 INTRODUCTION TO THE STATISTICAL PROCESS AND PRODUCT

1.1 Purpose of the survey

Consumer price index (CPI) measures changes in the average level of prices of products and services of the final monetary household consumption on the territory of Republika Srpska. Its main purpose is to provide a measure of official inflation in Republika Srpska by monitoring the dynamics of changes in price levels. CPI also serves to harmonise wages according to collective agreements, pensions and social benefits and to preserve values for contracts with an indexation clause. It also allows a comparison of inflation rates with other countries and a comparison of price trends between different regions within the country. In addition, CPI serves as a basis for deflating macroeconomic aggregates in national accounts statistics.

1.2 Legal basis and responsibility of statistical institutions

The statistical survey Consumer price index in Republika Srpska for 2016 is carried out based on the Statistical Programme of Republika Srpska for the period 2013-2017 (Decision of the National Assembly of Republika Srpska, No. 01-1901/12 on the adoption of the Statistical Programme, "Official Gazette of Republika Srpska", No. 120/12) and in accordance with the Law on Statistics of Republika Srpska ("Official Gazette of Republika Srpska", No. 85/03).

1.3 Relevant classifications

The international Classification of Individual Consumption by Purpose-COICOP is used to calculate indices.

1.4 Reporting unit

Reporting units are selected retail outlets that sell goods and services intended for final household consumption, craft shops and other independent entrepreneurial stores that sell products and/or provide services to households, as well as public enterprises providing services on the territory of Republika Srpska.

1.5 Statistical observation unit

Given that the subject of the survey are prices of products and services for final household consumption – consumer prices, observation units are selected products and services (basket) which bear the main statistical characteristic – the price collected for the survey.

1.6 Scope and coverage

The representative list of products and services, the so-called basket, consists of products and services that are purchased and consumed by households to meet their personal needs and whose share in total consumption exceeds 0.1%. The structure of consumption is derived from the Household Budget Survey and the list of products and services is updated regularly in order to maintain representativeness, in line with changes in consumers' shopping habits. In 2016, consumer prices were monitored based on the representative list consisting of 599 products and services.

1.7 Statistical concepts and definitions

Aggregate indices: indices calculated as weighted average of elementary indices, which refer to hierarchical positions, starting from the level of products.

Aggregation (of indices): combination of linked categories, usually within a common group of the hierarchy, that provides information on a level broader than the one at which observations were made.

Base price: price in the base period (for CPI, December of the previous year).

Base indices: indices calculated on the basis of a pre-defined base period (for CPI, Ø2010=100).

Base period: data collected for this time period serve as the basis for the calculation of indices or other ratios (December of the previous year and Ø 2010=100).

Type: defines in detail the specificity of a selected product at the retail outlet, in accordance with the given description. (E.g., natural varieties for fresh fruit and vegetables, technical characteristics for household appliances.)

Elementary item: individual product identified by a price collector in terms of the specific type, brand, packaging and retail outlet. For each product, the corresponding quota-number of collected elementary prices.

Elementary index: index of the elementary item.

Unit of measure: the unit of measurement to which the values are attached and in which the collected quantity of an individual product is expressed.

Cards: questionnaires completed during fieldwork.

Basket of products: a list of selected products and services for which prices are collected. It is selected to represent the most common consumer behaviours in terms of their final consumption.

Chain index: indices linked by a pre-defined common reference period for the so-called calculation indices – December of the previous year.

Retail price: the price paid by households to purchase individual goods and services through cash transactions on the territory of Republika Srpska. Retail prices that are actually paid at the time of the purchase process are collected, including all taxes and excluding possible subsidies on products.

Brand: an indication serving to identify the manufacturer or the specific product sign/name.

Microdata: collected prices of elementary items, aggregated elementary indices

Weights: values expressing the importance (participation) of products in the basket, which are used to calculate aggregate indices as weighted averages, starting from elementary indices. They are based on data related to the final consumption of households or data on the estimated population according to the HBS results.

Collected amount: a specific sold amount of a product. It is expressed in various units of measure.

Retail outlet: stores, markets, and other trade shops where prices are collected.

