Calculating the Retail Prices Index

We describe the Retail Prices Index and how it is calculated. Part of technical guidance on consumer prices indices.

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1 . Overview

The Retail Prices Index (RPI) is the most long-standing measure of inflation in the UK, but it is not an Accredited Official Statistic. It is a legacy measure that we are legally required to compile, maintain and publish every month. It is currently used for long-term indexation and for index-linked gilts and bonds.

This article describes the RPI and how it is calculated in comparison to the Consumer Prices Index including owner occupiers' housing costs (CPIH) and the Consumer Prices Index (CPI). The majority of the differences between the RPI and the CPIH also apply to the CPI. The exception is owner occupiers' housing costs (OOH) and Council Tax, which are included in both the RPI and the CPIH (although the methods used to measure OOH differs between the indices), but not CPI.

How we compile measures of inflation

This article is part of a set explaining how consumer price inflation and associated indices are compiled. Other related guidance articles include:

- Consumer prices indices technical guidance
- Scope and coverage of consumer prices indices
- Traditional data aggregates in consumer prices
- Special case aggregates in consumer prices
- Alternative data aggregates in consumer prices
- Private rents and owner-occupier housing aggregates in consumer prices
- Higher-level aggregation and weights in consumer prices
- How we publish our consumer price outputs

2 . Overview of the Retail Prices Index

The Retail Prices Index (RPI) was assessed against the Code of Practice for Official Statistics in early 2013 and the UK Statistics Authority ("the Authority") cancelled its designation as an accredited official statistic (then referred to as "National Statistics") because:

- the methods used to produce the RPI are not consistent with internationally recognised best practices
- the decision to freeze the methods used to produce the RPI and only to contemplate "routine" changes was inconsistent with the requirement in the Code to seek to achieve continuous improvement

The RPI also has other known weaknesses as a measure of consumer price inflation, including its population coverage that excludes certain households. The 2015 Johnson Review on Consumer Price Statistics described these deficiencies and the National Statistician's letter in March 2016 strongly discouraged its use. The article Shortcomings of the Retail Prices Index as a measure of inflation summarises the main flaws of the RPI.

In addition to the requirement for the Authority to compile, maintain and publish the RPI every month, the Bank of England and the Chancellor of the Exchequer also have governance roles under the Statistics and Registration Service Act 2007 (PDF 258KB).

Before making any change to the coverage or the basic calculation of the RPI, the Authority must consult the Bank of England as to whether the change constitutes a fundamental change in the index that would be materially detrimental to the interest of the holders of relevant index-linked gilt-edged securities. If the Bank of England considers that the change does constitute a fundamental change in the index that would be materially detrimental, the change cannot be made without the consent of the Chancellor of the Exchequer.

In 2020, the Authority consulted on reforming RPI by bringing in the methods and data sources of the Consumer Prices Index including owner occupiers' Housing costs (CPIH) into it. However, the then Chancellor of the Exchequer was unable to consent to the implementation of this proposal. Nevertheless, it remains the Authority policy to address the shortcomings of the RPI in full at the earliest practical time. The change we propose can legally and practically be made by the Authority in February 2030. For more information please refer to our Response to the consultation on the reform to Retail Prices Index (RPI) methodology (PDF, 858KB).

3 . About the Retail Prices Index

History of the Retail Prices Index

Although there were occasional official comparisons of prices for food in the late 19th century and early 20th century, the government first began a systematic, continuous check on the increase in the cost of living in 1914. This "cost of living index" was produced throughout the 1920s and 1930s.

In 1946, a Cost of Living Advisory Committee was set up. This Committee recommended fundamental changes in the selection and number of representative items for which prices should be collected, as well as the removal of the name "cost of living index" and the associations it implied. The resulting index, the Interim Index of Retail Prices, began being produced in June 1947 and continued, with some minor modifications, to 1956. By 1955, sufficient information became available to underpin a new index and this became the first official Retail Prices Index (RPI), beginning in January 1956.

Various changes were made to the RPI through the 1960s and 1970s and in the early 1980s, an advisory committee was convened to review the RPI. During the 1990s, the Harmonised Index of Consumer Prices (HICP) was introduced, which is now known as the Consumer Prices Index (CPI).

Basic principles of the Retail Prices Index

The RPI, like the CPIH and the CPI, measures inflation with reference to the changing cost of a fixed basket of goods and services. In most areas, the RPI is calculated from the same basic price data as the CPIH and uses similar methodology both in compiling and aggregating the component price indices. However, it does differ from the CPIH in some specific respects and, in some cases, these differences can have an important influence on the measured rate of inflation. Some elements of the RPI are included in the Household Costs Indices (HCIs) but not the CPIH or CPI.

The differences, including the coverage and classification of goods and services, the population basis for the weights which excludes certain households, and the mathematical formula used to aggregate the prices at the most basic level, are considered in the sections that follow.

Reference period

The published RPI, and its components, express price levels at a given point in time as a percentage of the level at some previous date, known as the reference period. The level of the reference period is 100. A change in reference period has no effect, other than due to rounding, on the percentage movement between any pair of months but is merely a re-scaling of the whole series up or down by a constant factor. For the RPI, unlike many other price-related statistical series, the reference period has no connection with the "weighting base date".

