



Office for
National Statistics

Consumer Price Indices

A brief guide

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Consumer price indices

Consumer price indices are important indicators of how the UK economy is performing.

The indices are used in many ways by the government, businesses, and society in general. They can affect interest rates, tax allowances, wages, state benefits, pensions, maintenance, contracts and many other payments. They also show the impact of inflation on family budgets.

This booklet describes the two main consumer price indices in the UK – the Consumer Prices Index (CPI) and the Retail Prices Index (RPI) – and explains how they are put together. It focuses on the RPI but highlights areas where the CPI differs significantly.

Inflation figures



Consumer price indices measure the change in the general level of prices charged for goods and services bought for the purpose of consumption in the UK.

In the UK, there are two main measures of inflation – the Consumer Prices Index¹(CPI) and the Retail Prices Index (RPI). The Government’s inflation target is based on the CPI. The Bank of England’s Monetary Policy Committee sets interest rates to meet this target. The RPI is the more familiar measure of inflation. Tax allowances, state benefits, pensions and many other payments are often revised in line with this index.

The CPI and RPI measure a wide range of prices. The price of cars or hi-fi equipment might fall while the price of housing or petrol may rise.

The indices represent the average change in prices across a wide range of consumer purchases. This is achieved by carefully recording the prices of a typical selection of products from

Inflation figures (continued)

month to month using a large sample of shops and other outlets throughout the UK.

The rest of the booklet explains how the RPI is put together. The approach used for the CPI is generally very similar, although some specific differences are highlighted later in this guide.

1 Until December 2003, the CPI was published in the UK as the harmonised index of consumer prices (HICP). The CPI and HICP remain one and the same index.

Shopping basket



A convenient way of thinking about the RPI is to imagine a very large 'shopping basket' full of goods and services on which people typically spend their money: from bread to ready-made meals, from the cost of a cinema seat to the price of a pint at the local pub, from a holiday in Spain to the cost of a bicycle. The content of the basket is fixed but, as the prices of individual products vary, so does the total cost of the basket. The RPI, as a measure of that total cost, only measures price changes. If people spend more because they buy more goods this does not affect the index.

The quantities or 'weight' of the various items in the basket are chosen to reflect their importance in the typical household budget.

Shopping basket (continued)



In practice we all spend different amounts on various goods and services that show different price movements. While no one is 'average', it is still convenient to have summary price measures which, although they may not strictly apply to any one individual or family, still give us a useful yardstick of the impact of inflation on our own pocket or purse. By focussing the RPI calculations on average spending patterns, ONS aims to produce inflation measures that are relevant to the majority of households.

Considerable care is taken to ensure the shopping basket is kept up-to-date and is representative of people's spending patterns, the places and shops we go to, the goods and services we buy and the amounts we spend on them.

The cost of living?



The RPI is not strictly a 'cost of living' index, a concept that means different things to different people. To many it would suggest the changing costs of basic essentials, but in practice it would be very difficult to agree on a definition of 'essentials'. The index simply indicates what we would need to spend in order to purchase the same things we chose to buy in an earlier period, irrespective of whether particular products are 'needed' or 'good for you'. For example, some people buy cigarettes, so these are included in the index. However, the calculations reflect the average shopping basket and so also take account of the fact that many people do not buy tobacco.

What's in the basket?



The RPI includes virtually all types of household spending, as shown on pages 10 and 11 of this guide. There are some exceptions. For example savings and investments, charges for credit, betting and cash gifts all fall outside the scope of the index. It is impractical and unnecessary to monitor the price of every product sold in every single shop. The prices of similar items can reasonably be assumed to move in line with one another in response to market forces. It is therefore sufficient to compile the index using prices of a large and varied sample of products in selected locations. The goods and services for which prices are recorded are called 'representative items'.

The RPI is compiled using more than 650 separate representative items. Their movements are taken to represent the price changes for all goods and services covered by the index, including those for which prices are not specifically monitored. There are, for example, several items in the basket covering purchases of bread – such as a large white sliced loaf and large wholemeal loaf – that are combined together to estimate the overall change in bread prices.