Product: any product or service for personal consumption of households that can be purchased, joint name for products and services.

Average data: values calculated on the basis of collected elementary data (average prices or average indices referring to a specific product).

Reference base indices: indices calculated using the base year 2010 (reference base for indices)

Reference index period: period for which the index base is 100.

Reference period of prices: period for which the price was valued and based on which chain indices are calculated (for CPI, this period is December of the previous year).

Reference period of weights: period for which costs are calculated, to calculate weights.

Representative item: product at the lowest level of aggregation, that is, a product at the retail outlet at one geographical location, for which the weight can be estimated.

Series: a set of elementary prices determined by each product (individual price per individual item, of a specific brand, type and packaging, at a single retail outlet).

Change rate: price change in the current month in comparison with the price of the same item from the previous (pre-defined) period, expressed in percentages.

Frequency of collection: frequency of collection of elementary prices (for CPI, once and/or twice a month)

Price before replacement: the replacement product price from the previous month.

2 RELEVANCE, ASSESSMENT OF USERS' NEEDS AND PERCEPTIONS

2.1 Users of statistical survey data

2.1.1 Key users of statistical survey data

In line with the main purpose of the Consumer price index, as a measure of official inflation in the country, users of data on consumer prices can be classified as external and internal users, that is, users outside the Institute and users in the Institute. External users include the Government of Republika Srpska and its ministries and other state administration bodies, chambers of commerce, business entities, economic institutes, banks, various associations, non-governmental organisations, academia, independent researchers, etc.

For internal purposes, consumer price data are mainly used to deflate national accounts.

2.1.2 Assessment of users' needs

Users' needs are visibly reflected in the number of requests that refer to the inflation rate for different time periods for which consumer price indices are calculated, including time series. Consumer price index is designed mainly for the purpose of analyses and indexation for the needs of the domestic economy, although it also partly relies on internationally comparable methodological bases referring to certain basic concepts and definitions, such as division by section of the international classification of consumption, periodicity, calculation of micro-indices, calculation of average sizes by geometric mean, using the reference period for both prices and indices, etc.

2.1.3 Measuring users' perceptions and user satisfaction

User satisfaction for users of consumer price data is measured through the User Satisfaction Survey carried out by the Republika Srpska Institute of Statistics. The results of the most recent survey are available at the Institute's website, in the section Quality in Statistics:

http://www.rzs.rs.ba/front/article/1374/?left_mi=306&add=306

2.2 Data completeness

2.2.1 Quality and performance indicator – Data completeness - rate (R1)

Although consumer price index statistics primarily serve the needs of national economies and is not used in the ESS such as the harmonised consumer price index, the rate of data completeness (R1) is 100%. Consumer prices indices are the only statistics within the survey.

3 ACCURACY AND RELIABILITY

3.1 Sampling error

3.1.1 Quality and performance indicator – Sampling error (A1)

The indicator is not applicable, since the survey is carried out on a target (representative) sample. For consumer price statistics, the survey is based on a sample, thus, the entire population is not used. The sample is not random, but selected to meet specific targets. Minimum standards for the selection of a targeted sample for CPI imply that each category at the 4-digit level of the COICOP should contain sufficient elementary aggregates that can provide information about its changes in the population estimated as reliable and comparable. A basic principle of selection has been adopted, in order to ensure the representativeness of customers' habits in terms of coverage (most popular products in terms of purchase, most frequently visited retail outlets, top-selling services, etc.).

3.1.2 Activities to reduce sampling errors

Not applicable.

3.2 Non-sampling errors

3.2.1 Non-sampling errors – Coverage errors

3.2.1.1 Quality and performance indicator – Over-coverage rate (A2)

Over-coverage rate is not calculated. For consumer prices, coverage errors are reduced to a minimum, because the coverage of retail outlets and the coverage of list of products and services (so-called basket) target representativeness. Representativeness is ensured by selecting the retail outlets where consumers make their purchases most often, by selecting the most frequently purchased products and services, etc. The number of retail outlets selected for the price collection at the beginning of each calendar year remains the same during the year, that is, the same number of series (elementary prices) is to be collected each month. On the other hand, in accordance with methodological solutions, retail outlets are replaced in cases when a selected retail outlet becomes irrelevant for the collection of prices. The same applies to the coverage of products and services being monitored during the year. In accordance with the methodology, replacements are made when selected items become unavailable or unrepresentative in terms of the best-selling items.

