

# United Kingdom

## A: Identification

**Title of the CPI:** Retail Prices Index

**Organisation responsible:** Office for National Statistics

**Periodicity:** Monthly

**Price reference period:** Jan 1987=100

**Weights reference period:** 2010

**Main uses of CPI:** Indexation of wages, pensions and/or social security payment, indexation of rents, contracts and/or other payments, computation of purchasing power of households , macroeconomic modelling and other analytic uses.

## B: CPI Coverage

### Geographical Coverage

*Weights:* Nation-wide (incl. expenditure by UK households abroad)

*Price collection:* Nation-wide

**Population coverage:** Resident households of nationals

**Population groups excluded:** Institutional households, high income households (4%) and households which derive at least  $\frac{3}{4}$  of their income from state pensions and benefits.

### Consumption expenditure includes:

- Food consumed away from home;
- Mortgage interest;
- Housing maintenance, minor repairs;
- Major repairs, conversions and extensions to owner occupied housing
- Second hand goods purchased (only second hand cars);
- 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;
- Purchase of gifts of goods and services given to others outside the household;
- 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 Retail Prices Index (RPI) is the most long-standing general purpose measure of inflation in the UK. The uses of the RPI include the indexation of various prices, the uprating of index-linked gilts and the revalorisation of excise duties. Prior to April 2011 it was also used for the indexation of benefits, tax credits and public service pensions.

**Definition of consumption expenditures:** The RPI mostly measures the acquisition of goods and services, but there are exceptions where it has been decided that this is not the most appropriate approach.

**Classification:** RPI classification

**Weights include value of consumption from own production:** No

**Sources of weights:** Household expenditure surveys, and a variety of sources for areas (e.g. tobacco) where it is expected that the household expenditure survey will underestimate expenditure.

**Frequency of weight updates:** Annual

**Price updating of weight reference period to the index reference period:** Expenditure values are revalued to base month prices (i.e. the current January) using the change in the appropriate RPI indices.

**Weights for different population groups or regions:** Regional stratum weights are used in the construction of many item indices, and the same weights are used in the RPI. These regions are equivalent to the EU NUTS1 level.

## D: Sample design

### **Sampling methods:**

*Localities:* Stratified sampling with PPS sampling in each stratum

*Outlets:* Stratified sampling with PPS sampling in each stratum

*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:** The number of locations, outlets and products sampled are designed to best reflect consumer spending patterns given available resources.

**Criteria used for selecting an item variety in the outlet in case of loose specifications provided by the central office:** Price collectors are asked to choose one variety 'representative of what people buy in your area' from all products matching the specification. To facilitate this, they ask the retailer what are the most popular brands and those stocked regularly.

## **E: Data Collection**

**Approximate number of localities, outlets and price observations:** Localities: 141, Outlets: 20,000, Price observations: 180,000

**Frequency with which prices are collected:** Most items are collected monthly; those items where it is known that prices change only occasionally (e.g. some services) are collected quarterly. Some regulated prices (e.g. council tax) are only collected annually at the point at which they are known to change.

**Reference period for data collection:** Most prices are collected on and around a specific Tuesday towards the middle of the month.

### **Methods of Price Collection**

- Personal data collection for goods sold in shops.
- Telephone interviews for services, e.g. garage charges.
- Internet for internet purchases, goods with a national pricing policy.
- Official tariffs for TV licences.

## Treatment of:

**Discounts and sales prices:** Generally included in line with HICP guidelines – ‘Buy one, get one free’ offers are ignored.

**Black market prices:** Not collected.

**Second hand purchases:** Generally excluded, with the exception of second hand cars

**Missing or faulty prices:** Goods which are missing (but should be available) in a given month are carried forward for a maximum of 3 months, at which point a replacement item must be selected.

Period for allowing imputed missing prices: Maximum 3 months.

**Disappearance of a given type or quality from the market:** If an item disappears from the market, the replacement item will be selected by the price collector who will attempt to find a replacement that fits the top-line item description and is as comparable as possible with the previous item.

**Quality differences:** A variety of quality adjustment methods are used including option costing, single-variable adjustment and hedonic quality adjustment.

**Appearance of new items:** New items are introduced to the ‘basket’ of goods and services as part of the annual weights update.

