Approved by the order of the Chairman of the Committee on Statistics of the Ministry of National Economy of the Republic of Kazakhstan dated November 24, 2016

no. 274

**Methodology for calculating the basic consumer price index**

**Chapter 1. General provisions**

1. The methodology for calculating the basic consumer price index
(hereinafter - Methodology) refers to the statistical methodology, formed in accordance with international standards and approved in accordance with the Law of the Republic of Kazakhstan dated March 19, 2010 "On State Statistics".

2. Methodology establishes methodological approaches for calculation basic consumer price index (hereinafter - BCPI), methods and procedure for its calculation.

3. This Methodology is applied by the Bureau of National Statistics of the Agency for Strategic Planning and Reforms of the Republic of Kazakhstan (hereinafter - the Bureau of National Statistics) when forming the BCPI.

4. The methodology was developed taking into account the principles and recommendations of the Consumer Price Index Manual: Theory and Practice (2004) prepared by the International Labor Organization, the International Monetary Fund, the Organization for Economic Co-operation and Development, the Statistical Office of the European Communities, the United Nations Economic Commission for Europe Nations and the World Bank.

5. BCPI is a derivative price index from the consumer price index (hereinafter - CPI), reflecting the long-term dynamics of price changes, not affected by supply and demand shocks, seasonal, eventual and random factors, as well as administrative impact on pricing processes.

The construction of the BCPI is based on the methodology for the formation of the CPI and its and the calculation is carried out by direct elimination from the CPI:

1. individual components selected deliberately or purposefully, regardless of the actual inflationary manifestation in them at any time;
2. components, the prices of which during the period under review showed the greatest price changes at a certain point in time, regardless of their social importance and structural weight in the total population.

The construction of BCPI is based on the information flows used in the construction of CPI. The basis is data on changes in prices for goods and services included in the CPI calculation and a weighting system that reflects the structure of indexed values.

6. BCPI is used for economic analysis, current and medium-term forecasting.

**Chapter 2 Methodological Approaches for Measuring BCPI**

7. The BCPI indicator takes into account the main long-term price trend, which reflects the state of demand in the economy and eliminates the impact of price shocks.

Price shocks are divided into temporary and long-term inflation price shocks. General formula for price shocks:

, (1)

where:

– price shocks to inflation;

– short-term price shocks;

– expected future price shocks.

The first component , covers the effect of temporary relative price shocks affecting the volatile components of certain types of food and energy resources. The second component , expresses expected future shocks to inflation. The difference between them is determined by the period of continuation of the influence of these effects on the general inflation. Shocks generated by supply and demand affect inflation after a certain period of time, while price shocks are reflected in measured inflation.

8. Price shocks, in terms of their duration, provide for two options for determining BCPI:

, (2)

, (3)

where:

, – BCPI ;

– CPI;

– short-term price shocks;

– expected future price shocks.

The choice between approaches to determine BCPI depends on the object of measurement. When excluding the influence of reversible price shocks in the long-term development of the inflationary process, it is appropriate to measure BCPI , which is determined by excluding shocks that have a short-term impact from general inflation. To eliminate one-time price shocks with a permanent effect, the measurement of BCPI is preferable .

**Chapter 3. Calculation methods of BCPI**

9. Measurement of BCPI is carried out using various methods, modified in terms of coverage of components, their importance, calculation procedures. Common methods used in constructing BCPI are the simple elimination method and the trimmed average method according to the volatility of the components.

10. With the simple elimination method, components that exhibit increased volatility, instability, instability, a high degree of volatility in market conditions, demand, and prices are periodically excluded from CPI . Sharp fluctuations in prices for volatile components are caused by the influence of foreign trade conditions, seasonal and random factors, and distort the main long-term price trend when building CPI. This method of measuring BCPI provides an abstraction from the influence of factors, using volatility as a criterion for excluding components.

Volatile components are periodically not included in the process of forming the BCPI indicator. As a result, the movement of prices for individual goods (services) is redistributed to obtain a stable change. The CPI is recalculated minus the corresponding elemental indices, which does not require its further adjustment and additional calculations at the aggregate level.

When applying this method of measuring BCPI, the weight components used in the construction of CPI are recalculated. The excluded volatile components are weighted to zero, the remaining components are weighted higher after the normalization procedure is applied.