3.2.1.2 Quality and performance indicator – Common units - proportion (A3)

Not applicable.

3.2.1.3 Undercoverage error

Not applicable.

3.2.1.4 Measures to reduce coverage errors

In addition to methodological solutions referring to replacements (described in the section 3.2.1.1), the descriptions of products and services are regularly updated at the annual level, in order to comply with changes in consumer habits.

3.2.2 Non-sampling errors – Measurement errors

3.2.2.1 Reasons behind measurement errors

Measurement errors are possible in the phases of data collection and data entry. These can be made by price collectors or persons who enter the data. Questionnaires and all methodological instructions are sent to price collectors. Regular contacts with price collectors are maintained in order to minimize errors.

The most frequent reasons behind measurement errors include:

- lack of information in terms of supply and range of products within the retail outlet,
- poor choice of a specific article and its price,
- insufficient engagement in finding adequate replacements,
- insufficient attention during data collection or entry, as well as
- resisting and not accepting cooperation in terms of providing statistical data by sales staff where prices are collected.

3.2.2.2 Measurements to reduce the number of measurement errors

The first control of data is carried out by price collectors during the fieldwork. They must record each price accurately in line with the methodological guidelines. They also have to record each change of brand, type, quantity or retail outlet. After this phase, during data entry, logical and computational checks are performed by the programme for data processing and entry. There is a warning for each deviation of the price exceeding 10% and the entered price has to be verified. Once the entry of data into the database is completed, other controls are performed, including those referring to the following: completeness of data entry, that is, are there prices equal to 0, control of prices for which excessive changes were recorded in comparison with the previously collected prices, control of price reductions by more than 50%, for which product codes there was a change of brand, type, retail outlet or quantity, and control of price change rates for each item in comparison with the previous month. In all cases in which a price deviates significantly from the one previously collected, without reasonable explanation for such deviation, price collectors return to the field for subsequent verification. All errors made at data collection and entry are corrected prior to the calculation of indices and average prices, in order to avoid subsequent revisions of calculated indices.

The methodology of data collection and processing for consumer price indices is well documented. Regular meetings with price collectors are held, in order to clarify any doubts and changes, thus preventing misinterpretation of the methodology. As price collectors maintain regular contacts with retail outlets, they are able to get all relevant information about the monitoring of prices in advance, including information about the closure of retail outlets, termination of contracts with suppliers of certain brands, reasons behind price or product description changes, etc. Therefore it is very important to hire persons with experience in working on this task, because frequent changes of price collectors may disrupt the continuity in reducing measurement errors.

3.2.3 Non-sampling errors – Non-response errors

3.2.3.1 Quality and performance indicator – Unit non-response rate (A4)

Due to the fixed number of series (individual price per retail outlet) to be collected each month and the methodological solutions applied when making replacements and/or imputations, there is practically no unit non-response. The number of retail outlets selected for price collection at the beginning of each year remains fixed during the year, that is, the same number of series is to be collected each month.

3.2.3.2 Quality and performance indicator – Item non-response rate (A5)

The item non-response rate is also 0%. The number of prices to be collected each month is fixed and determined on the basis of pre-defined quota of elementary prices for each representative item, at the beginning of each year.

3.2.3.3 Procedures in the event of non-response

In the event of unit non-response: In accordance with the methodological solutions, if a retail outlet is closed temporarily, prices are estimated (imputed), with a pre-defined imputation time limit (up to two months). If a selected retail outlet becomes permanently unavailable or inadequate for price collection, such retail outlet is replaced.

In the event of item non-response: For prices that are temporarily unavailable, a price estimate (equal to the pre-recorded price) is made with a clearly defined time period for assessment (maximum two months). If a product/service is permanently unavailable, it is replaced by the most similar item within the given product description. When seasonal agricultural products become unavailable, imputation is done in line with the methodological guidelines, by using the price from the previous period, with the maximum duration of the season.