## Treatment of seasonal items and seasonality

**Items that have a seasonal character and their treatment:** Some fruits and vegetables, clothing items and seasonal furniture. Prices are imputed forward using the price movements of comparable ‘in-season’ goods already in the basket.

**Seasonal food items:** Seasonal food items are included in the RPI 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 RPI 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:** Mortgage interest payments, house depreciation and costs associated with purchasing a house are included.

**Types of dwellings covered by the rent data:** All types i.e. private rents collected on a rolling quarterly basis and public rents collected at fixed points (usually annually) when price changes occur.

## **F: Computation**

**Formula used for calculation of elementary indices:** The ratio of arithmetic mean prices (Dutot index) (Direct form) and the arithmetic average of the price ratios (Carli index) (Direct form).

**Formula to aggregate elementary indices to higher level indices:** Laspeyre's type (Lowe) indices.

**Formula of aggregating regional/population group indices into national index:** Laspeyre's type (Lowe) indices

**Monthly and annual average prices:** Averages of prices for selected items (mostly food) are calculated for the RPI. The items are those which are likely to be reasonably homogenous across all outlets and over time, so that an average price is reasonably meaningful. For each January, the number of valid prices for each item, the average and the 10th and 90th percentiles are calculated. For subsequent month up to and including the following January, the figures are the January average price uprated by the price index for that item.

**Seasonally adjusted indices:** Prices in the RPI are not seasonally adjusted. However, the ONS produces a seasonally adjusted RPIY (RPI excluding mortgage interest payments and indirect taxes). X12 ARIMA is used for the calculations.

**Software used for calculating the CPI:** Ingress relational database. Some Excel spread sheets are used for data collection.

## **G: Editing and validation procedures**

**Control procedures used to ensure the quality of data collected:** Several checks are carried out on data entered into the hand-held computers by collectors, including ensuring price indicator codes have been used sensibly, plus price change and min/ max value checks. To check price collections are carried out correctly, auditors employed by ONS carry out monthly quality audits or individual local price collections selected by ONS. These can take the form of the auditor accompanying a price collector or in retrospectively visiting the outlets visited by the price collector and checking to see that the prices were correctly recorded.

**Control procedures used to ensure the quality of data processed:** Once data are received in the office, the data collection checks outlined above are applied again. Prices failing either test are excluded unless manually accepted during subsequent analysis by ONS staff. An outlier detection process known as the Tukey algorithm is then applied to the remaining prices. All prices failing the Tukey algorithm excluding those within 10 index points of the item index calculated using the accepted prices, are marked as invalid. Further manual checking of invalid prices then takes place. Prices which have been marked with a 'Q' code (a query and note made by the price collector for ONS staff to examine) are checked and

verified. As a final check of the acceptance of high and low indices in the final index calculation, all individual price quote indices above 180 or below 60 are identified. For each, a report of all locally collected quotes, treated as valid, is issued to senior price analysts for final approval. At this stage, the scrutiniser will seek confirmation that particularly high or low outliers have been checked and may withdraw them from the final calculation if not satisfied.

## H: Documentation and dissemination

**Timeliness of dissemination of the CPI data:** The RPI is published on a Tuesday approximately three weeks after the end of the reference period.

### 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:** RPI pensioner indices are published.

**Type of products for which average prices are calculated and disseminated:** Averages of prices for selected items (mostly food) are calculated for the RPI. The items are those which are likely to be reasonably homogenous across all outlets and over time, so that an average price is reasonably meaningful.

## Documentation

### Publications and websites where indices can be found:

<http://www.ons.gov.uk/ons/re1/CPI/consumer-price-indices/april-2012/index.html>, Consumer price indices statistical bulletin, Consumer price indices: detailed briefing notes, Consumer Price indices: detailed RPI reference tables, Time series data are published here <http://www.ons.gov.uk/ons/re1/CPI/consumer-price-indices/april-2012/CPI-time-series-data.html>

**Publications and websites where methodological information can be found:** Consumer Price Indices Technical Manual 2012 Edition (<http://www.ons.gov.uk/ons/guide-method/user-guidance/prices/CPI-and-rpi/consumer-price-indices-technical-manual.pdf> )

## I: Other Information

Reported by the country in 2012.