

Bulgaria

A: Identification

Title of the CPI: Consumer Price Index

Organisation responsible: NSI

Periodicity: Monthly

Price reference period: 1995 = 100

Index reference period: 1995 = 100; previous month = 100; December, previous year = 100; the same month of the previous year = 100; Annual average CPI, 12 months from previous year = 100; Annual average CPI, previous year = 100.

Weights reference period: 2011

Main uses of CPI: Indexation of wages, pensions and/or social security payment, indexation of rents, contracts and/or other payments, main inflation indicator used for monetary policy, deflate household expenditures in national accounts, macroeconomic modelling and other analytic uses.

B: CPI Coverage

Geographical Coverage

Weights: Nation-wide

Price collection: Main cities/metropolitan areas/regions

Population coverage: Resident households of nationals.

Population groups excluded: Institutional households.

Consumption expenditure includes:

- Food consumed away from home;
- Housing maintenance, minor repairs;
- Purchase of gifts of goods and services given to others outside the household;
- Second hand goods purchased (second hand motor cars only);
- Luxury goods;
- Financial services (including fees for financial advice, brokerage fees);
- Non-life insurance premiums (e.g. vehicle, housing, other property, medical), gross of claims;
- Licences and fees (e.g. driver's licence, hunting licence, vehicle registration);
- Expenditures abroad

Consumption expenditure excludes:

- Foods produced for own final consumption;
- Other goods produced for own final consumption;
- Services produced for own final consumption;
- Income in-kind receipts of goods;
- Income in-kind receipts of services;
- In-kind goods received as gifts;
- In-kind services received as gifts;
- Purchase of owner-occupied housing;
- Mortgage repayments;
- Mortgage interest;
- Major repairs, conversions and extensions to owner occupied housing;
- Interest payments (excluding mortgage interest payments);
- Life insurance premiums;
- Gambling expenditure, gross of winnings;
- Investment-related expenditures (e.g. purchase of shares/stocks);
- Occupational expenditures;
- Other business-related expenditures;
- Social transfers in-kind of goods and services from government and No-profit institutions serving households

C: Concepts, definitions, classifications and weights

Definition of the CPI and its objectives: The consumer price index (CPI) is an official measure of the inflation in Republic of Bulgaria. It assesses the total relative change of prices of goods and services used by the population for their own household consumption and it is calculated by applying the structure of the final expenditures of Bulgarian households. The main source of information is the Households budget survey. CPI in year t is calculated with structure of expenditures for year t - 1.

Definition of consumption expenditures: The main source of information concerning the expenditures is the household budget survey (HBS) in the country. According to the HBS methodology the household expenditure includes all resources spent by the household and its members during the surveyed period. The expenditures are estimated in a total monetary form. Total expenditure includes monetary and valued expenditure in kind. For the aim of CPI weights, only the final monetary consumption expenditures of Bulgarian households for private (non-production) purpose is used, structured by Classification of Individual Consumption by Purpose (COICOP-HICP).

Classification: COICOP (Classification of individual consumption by purpose)

Weights include value of consumption from own production: No

Sources of weights: Household expenditure surveys and additional data sources.

Frequency of weight updates: Annual

Price updating of weight reference period to the index reference period: CPI is calculated with index, price and weight reference 'previous year' = 100. There is therefore no need to price update weights.

Weights for different population groups or regions: No.

D: Sample design

Sampling methods:

Localities: Cut-off sampling (the elements with the highest sales or value of other auxiliary variable are included into the sample)

Outlets: Judgmental sampling

Products: Judgmental sampling

Frequency of sample updates:

Localities: Annual

Outlets: Annual

Products: Annual

Criteria used for determining the optimal sample sizes and the coverage of localities, outlets, items and variety samples: Localities are sampled according to the number of population and according to the volume of retail sales of each locality. CPI includes 27 district centres, where the prices are collected. Furthermore, the sample is stratified between the district centres which are distributed in three groups: capital, big and small centres. The main principle is to have different numbers of price observations in each district centre according to the population within.

The number and the structure of the observation points are done in a way that can ensure the optimum number of prices collected, which are sufficient to represent national prices for any of observed group of goods and services. The number of observation points is determined proportionally to the population in the selected district centres and to the volume of retail sales in the relevant outlets. The sample includes outlets, which have a large volume of retail sales and supply a variety of goods, representative of the relevant elementary aggregates groups. The main types of trade are covered, including supermarkets, hypermarkets, general and specialized stores and market stalls. Mail order and internet shopping are not included in the index (until now they are not relevant). Prices for PCs, mobile phones, fixed phone services and package holidays are collected from internet sites of the respective supplies.