Retail Prices Index – goods and services

Food

- Bread
- Cereals
- Biscuits & cakes
- Beef
- Lamb
- Pork
- Bacon
- Poultry
- Other meat
- Fish
- Butter
- Oils & fats
- Cheese
- Eggs
- Milk, fresh
- Milk products
- Tea
- Coffee & other hot drinks
- Soft drinks
- Sugar & preserves
- Sweets & chocolates
- Potatoes
- Vegetables
- Fruit
- Other foods

Catering

- Restaurant meals
- Canteen meals
- Take-away meals & snacks

Alcoholic Drink

- Beer 'on sales'
- Beer 'off sales'
- Wines & spirits 'on sales'
- Wines & spirits 'off sales'

Tobacco

- Cigarettes
- Other tobacco

Housing

- Rent
- Mortgage interest payments*
- Depreciation*
- Council tax & rates*
- Water & other charges
- Repairs & maintenance
- Do-it-yourself materials
- Dwelling insurance & ground rent*

Fuel and light

- Coal & solid fuels
- Electricity
- Gas
- Oil & other fuels

Retail Prices Index – goods and services (continued)

Household goods

- Furniture
- Furnishings
- Electrical appliances
- Other household equipment
- Household consumables
- Pet care

Household services

- Postage charges
- Telephone charges etc
- Domestic services
- Fees & subscriptions

Clothing and Footwear

- Men's outerwear
- Women's outerwear
- Children's outerwear
- Other clothing
- Footwear

Personal goods & services

- Personal articles
- Chemists' goods
- Personal services

Motoring expenditure

- Purchase of vehicles
- Maintenance of vehicles
- Petrol & oil
- Vehicle tax* & insurance

Fares & other travel costs

- Rail fares
- Bus & coach fares
- Other travel costs

Leisure goods

- Audio-visual equipment
- CDs & tapes
- Toys, photographic & sports goods
- Books & newspapers
- Gardening products

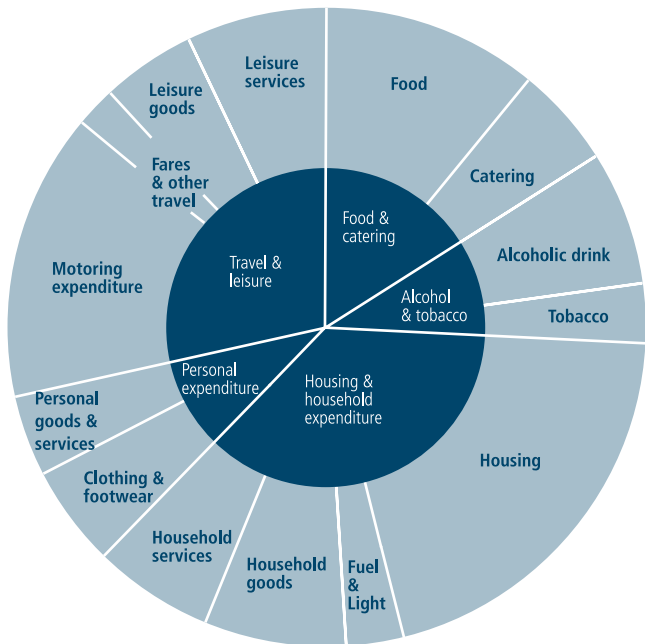
Leisure services

- TV Licences & rentals
- Entertainment & other recreation
- Foreign holidays
- UK holidays

* not included in the CPI.

The RPI does not cover the following services which are included in the CPI: unit trusts and stockbroking charges, foreign students' university tuition fees and university accommodation fees.

Retail Prices index – structure



Price collection



Around the middle of each month, price collectors (staff from Research International acting on behalf of the ONS) record about 110,000 prices for over 550 items consisting of specified types of goods and services. They go to a variety of shops in around 150 places throughout the UK. Most local shops are visited in person to collect prices at first hand, although some work is done by telephone. The price collectors go to the same shops each month, noting the prices of the same products, so that over time they compare like with like.

The reliability of the index depends very much on retailers' goodwill. The information collected is treated with the strictest confidence, and no data relating to individual retailers or businesses is ever passed on to a third party.

For many goods and services it is more efficient to collect prices centrally. Information on charges such as those for TV licences, water supply, newspapers, Council Tax and rail fares – about 110 indicators in all – are obtained from central sources. Also, some large chain stores which have national pricing policies for their branches help by sending information directly to the ONS.

Quality change

It is important that the index calculations are based each month on 'like for like' comparisons of prices for each of the items in the basket.

However, some brands or varieties of particular products priced at the start of the year may not be available in later months. This is common in markets where the rate of technological progress is high, as is the case with many electronic goods, or where consumer tastes change rapidly, for example in clothing.

When particular products do disappear from the market, care is taken to ensure that replacements are of broadly comparable quality so that price comparisons are not distorted. If this is not possible, prices are adjusted to take account of the change in quality, using one of a range of techniques from fairly simple methods to procedures that relate the prices of goods to their features.