11. Calculation of BCPI without taking into account price changes for individual specific components is carried out:

1. without one component (fruits and vegetables);
2. without three components (fresh fruits and vegetables, gasoline, coal);
3. without seven components (diesel fuel and services of housing and communal services, railway transport and communications).

The exclusion of fresh vegetables and fruits is associated with a seasonal factor that manifests itself cyclically throughout the year and over a number of years . Gasoline, diesel and coal prices are subject to market and seasonal fluctuations .

The exclusion of changes in prices and tariffs for housing and communal services, railway passenger transport and communications is explained by their social orientation. These services occupy a significant weight in the CPI structure, the price movement trend is not associated with monetary policy instruments, since they do not change constantly, in stages.

The list of goods and services for calculating BCPI without taking into account price changes for individual specific components is given in Appendix 1 to this Methodology.

When forming BCPI by eliminating one, three and seven components, the following calculation formula is used:

, (4)

where:

– BCPI;

– actual value of CPI;

- change in prices for goods (services) determined for exclusion ;

- the share of relevant goods (services) in the CPI structure.

The advantage of using this method is to ensure the comparability of the time series of indicators, the availability of understanding by the public. The resulting indicators are considered sub-indices of the CPI, and their construction ensures compliance with all existing standards and requirements for the formation of the CPI.

12. Of the above methods for calculating BCPI, the method of simply excluding three components from CPI (fresh fruits and vegetables, gasoline, coal) was chosen as the main one. The remaining BCPI calculation methods are used for analytical and forecasting purposes. The application of the considered methods, implemented in a complex, form an effective system of indicators reflecting the monetary "behavior" of inflation.

**Chapter 4. Calculation of BCPI without taking into account changes in prices for individual components**

13. Calculation of BCPI without taking into account changes in prices for individual components is carried out in the following order:

1. after determining the price change within the framework of the CPI calculation, a certain type of goods and services (one, three and seven components of the CPI) is excluded, their share and price change are conventionally assumed to be equal to zero;
2. then the basic change in prices is determined without taking into account the change in prices for excluded items according to the formula:

, (7)

where:

– BCPI;

– structural price relative of the reporting period *t* positions ;

– structural price relative of the reporting period** excluded position ;

- the share of the position in the overall structure of consumer spending in the base period;

- the share of the excluded item in the overall structure of consumer spending in the base period;

– specific excluded items;

** – number of excluded positions;

– individual price indices of the position and excluded position *y* in the reporting period ;

- the total number of positions in the consumer set;

1. in order to achieve the accuracy of BCPI calculation without taking into account three and seven components, after the exclusion from the general set of “non-basic” components for the remaining positions, the procedure for normalizing the basic weights is carried out.

To do this, a normalization coefficient is found, defined as the result of the ratio of the total weights to the sum of the remaining weight components:

**or , (8)

where:

*-* the normalization coefficient;

*-* the result of the ratio of the total sum of the weights;

*-* weight components.

The normalization procedure is carried out as the sum of the components when included in the BCPI indicator and is one or 100 percent.

1. as a result, each product (service) representative, the change in prices (tariffs) for which are included in the BCPI calculations, is given additional weight.

The normalized specific gravity is found by multiplying the basis weight by the resulting normalization factor:

, (9)

where:

*–* normalized weight;

*-* base weight;

*-* the normalization coefficient.

1. taking into account the normalized weight for the remaining positions, the aggregated BCPI index is recalculated.

Calculation of BCPI without taking into account changes in prices for fresh fruits and vegetables, gasoline and coal is given in Appendix 2 to this Methodology.

Appendix 1 to the List of some orders of the Chairman of the Statistics Committee of the Ministry of National Economy of the Republic of Kazakhstan, which are amended