The RPI uses a single collection point in time, a January, for the reference period.

Since 1947, the reference period for the RPI has changed five times (in January 1952, January 1956, January 1962, January 1974 and January 1987), on each occasion following the recommendations of the RPI Advisory Committee.

Index coverage and classification

The RPI scope, and its associated classification system comprising groups and sections, was specified and developed by earlier RPI Advisory Committees. The coverage and classification of the CPIH indices are based on the international classification system for household consumption expenditures known as the Classification of Individual Consumption According to Purpose (COICOP); more information is available in our Scope and coverage of consumer prices indices article. The RPI classification system comprises:

- broad groups (for example, food and catering)
- groups (for example, food)
- sections (for example, bread)

The following is a summary of the broad relationship between the RPI groups and the divisions as defined in the current version of the Classification of Individual Consumption According to Purpose (COICOP) used for CPIH:

RPI groups that correspond with COICOP 01 Food and non-alcoholic beverages

- Food

RPI groups that correspond with COICOP 2 Alcohol and tobacco

- Alcoholic drink (off sales)
- Tobacco

RPI groups that correspond with COICOP 3 Clothing and footwear

- Clothing and footwear

RPI groups that correspond with COICOP 4 Housing and household services

- Housing (excluding mortgage interest payments, owner occupiers' housing costs (OOH) payments, depreciation, Council Tax, ground rent and building insurance)
- Fuel and light

RPI groups that correspond with COICOP 5 Furniture and household goods

- Household goods
- Domestic services

RPI groups that correspond with COICOP 6 Health

- Personal goods and services (health-related items)

RPI groups that correspond with COICOP 7 Transport

- Motoring expenditure
- Fares and other travel costs

RPI groups that correspond with COICOP 8 Communication

- Household services (excluding domestic services and fees and subscriptions)

RPI groups that correspond with COICOP 9 Recreation and culture

- Leisure goods
- Leisure services

RPI groups that correspond with COICOP 10 Education

- Fees and subscriptions (education-related items)

RPI groups that correspond with COICOP 11 Restaurants and hotels

- Catering
- Alcoholic drink (on sales)

RPI groups that correspond with COICOP 12 Miscellaneous goods and services

- Personal goods and services (non-health-related items)
- Fees and subscriptions (non-education-related items)

Differences in scope

The scope and coverage of the RPI are those goods and services that are based largely on our Living Costs and Food Survey (LCF). While the vast majority of goods and services that are priced are included in the RPI, CPIH, CPI and HCIs, there are a small number of important differences in scope.

The main differences are in the area of housing costs. In particular, unlike the CPI, the RPI, CPIH and HCIs include Council Tax and owner occupiers' housing costs (OOH), though their approach used to measure OOH is different.

Some items in the CPIH, CPI and HCIs are collected more frequently. Prices for petrol and oil can exhibit particularly volatile price movements. For the CPIH, CPI and HCIs, these prices are collected on a weekly basis (every Monday), and then are averaged over the month to create a price.

The RPI, in comparison, only uses one price point taken on a specific collection date. Fruit and vegetables also exhibit volatile price movements and so from February 2018, the measurement of locally collected fruit and vegetable prices in the CPIH and CPI baskets was improved by including additional price quotes collected on the Friday preceding index day.

For other items, RPI, CPIH, CPI and HCIs share a more frequent price collection. This includes Hotel, advanced price, 1 night; Internet-purchased and downloaded computer games; Rail fares for Great Britain; Second-hand petrol and diesel cars and grocery items where scanner data are used.

Conversely, there are a small number of representative items that are excluded from the RPI but included in the CPIH, CPI and HCIs because they represent expenditure by people who are not covered by the RPI weights. This includes high-income private households, residents of institutional households and foreign visitors. In practice, the number of these items is small, currently including:

- university accommodation fees
- foreign students' university tuition fees
- unit trust and stockbrokers' charges

Geographical coverage

The geographical coverage of the RPI is the whole of the UK (England, Wales, Scotland and Northern Ireland), but not offshore islands of the UK such as the Channel Islands and the Isle of Man which, strictly speaking, are not in the UK.

Reference population

This comprises all private households (not those living in institutions such as prisons, retirement homes or student accommodation, for example) excluding pensioner households, which derive at least three-quarters of their total income from state pensions and benefits, and high-income households, defined as those households whose total household income lies within the top 4% of all households, as measured by the Living Costs and Food Survey (LCF). The RPI also excludes foreign visitors' expenditure in the UK, unlike the CPIH and CPI. Households not excluded are called index households.

Expenditure items

Since expenditure items are the goods and services bought by the reference population for the purposes of consumption, expenditure for savings and investment purposes, direct taxes, National Insurance contributions, cash gifts, and gambling are excluded from the scope of the RPI.