Criteria used for selecting an item variety in the outlet in case of loose specifications provided by the central office: There are detailed specifications in the case of cars, medicines, fuels and some food and services. For the most of the products looser specifications are used. In these cases the specific variety of goods/services is selected by regional price collectors. They are instructed to select the typical product variety which is the

most sold in the sampled outlet and which meets as close as possible the specifications of the product.

E: Data Collection

Approximate number of localities, outlets and price observations: Localities: 27, Outlets: 6,086, Price observations: 35,463

Frequency with which prices are collected: All items – weekly except “Other fees in respect of personal transport equipment” (week vignettes and annual vignettes for road transport) – annually; and Education (“Tuition for state university/private universities/college”) – twice a year.

Methods of Price Collection

- Personal data collection for all other items.
- Telephone interviews for postal services.
- Internet for new cars, used cars; fees in respect of personal transport equipment (weekly and annual vignettes; Low-cost airlines tickets; telephone, telefax equipment and the like (mobile phones); fixed phone services; mobile phone services; personal computers and accompanying equipment; pre-recorded recording media; games, toys and hobbies (computer game and video game); books; Package holidays; financial services n.e.c. (ATM withdrawals fees).
- Official tariffs for electricity; legal services; administrative fees.
- Combination: tariff, mail and telephone for insurance connected with transport; other insurance (life insurance).

Treatment of:

Discounts and sales prices: Included with a note “promotion”.

Black market prices: Not collected.

Second hand purchases: Included for second-hand motor cars only.

Missing or faulty prices: In case of temporarily missing price within a product, the imputation is done in the 1st and in the 2nd month. For estimation of the missing price the method of matching samples is used and the short-term approach is applied. Imputation is done using the short-term price relative. If the price is still missing in the 3rd month, the price collector is obliged to select a replacement.

Period for allowing imputed missing prices: For all-seasonal products prices could be missing for no more than two successive months. In the third month if the product-offer is still missing, the price collector is obliged to select a replacement keeping the following principles: i) Choose another product with the most similar quality and the one that accounts for the substantial amount of sales value in the outlet; ii) Ask for the price of the new

replacement product in the previous month. When replacing an outlet, price collectors are told to choose a new one, which has to be; a) as close as possible to the old outlet; b) of the same type; and c) as similar as possible to the old outlet in term of their sales values.

Disappearance of a given type or quality from the market: When given product disappear from the market the price collectors have to replace it with another product with the most similar quality and the one that accounts for the substantial amount of sales value in the outlet. There are two possible approaches for calculating of the new product's price: direct comparison (when quality and characteristics remained unchanged) or quality adjustment (when there are differences in quality or in some of the product's characteristics).

Quality differences: The most influential methods with dealing with quality change of products are: i) Annual overlap. For many of the products new samples are drawn each year during the annual revision of consumer basket. December is used as linking month and then the dual price collection is done. The prices are collected both for the old and for the new sample. Quality differences between these two samples are then eliminated by overlap method called "annual overlap". ii) Direct comparison. Price collectors are instructed to measure the price for the same variety throughout the year and if the variety disappears permanently from the market, they should choose another one with the most similar quality. In these cases, direct comparison method is applied, because of the minor difference in quality between the old and the new variety. iii) Implicit quality adjustment methods. In some particular cases, the second approach is not applicable, due to the fact that quality difference between old and new product is "significant", and implicit quality adjustment methods are applied. Overlap, bridged overlap (class-mean imputation) and option cost pricing are used. Quality adjustment procedures are done centrally by the staff in central office. At regional level, price collectors do not make any quality adjustments; they are only instructed to report to central office for the all cases of considerable quality changes of the replacement products.

Appearance of new items: The procedures for identification of newly significant goods and services is based on: i) Analyses of household budget survey data on the structure of household expenditures; ii) Price collectors information; iii) Research and consultations with suppliers; iv) PPP survey; and v) Eurostat list. Newly significant goods and services are introduced at the end of each year (in December) during the annual revisions of consumer basket.

Treatment of seasonal items and seasonality

Items that have a seasonal character and their treatment: Seasonal items are pre-defined at the beginning of each year. Seasonal items for 2012 are: fresh fruits and vegetables, clothing and footwear. The fixed-weight approach is used for determining of the weights for seasonal items i.e. during the whole year indices of seasonal products are calculated with fixed weights. During the 'out-of-season' months, for missing fruit and vegetables an imputed price is calculated, using the price movements of the fresh products that are available on the market (that are 'in season'). The method is applying under keeping the following requirements: (1) short-term approach is used and (2) careful choice of these seasonal goods each month is done, for which will apply method of imputed price and determine the concrete product or consumption group, whose index will be used for extrapolation.

Seasonal food items: Seasonal food items are included in the CPI using fixed weights approach: the weights are kept constant over the year, while prices of out-of season products are estimated or imputed.