Appendix 1

to the Methodology for calculating the basic consumer price index

**List of goods and services for calculating the basic consumer price index without taking into account price changes for individual specific components**

|  |  |  |
| --- | --- | --- |
| Name | Code | Basic consumer price index, which is not included in the calculation, \*: |
| one component | three components | seven components |
| Goods and services | 14 |  |  |  |
| Food products | 1 |  |  |  |
| Non-food products | 2 |  |  |  |
| Paid services for the population | 19 |  |  |  |
| Bakery products and cereals | 0111 |  |  |  |
| Meat | 0112 |  |  |  |
| Fish and seafood | 0113 |  |  |  |
| Dairy products, cheese and eggs | 0114 |  |  |  |
| Oils and fats | 0115 |  |  |  |
| Fruits | 0116 |  |  |  |
| Fresh fruits | 01161 | \* | \* | \* |
| Apples | 01161001 | \* | \* | \* |
| Grape | 01161002 | \* | \* | \* |
| Bananas | 01161007 | \* | \* | \* |
| Oranges | 01161008 | \* | \* | \* |
| Lemons | 01161009 | \* | \* | \* |
| Pears | 01161011 | \* | \* | \* |
| Kiwi | 01161017 | \* | \* | \* |
| Fruits processed and canned | 01162 |  |  |  |
| Vegetables | 0117 |  |  |  |
| Fresh vegetables | 01171 | \* | \* | \* |
| Cabbage | 01171001 | \* | \* | \* |
| Bulb onions | 01171002 | \* | \* | \* |
| Beet | 01171003 | \* | \* | \* |
| Carrot | 01171004 | \* | \* | \* |
| Cucumbers | 01171005 | \* | \* | \* |
| Tomatoes | 01171006 | \* | \* | \* |
| Garlic | 01171008 | \* | \* | \* |
| Sweet pepper | 01171010 | \* | \* | \* |
| Cauliflower | 01171018 | \* | \* | \* |
| Potatoes and other tubers | 01172 | \* | \* | \* |
| Potato | 01172001 | \* | \* | \* |
| Vegetables processed and canned | 01174 |  |  |  |
| Sugar, jam, honey, chocolate and confectionery | 0118 |  |  |  |
| Food products n.e.c. | 0119 |  |  |  |
| Soft drinks | 012 |  |  |  |
| Alcoholic drinks, tobacco products | 02 |  |  |  |
| Clothing and footwear | 03 |  |  |  |
| Housing services, water, electricity, gas and other fuels | 04 |  |  |  |
| Water supply and other services related to the maintenance of residential premises | 044 |  |  |  |
| Water supply | 0441 |  |  | \* |
| Cold water | 04410001 |  |  | \* |
| garbage collection | 0442 |  |  |  |
| garbage collection | 04420001 |  |  |  |
| Drainage | 0443 |  |  | \* |
| Drainage | 04430001 |  |  | \* |
| Electricity, gas and other fuels | 045 |  |  |  |
| Electricity | 0451 |  |  | \* |
| Electricity | 04510001 |  |  | \* |
| Gas | 0452 |  |  |  |
| Gas transported through distribution networks | 04520001 |  |  | \* |
| Liquefied gas (in cylinders) | 04520002 |  |  |  |
| solid fuel | 0454 |  |  |  |
| Coal | 04540001 |  | \* | \* |
| Firewood | 04540002 |  |  |  |
| Thermal energy | 0455 |  |  |  |
| Heating is central | 04550001 |  |  | \* |
| Hot water | 04550006 |  |  | \* |
| Household items, home appliances and ongoing home maintenance | 05 |  |  |  |
| healthcare | 06 |  |  |  |
| Transport | 07 |  |  |  |
| Purchase of vehicles | 071 |  |  |  |
| Operation of personal vehicles | 072 |  |  |  |
| Spare parts and accessories for personal vehicles | 0721 |  |  |  |
| Fuels and lubricants for personal vehicles | 0722 |  |  |  |
| Petrol | 07221 |  |  |  |
| Gasoline AI-98 | 07221001 |  | \* | \* |
| Gasoline AI-92 | 07221005 |  | \* | \* |
| Gasoline AI-95, AI-96 | 07221007 |  | \* | \* |
| Fuels and lubricants for personal vehicles | 07222 |  |  |  |
| Diesel fuel | 07222001 |  |  | \* |
| Engine oil | 07222004 |  |  |  |
| Transport services | 073 |  |  |  |
| Rail passenger transport | 0731 |  |  |  |
| Local rail passenger transport | 07311 |  |  |  |
| Local train travel | 07311001 |  |  | \* |
| Passenger rail transport over long distances | 07312 |  |  |  |
| Passage in a second-class carriage of an intra-republican train | 07312004 |  |  | \* |
| Travel in a compartment car of an intra-republican train | 07312005 |  |  | \* |
| Automobile passenger transport | 0732 |  |  |  |
| Air passenger transport | 0733 |  |  |  |
| Connection | 08 |  |  |  |
| Post services | 081 |  |  |  |
| Sending parcels | 08100002 |  |  | \* |
| Courier services | 08100003 |  |  |  |
| Telephone and fax equipment | 082 |  |  |  |
| Telephone and facsimile services | 083 |  |  |  |
| Telephone subscription fee | 08300001 |  |  | \* |
| Subscription fee for Internet access | 08300004 |  |  |  |
| Cable television services | 08300006 |  |  |  |
| Cellular services | 08300008 |  |  |  |
| Satellite TV services | 08300011 |  |  |  |
| Leisure and culture | 09 |  |  |  |
| Education | 10 |  |  |  |
| Restaurants and hotels | eleven |  |  |  |
| Miscellaneous goods and services | 12 |  |  |  |