3.2.3.4 Procedures to reduce non-response rates

Sound selection of representative products and services and appropriate retail outlets.

3.2.4 Revision

3.2.4.1 Quality and performance indicator – Data revision – average size (A6)

Monthly indices have not been revised.

3.2.5 Imputation

3.2.5.1 Quality and performance indicator – Imputation - rate (A7)

The rate of imputed data in 2016 (the number of imputed prices for which no replacements are made, seasonal products)

Name	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Annual average
Number of units for which the value of variable Y was imputed	337	332	347	433	467	427	427	418	388	328	413	389	392.16
Number of units for which the value of variable Y remained unchanged	9,139	9,144	9,129	9,043	9,009	9,049	9,049	9,058	9,088	9,148	9,063	9,087	9,083.83
Rate of imputed data (%)	3.6	3.5	3.7	4.6	4.9	4.5	4.5	4.4	4.1	3.5	4.4	4.1	4.15

4 TIMELINESS AND PUNCTUALITY

4.1 Timeliness of publication

4.1.1 Quality and performance indicator – Time lag – first results (TP1)

The indicator (TR1) is not calculated, since only final data are released.

4.1.2 Quality and performance indicator – Time lag – final results (TP2)

Timeliness of publication of final data for 2016

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Average
Date of final data publication	22.02.	22.03.	22.04.	23.05.	22.06.	22.07.	22.08.	22.09.	24.10.	22.11.	22.12.	23.01. 2017.	/
Time lag (number of days)	T+22	T+22	T+22	T+23	T+22	T+22	T+22	T+22	T+24	T+22	T+22	T+23	T+22.3

Annual average time lag for released final results is 22.3 days.

4.2 Punctuality of publication

4.2.1 Quality and performance indicator – Punctuality – delivery and publication (TP3)

Indicator for producers of statistics

Data on punctuality of publication of the Consumer price index for 2016

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Average
Target date for release (as announced in the Release Calendar)	22.02.	22.03.	22.04.	23.05.	22.06.	22.07.	22.08.	22.09.	24.10.	22.11.	22.12.	23.01. 2017.	/
Release date	22.02.	22.03.	22.04.	23.05.	22.06.	22.07.	22.08.	22.09.	24.10.	22.11.	22.12.	23.01. 2017.	/
Time lag (number of days)	T+0	T+0	T+0	T+0	T+0	T+0	T+0	T+0	T+0	T+0	T+0	T+0	T + 0

Punctuality of publication (TP3) is T+0.

Indicator for users of statistics:

The rate of punctuality of data publication is 100%.

4.3 Reasons for major delays and measures to improve timeliness and punctuality

There has been no time lag between the target date for release and the actual release date.

5 COHERENCE AND COMPARABILITY

5.1 Coherence

5.1.1 Quality and performance indicator – Coherence between different data sources (CH1)

Not applicable, as several different data sources are not used.

5.1.2 Reasons for major discrepancies

Not applicable.

5.2 Comparability

5.2.1 *Quality and performance indicator – Asymmetry for mirror flows statistics (CC1)*

Not applicable, as there are no mirror flows (reference) statistics.

5.2.2 *Quality and performance indicator – Length of comparable time series (CC2)*

The length of comparable time series is 144 months (January 2005 - December 2016)

5.2.3 *Breaks in time series*

The break in time series result from changes in years in which the reference base for indices is changes (the reference year is usually changed every five years).

5.3 Geographical comparability

5.3.1 *Comparability with the European Statistical System members*

Not relevant, except for the Harmonised consumer price index. (CPI is used for national purposes only.)