Explicit adjustments are made for example in the case of personal computers, where most replacement models are of higher quality than their predecessors. A rise in price might be accompanied by improvements say in memory or processing speed. In this case, the quality-adjusted or 'like for like' comparison of prices will show lower inflation than an index which did not take account of improved quality.

In this way, quality adjustment helps to focus the index on 'underlying' price changes for a fixed basket of goods and services.

Weighting

We spend more on some things than others, so we would expect say a ten per cent increase in the price of petrol to have a much bigger impact on the RPI than a similar rise in the price of tea. For this reason the components of the index are 'weighted' to ensure that it reflects the importance of the various items in the average shopping basket, and the amounts we spend in different regions of the country and in different types of shops.

The weights for the RPI are derived from a number of sources but mainly from ONS's Expenditure and Food Survey. Each year, a sample of several thousand households from all over the country keep records of their spending over the course of a fortnight. They also record details of major purchases over a longer period.

In calculating the weights, the expenditure of people in households with the top four per cent of incomes and low-income pensioners is excluded on the grounds that the spending of these groups is significantly different from the great majority. Pensioners who are mainly dependent on state benefits are represented in separate 'pensioner indices'. These restrictions are designed to make the RPI more representative of the 'typical household'.

The CPI's weights are based on the expenditure of all private households in the UK, foreign visitors to the UK and residents of communal establishments such as nursing homes, retirement homes and university halls of residence. The weights are mainly derived from the National Accounts.

Updating the shopping basket



It is important that the index is representative and kept up-to-date. The basket of goods and services is therefore reviewed every year, helping to ensure that the RPI calculations properly reflect UK shopping and purchasing patterns.

A wide range of information is used in determining the contents of the RPI basket, including ONS' own surveys of household spending, external market research and feedback from the price collectors. Some changes to the basket are necessary each year due to changing markets, fashions and new products. Flat screen TV's and Sat Nav's, for example, have been added in recent years. The basket is held fixed for a year at a time.

The weights for the index are also changed each year to keep pace with general changes in our spending habits. Over the years people have tended to spend more of their money on electrical goods, travel and leisure while the proportion they spend on basics such as food has fallen.

Calculating the index



After the price data have been checked and processed, the resulting price indicators are combined. Changes in prices of the individual goods and services in the index are measured by comparing them to their levels in the previous January. These are then weighted together using the weights for the current year to produce an overall average price change.

The final stage in the calculation is to link the average price changes with the figures for earlier years. Only by 'chain-linking' the calculations in this way can the index:

- take account of changes in the make-up of the shopping basket from year to year
- provide like with like comparisons between different years

This procedure ensures that the index is not distorted when items are either removed from, or introduced into the RPI shopping basket.

Reference dates

The RPI measures price changes, not price levels.

It is therefore expressed in terms of the comparison of prices relative to January 1987, when the index is given a value of 100.

For example:

The index for January 2008 was 209.8, indicating that £209.80 would buy the same amount of goods and services as £100 would have in January 1987. This represents a rise in prices of approximately 110 per cent.

The annual rate of inflation is simply the percentage change in the latest index compared to the value recorded 12 months previously.

For example:

The index for January 2008 was 209.8, which, compared with 201.6 recorded a year earlier, means that the annual rate of inflation was 4.1 per cent.

The RPI reference date of January 1987 is arbitrary, providing simply a convenient benchmark for comparison. The choice of date has no material effect on the measurement of price changes between one month and another, and has been changed several times since the index started in 1947.

Compared with the RPI, the CPI has a much shorter history. The official series starts in January 1996 – although estimates are available back to 1988 – and price levels are expressed relative to 1996, when the index has a value of 100.

Index dates



The index always refers to a Tuesday near the middle of each month. Since it can often take longer than one day to collect all the local shop prices, some of these are collected on the Monday or the Wednesday. However, certain prices such as those for petrol, which can fluctuate markedly from day to day, always relate to the Tuesday. Centrally collected prices, with only a few exceptions, also relate to a Tuesday.