Seasonal Clothing: Seasonal clothing items are included in the CPI using fixed weights approach: the weights are kept constant over the year, while prices of out-of season products are estimated or imputed.

Method to impute the price of seasonal items: Prices are imputed using price development of in-season products and all available products, including non-seasonal items, i.e. ASE and CSE

Treatment of housing

Treatment of owner-occupied housing: Owner occupied housing is not included in the CPI.

Types of dwellings covered by the rent data: Actual and social rentals of most common type of rented dwellings: one bedroom apartments, 40-50 square metre, with bathroom and lavatory, with and without central heating prices for social rentals are collected from administrative decisions of the municipalities or administrations as well as from tenant. Prices of actual rentals are collected from tenants, landlords or firms. In cases when the respondent is tenant or landlords, the price development of the current dwelling is observed for the whole term of the contract (current or old tenancy). When firms are the respondents then prices comprise current as well as new tenancy. For each dwelling the price is calculated once in a year and is observed the following 11 months.

F: Computation

Formula used for calculation of elementary indices: The ratio of geometric mean prices (Jevons index) (Direct form)

Formula to aggregate elementary indices to higher level indices: Base indices for the groups of 4th, 3rd, 2nd and 1st level are compiled as Laspeyre's-type indices:

$$I_{t/b(m)} = \frac{\sum_{i=1}^n I_{t/b(m+1)} \cdot W_{(m+1)}^i}{\sum_{i=1}^n W_{(m+1)}^i}, \text{ where:}$$

m is the hierarchical level ($m = 4$ for group of goods, $m = 3$ – class, $m = 2$ – group, $m = 1$ – division and $m = 0$ – overall CPI);

n is the number of groups from $(m+1)$ -th hierarchical level, going into the group from m -th hierarchical level;

$W^i_{(m+1)}$ - base weights.

Formula of aggregating regional/population group indices into national index: National stratification is used.

Monthly and annual average prices: The average national price for every good or service in the consumer basket is compiled as the geometric mean of all prices (real and imputed):

$$P_t = \sqrt[n]{\prod_{i=1}^n P_t^i}$$

where:

P_t - denotes national price for the current month;

P_t^i - price of i-th item;

n - number of recorded and imputed prices.

Seasonally adjusted indices: No

Software used for calculating the CPI: Specially designed software for the purpose of CPI/HICP data management and calculations.

G: Editing and validation procedures

Control procedures used to ensure the quality of data collected: Data quality checks and validation work is distributed between central office and regional statistical offices, but most of the data editing work is carried out at the national level. The data validation process at regional offices can be divided into two stages. The first one takes place during the collecting and entering of the collected prices into the computer system. The second stage takes part after the data has been typed and processed into the system.

Control procedures used to ensure the quality of data processed: Information is checked and validated by specialists in regional statistical offices and if necessary, prices are cross-checked in outlets. The validation of the data in the central office is done after the first index calculation. The prices are checked and validated by 3 people at the CPI division. Data quality checks fall into the following types of validation: 'relevant' index change validation (extreme and unusual price levels/changes); missing prices validation; outlets replacement validation; product specification change validation; fresh products price change validation; etc. There is no automatic rejection of observed prices in our validation process. Each case (problematic price) is considered individually and all necessary modifications are done only on the basis of relevant information.

H: Documentation and dissemination

Timeliness of dissemination of the CPI data: CPI data is published on the 1st working day after the 11th calendar day of the month following the reference month, i.e. 12-14 days after the reference month

Level of detailed CPI published

Paper publication: Division-level (12 Divisions), Group-level app. 40 groups, Class-level (100 classes) and Average prices

Online: Division-level (12 Divisions), Group-level app. 40 groups, Class-level (100 classes), Average prices

Separate indices published for specific population groups: No

Type of products for which average prices are calculated and disseminated: Average prices are calculated for all goods and services included in the CPI basket. As prices are not representative they are not disseminated.

Documentation

Publications and websites where indices can be found: NSI presents each year the Catalogue of Statistical Publications to user's attention (<http://www.nsi.bg/publikacii.php?P=179&SP=183&PSP=7#cont>). The Catalogue contains detailed and clearly structured information on NSI printed and electronic publications. For 2012 these are: 'Statistical Yearbook of the Republic of Bulgaria', Chapter 'Prices'; 'Statistical Reference Book', Chapter 'Prices'- annual publication of NSI; 'Bulgaria - Statistical Panorama'; 'Bulgaria ' - annual brochure of NSI; and 'Key Indicators for Bulgaria'.

Publications and websites where methodological information can be found: Data, metadata and methodology of CPI are disseminated on the web site of NSI: <http://www.nsi.bg/index.php>

I: Other Information

Reported by the country in 2012.