6 ACCESSIBILITY AND CLARITY, DISSEMINATION FORMATS

6.1 Releases in which data are published

Consumer price indices are published in the monthly release providing the most important results in a summary review – a table of indices at the level of total indices, at the level of main divisions (12) and at the level of major groups of consumption (40), in accordance with the COICOP classification in relation to different time periods. Data provided in monthly statistical releases are available in pdf and xlsx format at the Institute's website, within the section:

<http://www.rzs.rs.ba/front/category/19/148/?&add=None>

6.2 Publications in which data are published

In addition to monthly releases, consumer price indices are also published in the following publications:

- Monthly Statistical Review, current indices in relation to different time periods, for the total index and for major categories of in accordance with the COICOP classification. The data are available at the Institute's website:
http://www.rzs.rs.ba/front/article/2551/?left_mi=None&add=None
- Price Statistics Bulletin, which contains annual data, i.e. indices at a more detailed level (up to class level of the COICOP classification). The data are available at the Institute's website:
<http://www.rzs.rs.ba/front/category/149/>
- Statistical Bulletin of Republika Srpska, which provides multi-annual data on consumer price indices, available at the Institute's website:
http://www.rzs.rs.ba/front/category/8/?left_mi=287&add=287
- This is Republika Srpska, which provides basic data on inflation for the year for which the data are published, available at the Institute's website:
http://www.rzs.rs.ba/front/category/308/?left_mi=288&add=288

6.3 Online database

Consumer price indices are also available in the online databases of the Institute, in the section Prices:
<http://www3.rzs.rs.ba/rzs/faces/indicators.xhtml>

6.4 Access to microdata

Individual consumer price data are protected by general legal frameworks of confidentiality and are used for statistical purposes only (Law on Statistics of Republika Srpska, "Official Gazette of Republika Srpska", No.85/03). When it comes to microdata, the conditions under which certain users are allowed access to microdata and the methods of protection of confidential data (statistical protection of individual and aggregated data) are regulated in detail by the Rulebook on protection of confidential data of the Republika Srpska Institute of Statistics).

6.5 Accessibility of methodological documents

Methodological documents and the most important information related to the survey are available both in electronic form and in paper format, that is, as publications. Online methodology is available at the Institute's website:

<http://www.rzs.rs.ba/front/category/19/147/?&add=None>

6.6 Measures to improve clarity of disseminated results

Each publication provides a brief overview of basic methodological information (purpose and aim of the survey, sources and methods of data collection, coverage, main classifications and formulas, etc.).

6.7 Quality and performance indicator – Data tables - consultations (AC1)

Not available.

6.8 Quality and performance indicator – Metadata - consultations (AC2)

Not available.

6.9 Quality and performance indicator – Metadata completeness - rate (AC3)

The rate of metadata completeness (ESMS v.2.0) for the Consumer price index in 2016 is 100%.

7 SURVEY COSTS AND BURDEN ON RESPONDENTS

7.1 Costs of survey implementation

Costs related to the consumer price survey, observed as labour costs, that is, the number of hours worked by persons hired for the fieldwork, data entry and data processing.

Number of hours worked (collection, entry, control of prices and data processing)	18,648
Material costs (printing and distribution of forms to the field)	Not available/ insignificant
Annual number of forms (cards) in which prices are recorded	9,476

7.2 Burden on respondents

Not applicable, a type of survey, that is, collection of prices, is conducted.

7.3 Measures to reduce costs and burden

Measures to reduce burden on price collectors on the field would include an increased opportunity to collect prices through official price lists and/or information provided at official websites of retail stores, enterprises and institutions providing services, provided these are updated regularly.

8 CONFIDENTIALITY

8.1 Confidentiality - policy

The confidentiality of data and protection of personal data collected for the calculation of consumer price index are regulated by the Law on Statistics of Republika Srpska ("Official Gazette of Republika Srpska, No. 85/03), the Rulebook on protection of confidential data of the Republika Srpska Institute of Statistics and other current regulations referring to data protection and confidentiality, including the Law on protection of personal data ("Official Gazette of BiH", No. 49/06).

8.2 Confidentiality – data handling

At all stages of the process of developing the Consumer price index, confidentiality and statistical protection of data are ensured. In this regard, statistical staff is obliged to act in accordance with the provisions of the Law on Statistics of Republika Srpska, "Official Gazette of Republika Srpska", No.85/03) on confidentiality and protection of data. One of the measures related to data confidentiality is also provided in written statements on the protection and confidentiality of statistical data, signed by all employees of the Institute. In addition, all written documents in which information is requested for statistical purposes specify the articles of legal provisions regulating this field. The protection of data is ensured through passwords required to access each personal computer in the Institute. Detailed measures of statistical data protection are described in the Rulebook on protection of confidential data of the Republika Srpska Institute of Statistics.