appendix 2

to the List of some orders of the Chairman of the Statistics Committee of the Ministry of National Economy of the Republic of Kazakhstan, which are amended

appendix 2

to the Methodology for calculating the basic consumer price index

**Calculation of the basic consumer price index without taking into account changes in prices for fresh fruits and vegetables, gasoline and coal**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Name | Code | Weight | Price relative to December of the base year (for the previous month) | Price relative of the reporting month to | Structural price relative to December of the base year |
| consumer price index without three components | normalized | previous month | December of the base year | reporting month | previous month |
| A | B | 1 | 2 | 3 | 4=6/7 | 5=3x4 | 6=2x5 | 7=2x3 |
| Basic consumer price index |  |  |  |  | 1.008753 |  |  |  |
| Goods and services | 14 | 0.93565 | 1.00000 | 1.563421 | 1.008753 | 1.577106 | 1.57710621 | 1.56342102 |
| Food products | 1 | 0.35252 | 0.37680 | 1.627681 | 1.012975 | 1.648800 | 0.62126780 | 0.61331021 |
| Non-food products | 2 | 0.29095 | 0.31101 | 1.406034 | 1.004665 | 1.412593 | 0.43933063 | 0.43729061 |
| Paid services for the population | 19 | 0.29218 | 0.31219 | 1.642654 | 1.007191 | 1.654466 | 0.51650778 | 0.51282020 |
| Bakery products and cereals | 0111 | 0.07302 | 0.07804 | 1.657502 | 1.022447 | 1.694707 | 0.13225496 | 0.12935147 |
| Flour | 011121 | 0.00911 | 0.00974 | 1.514634 | 1.039968 | 1.575171 | 0.01534217 | 0.01475254 |
| Wheat flour of the highest grade | 01112101 | 0.00365 | 0.00390 | 1.591084 | 1.037838 | 1.651287 | 0.00644002 | 0.00620523 |
| Wheat flour of the first grade | 01112102 | 0.00546 | 0.00584 | 1.463581 | 1.041514 | 1.524340 | 0.00890215 | 0.00854731 |
| Fruits | 0116 | 0.01681 | 0.00375 | 1.735731 | 1.004501 | 1.743547 | 0.00653830 | 0.00650900 |
| Fresh fruits | 01161 | 0.01330 |  |  |  |  |  |  |
| Apples | 01161001 | 0.00480 |  |  |  |  |  |  |
| Grape | 01161002 | 0.00080 |  |  |  |  |  |  |
| Bananas | 01161007 | 0.00240 |  |  |  |  |  |  |
| oranges | 01161008 | 0.00257 |  |  |  |  |  |  |
| Lemons | 01161009 | 0.00140 |  |  |  |  |  |  |
| Pears | 01161011 | 0.00098 |  |  |  |  |  |  |
| Kiwi | 01161017 | 0.00035 |  |  |  |  |  |  |
| Fruits processed and canned | 01162 | 0.00351 | 0.00375 | 1.735731 | 1.004501 | 1.743547 | 0.00653830 | 0.00650900 |
| Vegetables | 0117 | 0.02693 | 0.00300 | 1.573177 | 1.002464 | 1.577053 | 0.00473116 | 0.00471953 |
| Fresh vegetables | 01171 | 0.01475 |  |  |  |  |  |  |
| Cabbage | 01171001 | 0.00240 |  |  |  |  |  |  |
| Bulb onions | 01171002 | 0.00249 |  |  |  |  |  |  |
| Beet | 01171003 | 0.00199 |  |  |  |  |  |  |
| Carrot | 01171004 | 0.00222 |  |  |  |  |  |  |
| cucumbers | 01171005 | 0.00084 |  |  |  |  |  |  |
| Tomatoes | 01171006 | 0.00295 |  |  |  |  |  |  |
| Garlic | 01171008 | 0.00057 |  |  |  |  |  |  |
| Sweet pepper | 01171010 | 0.00089 |  |  |  |  |  |  |
| Cauliflower | 01171018 | 0.00040 |  |  |  |  |  |  |
| Potatoes and other tubers | 01172 | 0.00938 |  |  |  |  |  |  |
| Potato | 01172001 | 0.00938 |  |  |  |  |  |  |
| Vegetables processed and canned | 01174 | 0.00280 | 0.00300 | 1.573177 | 1.002464 | 1.577053 | 0.00473116 | 0.00471953 |
| solid fuel | 0454 | 0.00703 | 0.00247 | 1.725189 | 1.015183 | 1.751383 | 0.00432591 | 0.00426122 |
| Coal | 04540001 | 0.00472 |  |  |  |  |  |  |
| Firewood | 04540002 | 0.00231 | 0.00247 | 1.725189 | 1.015183 | 1.751383 | 0.00432591 | 0.00426122 |
| Fuels and lubricants for personal vehicles | 0722 | 0.02542 | 0.00344 | 1.382677 | 1.029022 | 1.422805 | 0.00489445 | 0.00475641 |
| Petrol | 07221 | 0.02220 |  |  |  |  |  |  |
| Gasoline AI-98 | 07221001 | 0.00455 |  |  |  |  |  |  |
| Gasoline AI-92 | 07221005 | 0.01117 |  |  |  |  |  |  |
| Gasoline AI-95, AI-96 | 07221007 | 0.00648 |  |  |  |  |  |  |
| Other fuels and lubricants | 07222 | 0.00322 | 0.00344 | 1.382677 | 1.029022 | 1.422805 | 0.00489445 | 0.00475641 |
| Diesel fuel | 07222001 | 0.00287 | 0.00307 | 1.377073 | 1.028888 | 1.416854 | 0.00434974 | 0.00422761 |
| Engine oil | 07222004 | 0.00035 | 0.00037 | 1.429192 | 1.030078 | 1.472179 | 0.00054471 | 0.00052880 |

