

United States of America

A: Identification

Title of the CPI: Consumer Price Index

Organisation responsible: Bureau of Labor Statistics

Periodicity: Monthly

Index reference period: 1982-1984

Weights reference period: 2009-2010

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, computation of purchasing power of households, macroeconomic modelling and other analytic uses.

B: CPI Coverage

Geographical Coverage

Weights: Urban areas

Price collection: Urban areas

Population coverage: Resident households of nationals and resident households of foreigners in the country.

Population groups excluded: Institutional households (1.29%), military families i.e. (consumer units that receive 50% or more of their income from armed forces pay), farm families, rural and non-metropolitan population.

Consumption expenditure includes:

- Food consumed away from home;
- Income in-kind receipts of goods;
- Income in-kind receipts of services;
- Housing maintenance, minor repairs;
- Major repairs, conversions and extensions to owner occupied housing;
- Purchase of gifts of goods and services given to others outside the household;
- Second hand goods purchased (only used cars and trucks);
- 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;
- In-kind goods received as gifts;
- In-kind services received as gifts;
- Purchase of owner-occupied housing;
- Mortgage repayments;
- Mortgage interest;
- 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 CPI is a measure of the average change over time in the prices paid by urban consumers for a fixed market basket of consumer goods and services.

Definition of consumption expenditures: Expenditures are typically the acquisition costs, as measured by the actual financial obligation at the time of the acquisition, in dollar terms, for any payment method, for goods and services. A notable exception is rental equivalence. Government user fees for water and sewage, auto registration, vehicle tolls, and taxes directly associated with consumer purchase are also included.

Classification: BLS CPI market basket of goods and services

Weights include value of consumption from own production: No

Sources of weights: Household expenditure surveys.

Frequency of weight updates: Every two years

Price updating of weight reference period to the index reference period: Estimated expenditures in the weight reference period are updated to the month before their first use in index calculation (the pivot month). The update relative is calculated as the ratio of the pivot month index divided by the average index value during the weight reference period. Consequently, the updated expenditure weight reflects quantities from the weight reference period and implicit prices from the pivot month.

Weights for different population groups or regions: Weights are compiled for wage earner population. Additional weights are compiled for the elderly population for use in an experimental index series.

D: Sample design

Sampling methods:

Localities: Stratified sampling with PPS sampling in each stratum

Outlets: Stratified sampling with PPS sampling in each stratum

Products: Stratified sampling with PPS sampling in each stratum

Frequency of sample updates:

Localities: Every ten years

Outlets: Continuous (on a rotating basis)

Products: Continuous (on a rotating basis)

If sample updates are irregular indicate when last updates were introduced: While the overall outlet and product samples are rotated continuously, the sample for a given item in a given area is rotated every 4 years for commodities and services and every 6 years for housing.

Criteria used for determining the optimal sample sizes and the coverage of localities, outlets, items and variety samples: The Commodities & Services sample allocation methodology is as follows: First, a variance function that projects the variance of price change as a function of major item groups for the commodity and service components is modelled. Second, a cost function that predicts the total annual cost of the commodity and service components of the CPI is formulated. Third, values for all coefficients of the two functions, including estimates of outlet sample overlap, are estimated. Fourth, nonlinear programming techniques are used to determine approximately optimal sizes for the item and outlet samples needed to minimize the CPI variance under varying assumptions of annual price change subject to cost constraints. The Housing sample is allocated proportional to the housing expenditures within each area. The CPI covers the entire consumption sector of the US economy for all urbanized areas.

E: Data Collection

Approximate number of localities, outlets and price observations: Localities: 87 Primary Sampling Areas, Outlets: 27,000 retail outlets and 7,500 housing units, Price observations: 107,500 (attempted price quotations): 100,000 (C&S) and 7,500 (Housing)

Frequency with which prices are collected: Monthly – shelter, all food at home, fuels & utilities, housing at school, tenants and household insurance, lodging away from home, telephone services, tobacco products, postage & delivery services, motor fuel, state and local

vehicle fees, parking & tolls, tuition & education expenses and recreational reading materials, shelter, Bi-Monthly – food away from home, apparel and upkeep, medical care, recreation commodities & services other than reading material, household furnishings and operations, transportation less motor fuel.

Reference period for data collection: BLS collects prices throughout the entire month. Observations are designated into certain periods (5/7 days) within each month and then re-priced during that designated period.

Methods of Price Collection

- Personal data collection for food, apparel, services, household commodities, medical care, transportation and shelter.
- Telephone interviews for utilities, recreational and household services, tuition, tobacco, alcoholic Beverages and shelter.
- Internet for apparel, services and household commodities.
- Secondary sources for used cars and trucks and airline fares.

Treatment of:

Discounts and sales prices: They are used in the calculation of the index.

Black market prices: Not Eligible

Second hand purchases: Other than used cars and trucks – not eligible

Missing or faulty prices: BLS employs multiple methods to account for missing or faulty prices, including class mean and cell relative imputation, carry forward and re-weighting methods, among others.

Period for allowing imputed missing prices: If the retail outlet indicates an item or service is temporarily or seasonally unavailable BLS allows the imputation time period to vary by category. The range varies from 1 month to 24 months before a data collector is instructed to select a replacement item.

Disappearance of a given type or quality from the market: When an outlet discontinues an item or service the data collector utilizes a BLS collection form (“checklist”) and the BLS substitution procedures to find the closest substitute that the outlet offers for sale. The collection form and procedure ensure that as many as possible of the critical quality characteristics of the replacement are the same as those of the discontinued item.

Quality differences: BLS employs multiple methods to account for quality change, determining price on a per unit basis, (accounts for size/quantity change), manufactured provided adjustments (new and used vehicles) and hedonic regression analysis (apparel, electronics and appliances).