9 STATISTICAL PROCESSING

9.1 Source of data

The data necessary for calculating the consumer price index are collected on the basis of a targeted sample, which in 2016 consisted of 9,476 individual prices, in six cities of Republika Srpska. In addition, another required source of data for the compilation of indices is the Household Budget Survey (HBS), which provides the value and structure of average consumption.

9.2 Frequency of data collection

Data are collected monthly.

9.3 Data collection

Prices are collected at selected retail locations, such as: stores selling consumer goods – supermarkets, hypermarkets and similar, specialised stores, retail shops in shopping malls, markets (green markets), utility companies, telecommunication companies, and other enterprises providing services to households. Most prices are collected by direct collection in the field, while some of them are collected through the authorized service provider's website, through a single price list, etc. The Republika Srpska Institute of Statistics provides price collectors with specifications (so-called cards), which include the following major data: description of product/service, appropriate COICOP codes and required units of measure. Based on these data, price collectors independently choose a specific product for which they will collect prices and detailed descriptions, at a specific retail outlet. Selection of a specific product should comply with the most sold product criterion. Price collectors complete the questionnaire on all additional characteristics of products, as well as information on possible replacements of products/services, if there are any. This way of price collection, in which the same product is monitored as long as it is considered the best-selling product, enables tracking of price changes between two periods.

For the consumer price index purposes, price collection is conducted on the following days in a month:

- For agricultural products sold at markets, prices are collected twice a month, in the first and third weeks of the month,
- Prices of gasoline are also collected in the first and third weeks of the month, on the same day,
- For all other products, in accordance with the current European standards, prices are collected once a month (between the 1st and 21st of the month) and the interval between price collections must be the same.

9.4 Data validation

Data validation is performed during and after data entry, through logical controls that are pre-defined within the application itself. For example, for all prices with a deviation of +/-10% a note is required during data entry. After data entry, several individual parameters are checked, including:

- completeness of the entry of prices, that is, whether the price equals 0,
- checks of the change rates for each item, in comparison with the previous month,
- control of prices for which excessive changes were recorded in comparison with the previously collected prices,
- control of price reductions by more than 50%,
- for which product codes there was a change of brand, type, retail outlet or reference quantity, while the change was not recorded properly,

In all cases in which a price deviates significantly from the one previously collected, without reasonable explanation for such deviation, price collectors return to the field for subsequent verification. Also, when data processing is finalized, the output data (indices) are compared with the corresponding output data of the neighbouring countries.

9.5 Data compilation

For the consumer price index it is necessary to first calculate elementary indices and representative item indices on the level of cities. Here we use the geometric mean as the measure of average value. Aggregate indices are afterwards calculated using the Laspeyres's formula for weighted arithmetic mean, beginning with the lowest level of the representative item index to the level of the total index for Republika Srpska. The reference base for the calculation of a series of indices is 2010.

Weights used for calculating the consumer price index are based on the data on final monetary household consumption and they represent the values reflecting the relative share of products and services in the total household consumption. Main source of data for weights is the Household Budget Survey (HBS). Two types of weights are used for the calculation: population weights (so-called horizontal weights) for the calculation of average indices of each elementary item at the entity level, and weights of household consumption value in the territory of RS (so-called vertical weights) for the aggregation of total index, starting from the lowest level of elementary indices. Weights based on the Household Budget Survey 2011 data are used for the calculation of consumer price indices in 2016. Weights are corrected each year with price changes in the previous year.

9.6 Adjustments

Given that the Consumer price index is a national indicator of inflation and is not a subject of the ESS, which harmonised indices are, there are no standard methods of adjustment, except in the event of extreme values (outliers) or replacements of products by the most similar ones in terms of characteristics in the description.

9.6.1 Seasonal adjustment

Not applicable.