The procedure for calculating the basic consumer price index without taking into account three components :

1) with the exception of fresh fruits and vegetables, gasoline, coal, their share and price changes are conventionally assumed to be equal to zero;

2) after the exclusion of the above positions, the total weight of the remaining goods and services is . The weights are normalized using the normalization factor: . Given its normalized weight (column 2) by position:

premium flour 

flour of the first grade 

flour group 

3) data on the long-term relative price for the previous month (column 3) are transferred from the calculation of the consumer price index. To determine, as in the corresponding calculation of the consumer price index, the short-term price relative (columns 4 and 5), taking into account the normalized weight, are calculated:

a) structural price relative of the previous month to December of the base year (column 7) by position lines: column 7 = column 2 x column 3

for premium flour 0.00390 x 1.591084 = 0.00620523

for flour of the first grade 0.00584 x 1.463581 = 0.00854731

b) structural price relative of the reporting month to December of the base year (column 6) by position lines: column 6 = column 2 x column 5

for premium flour 0.00390 x 1.651287 = 0.00644002

for flour of the first grade 0.00584 x 1.524340 = 0.00890215

c) structural relative prices by type of subclass, subclass, class, group, section are determined sequentially by summing their components.

For example, structural relative prices (columns 6 and 7) for a part of a subclass (level 5) are calculated as the sum of the position lines included in it (level 6).

column 6 for flour 0.00644002 + 0.00890215 = 0.01534217

column 7 for flour 0.00620523+0.00854731 = 0.01475254

4) the relative price for group lines is calculated by dividing the structural long-term by December of the base year:

of the reporting month to the previous month column 4 = column 6 / column 7

flour 0.01534217 / 0.01475254 = 1.039968

by December of the base year - Column 5 = Column 6 / Column 2

for flour 0.01534217 / 0.00974 = 1.575171