Appearance of new items: For most categories, BLS will continue to price the selected item until it is no longer available at the outlet. The appearance of new items in the marketplace may be reflected in the sample at sample rotation or at substitution. Exceptions to this procedure include new vehicles (model year change-over), personal computers (national office directed substitution) and prescription drugs (national office directed substitution).

Treatment of seasonal items and seasonality

Items that have a seasonal character and their treatment: i) Fresh fruits: The number of quotes is doubled to ensure that, despite the seasonal disappearance of a substantial number of quotes, a large enough number of in-season quotes remains to calculate the index. The quotes in these ELIs are paired; that is, for each original quote that is selected, a second quote in the same category and outlet is initiated and priced 6 months later. ii) Apparel: The number of quotes is doubled to ensure that, despite the seasonal disappearance of a substantial number of quotes, a large enough number of in-season quotes remains to calculate the index. One quote of each pair is designated fall/winter, and one quote is designated spring/summer. The fall/winter and spring/summer designations are used for the non-food quotes because these are the distinctions that are most commonly used by the retailing industry to categorize seasonal merchandise.

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: Impute the price by using price development of in-season products.

Treatment of housing

Treatment of owner-occupied housing: The cost of owner-occupied housing is estimated using the rental equivalence method. This method estimates the cost of owner-occupied housing based on actual market rents collected from a sample of renter-occupied housing units that are identified to be representative of owner-occupied housing.

Types of dwellings covered by the rent data: All types of dwellings are covered by the rent data. Examples include single detached, single attached, mobile home/trailer, and multi-unit dwellings. Rent data are collected by CPI field agents. The housing unit is first screened to ensure that it is eligible for the housing sample and, if eligible, it is initiated in person. Once a unit is initiated, it will be priced either in person or by phone every six months. Since rents are not volatile, the Housing sample is assigned to six sub-samples called panels. One-sixth of the sample is priced in January and then in July (panel 1), panel 2 in February and August, and so on through panel 6 in June and December. During initiation and each pricing, BLS collects: Contract rent and rental period (monthly, bi-monthly, weekly or for a specified number of days); Utilities, facilities and any other such items included in the rent; Any subsidies or reductions in the rent in exchange for services the tenant provided; Any extra charges included in the contract rent for optional items such as parking; The number of

rooms, type of housing structure, and other physical characteristics; Equipment used for air conditioning (A/C) and fuels used for heat and hot water.

F: Computation

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

Formula to aggregate elementary indices to higher level indices: Laspeyre's formula. To aggregate the CPI-U and CPI-W, the BLS calculates an estimate of aggregate expenditures by summing the weighted indexes for the lower levels, and then dividing by the aggregation weight of the aggregate index. The aggregation weight is calculated as the updated expenditure weight divided by the pivot month index. The aggregation weight stays constant until the next weight update.

Each month:

$$IX_{I,A,t} = \frac{\sum_{i \in I, a \in A} aggwt_{i,a,p} * IX_{i,a,t}}{aggwt_{I,A,p}}$$

Weight update:

$$expenditures_{i,a,p} = expenditures_{i,a,\beta} * \frac{IX_{i,a,p}}{IX_{i,a,\beta}}$$

$$aggwt_{i,a,p} = \frac{expenditures_{i,a,p}}{IX_{i,a,p}}$$

Formula of aggregating regional/population group indices into national index: The same formula is used as for other aggregates (above). In this case, I=All items, and A=U.S.city average. Because the Laspeyres formula is consistent in aggregation, the aggregation can be done in parts. In practice, depending on which set of trees we are using, we sometimes aggregate items first followed by areas, and sometimes areas first, followed by items.

Monthly and annual average prices: Prices are weighted by an implicit estimate of quantity, calculated by dividing the quote-level expenditure weight by the base price.

$$\bar{P}_t = \frac{\sum \frac{W_{it}}{P_{ib}} P_{it}}{\sum \frac{W_{it}}{P_{ib}}}$$

Seasonally adjusted indices: X-12 ARIMA

Software used for calculating the CPI: SAS

G: Editing and validation procedures

Control procedures used to ensure the quality of data collected: At the time of collection, data capture software identifies discrepant characteristics and significant price change, requiring either modifications to the data to bring discrepancies into alignment or to provide additional justifications, depending on the type and scope of the discrepancies. Collected data are randomly reviewed and/or recollected to independently verify the information.

Control procedures used to ensure the quality of data processed: Processed data are reviewed by staff, independent from data collectors. Data are flagged for review based on characteristics such as change in item; change in item description, or on price change. Review staff may enter into correspondence with collection staff for additional information. Additional review is performed for a subset of the flagged data, based on additional characteristics.

H: Documentation and dissemination

Timeliness of dissemination of the CPI data: CPI data is published approximately two weeks after the reference month.

Level of detailed CPI published

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

Separate indices published for specific population groups: The U.S. publishes a CPI for all urban consumers (CPI-U), a CPI for urban wage earners and clerical workers (CPI-W), and a CPI for Americans 62 years of age and older (CPI-E).

Type of products for which average prices are calculated and disseminated: Average prices are calculated for a wide variety of food and energy items.

Documentation

Publications and websites where indices can be found: The CPI detailed report can be found at <http://www.bls.gov/CPI/> under 'CPI Tables'. The current news release can be found at <http://www.bls.gov/news.release/pdf/CPI.pdf>.

Publications and websites where methodological information can be found: The Bureau of Labor Statistics (BLS) Handbook of methods details BLS methodological information. Chapter 17 of the Handbook covers the CPI and can be found at <http://www.bls.gov/opub/hom/pdf/homch17.pdf>.

I: Other Information

Reported by the country in 2012.