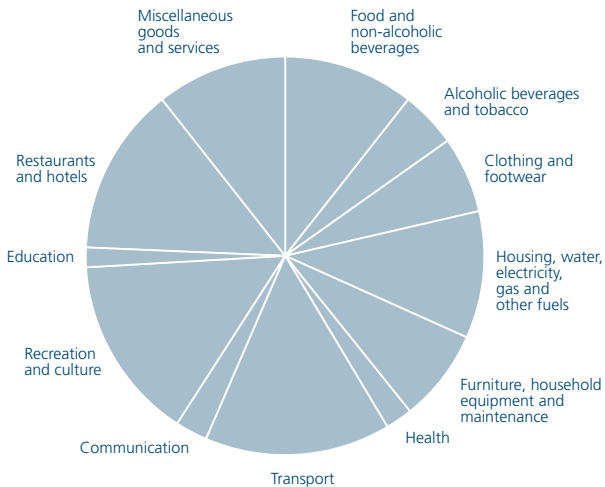
Consumer Prices Index

The CPI forms the basis for the Government's inflation target, which was set at an annual rate of 2 per cent in December 2003. It is also an internationally comparable measure of inflation, published in the UK until December 2003 as the Harmonised Index of Consumer Prices (HICP). Although the name has changed, the CPI and HICP remain one and the same index, calculated according to rules specified in a series of European Regulations.

The CPI uses essentially the same basic price data as the RPI but differs from it in some important respects, most of which are described earlier in this guide. The differences include:

- the goods and services covered by the index. For instance, the CPI does not include Council Tax and a number of housing costs faced by homeowners. But there are also some services covered by the CPI – such as charges for financial services – which are not in the RPI (see pages 10-11);
- the people whose expenditure is covered by the weights. The CPI covers a broader population than the RPI (see page 15);
- the mathematical formulae used to calculate the price changes for the most detailed components of the two indices. In practice this means that the CPI always shows a lower inflation rate than the RPI for given price data;
- the way in which the goods and services are classified. The CPI structure (see next page) follows international definitions while the RPI (shown on pages 10-12) has its own specific structure.

Consumer Prices Index – structure



Other inflation measures

No single inflation measure can meet all users' needs.

In addition to the CPI and RPI, ONS also publishes other inflation measures based on the RPI. One of the best known of these is RPIX, which excludes mortgage interest payments and was used to define the Government's inflation target prior to the switch to the CPI in 2003. As well as mortgage interest payments, the RPIY measure also excludes indirect taxes such as VAT, excise duties and other specific taxes. It is a measure of underlying price change excluding the direct impacts of economic policy changes.

Income tax and National Insurance are excluded from the RPI, but are taken into account in another separate index – the Tax and Price Index (TPI). This shows how much taxpayers' gross income needs to change in order to maintain their spending power after taking account of the tax that has been deducted as well as changes in prices.

Along with the 'headline' or all-items RPI and CPI indices, ONS also publishes inflation rates for their component indices, including broad groups ranging from food to leisure services, as well as narrower categories from bread to foreign holidays. These component indices are of interest to a range of users whose focus is on particular markets, and are published together to present a richer picture of inflation across the full range of UK household spending.

Publication

The figures are published each month on the National Statistics website, www.statistics.gov.uk, in a *First Release* and accompanying detailed *Briefing Notes*, on a Tuesday about a month after the index date. The publication dates are announced six months in advance.

The latest figures can also be obtained by ringing the recorded information service on: **01633 456961**

Further details and analysis of the results subsequently appear in several National Statistics publications such as *Focus on Consumer Price Indices*, *Economic Trends* and *Labour Market Trends*. Data are also available in computer-readable format from the National Statistics website.

A detailed explanation of the methodology used in compiling the Consumer Prices Index and the Retail Prices Index is given in the *Consumer Price Indices Technical Manual*, available at: www.statistics.gov.uk/statbase/Product.asp?vlnk=2328

A statistical evaluation and comparison of the Consumer Prices Index, as the Government's inflation target, and the Retail Prices Index excluding mortgage interest payments (RPIX) is given in the following article: *The new inflation target: the statistical perspective*, available at: www.statistics.gov.uk/ci/article.asp?ID=688

Further information

Further information about the Consumer Prices Index, the Retail Prices Index and the HICP can be obtained from the following address:

Office for National Statistics

Prices Division
Room 1.227
Cardiff Road
Newport
NP10 8XG

Telephone: **01633 456900**

Fax: **01633 652536**

Email: **cpi@ons.gov.uk**
rpi@ons.gov.uk

Website: **www.statistics.gov.uk/rpi**

For general enquiries on National Statistics, contact;

The Customer Contact Centre on: **0845 601 3034**

(minicom: 01633 812399)

Letters: Customer Contact Centre
Office for National Statistics
Cardiff Road
Newport
NP10 8XG

Office for National Statistics
Cardiff Road
Newport
NP10 8XG

Tel: 0845 601 3034

email: info@statistics.gov.uk

website: www.statistics.gov.uk