House purchases could represent the acquisition of a major capital asset (investment) rather than consumption, so purchase without a mortgage and capital repayments of a mortgage are excluded (for more information please refer to our Private rents and owner-occupier housing aggregates in consumer prices article.

Mortgage interest payments (MIPs), however, are included. Major home improvements, such as building an extension, are capital investments and so are excluded, but re-decoration and maintenance are included. Property taxes, currently Council Tax in Great Britain and "rates" in Northern Ireland, are also included as they are considered an important part of the cost of using a dwelling.

Like the CPIH, CPI and HCIs, no account is taken in the RPI of services free at the point of consumption, even if consumers have paid for them indirectly through taxes or National Insurance contributions. Charges made at the point of consumption, such as the supply of prescription medicines, are included, which is consistent with the CPIH and CPI.

Transaction prices

The prices used in the RPI should be purchaser prices actually paid by the reference population households to purchase individual goods and services via monetary transactions. These prices should include any taxes less subsidies on the products and exclude interest or services charges added under credit arrangements.

While the RPI mostly measures the acquisition of goods and services, there are several exceptions where it has been decided that this is not the most suitable approach. This particularly applies to owner-occupiers' housing costs, which reflects the use of owner-occupiers' housing services rather than the acquisition of or payments for those services. More detail of this is provided in to our Private rents and owner-occupier housing aggregates in consumer prices article.

4 . Aggregation and chaining

Elementary aggregate formula

One of the main differences between the Retail Prices Index (RPI) and our other consumer price inflation statistics is the formula used for the calculation of elementary aggregate indices, that are used where detailed weights are unavailable.

The RPI uses arithmetic means: the average of price relatives (Carli) and ratio of average prices (Dutot). The CPIH, CPI and HCIs mainly use the geometric mean (Jevons) instead, although Dutot is also used in part where necessary. In line with international best practice, we consider the use of Carli to be inappropriate, as discussed in our Traditional data aggregates in consumer prices article; our plans to reform the RPI are described in Section 2: Overview of the Retail Prices Index.

Note that for much of the food, alcohol and tobacco baskets, where scanner data are used, elementary aggregation is consistent between RPI and our other consumer price inflation statistics.

The divergence between the RPI and CPIH caused by their differing approaches to elementary aggregation is referred to as the formula effect. Between February 2006, when the official CPIH annual growth rate series begins, and December 2018, the formula effect (that is, the effect of using Jevons for elementary aggregation in the CPIH, rather than arithmetic means) contributed at least 0.3 percentage points, and on average about 0.6 percentage points, to the difference between the CPIH and RPI 12-month rates of change.

In other words, the CPIH annual rate would typically have been about 0.6 percentage points higher if the elementary aggregates had been using arithmetic means as in the RPI. The impact of the formula effect increased in 2010 because of changes to collection practises within the clothing and footwear division. The clothing and footwear division is the largest contributor to the absolute impact of the formula effect.

Higher-level aggregation and chaining

The RPI is an annually chain-linked index: each year a separate index based on the most recent January = 100 is produced, and each year's indices are then chained together once a year as the weights are updated at the same time as new items are introduced each February, to produce an index covering several years. This is in contrast to CPIH, CPI and HCIs, which must be chain-linked twice every year (for more information please refer to our Higher-level aggregation and weights in consumer prices article.

Aggregation

Indices for higher levels (based on the previous January) are weighted averages of the elementary aggregate indices.

Formula 1: The formula for calculating higher-level RPI aggregates from weights and indices

$$I_k^{0,t} = \frac{\sum_{i \epsilon k} w_i I_i^{0,t}}{\sum_{i \epsilon k} w_i}$$

Where:

- $I_k^{0,t}$ is the index for category *k* in period *t*, with base period *0*
- $I_i^{0,t}$ is a lower-level index *i*, part of the higher-level category *k* in period *t*, with base period *0*
- W_i is the expenditure weight for index *i*

This formula applies equally whether we are calculating item indices from lower-level strata, or higher-level aggregates from item indices. (In practice, items are aggregated into sections, sections into groups, groups into broad groups, and then broad groups into the all-items index.)

This aggregation is done with indices based on previous January = 100, before they are chained as described in the following section.

Chain-linking

To produce the 1987-based indices, the indices are chained together each January starting from 1987. Thus, for May 1988 we have:

Formula 2: Example formula for chain-linking the Retail Prices Index May 1988

$$I_{May\ 88|Jan\ 87} = \frac{I_{Jan\ 88|Jan\ 87}}{100} \times I_{May\ 88|Jan\ 88}$$

For May 1989 we have:

Formula 3: Example formula for chain-linking the Retail Prices Index in May 1989

$$I_{May\ 89|Jan\ 87} = \frac{I_{Jan\ 88|Jan\ 87}}{100} \times \frac{I_{Jan\ 89|Jan\ 88}}{100} \times I_{May\ 89|Jan\ 89}$$

and so on.

Item and elementary aggregate indices are not chained, because many items in the RPI basket change each year. At higher levels of aggregation, it is necessary to chain the RPI every year because the weights and samples change.

It is possible to chain an index every month rather than just every January. For Dutot indices, provided that the weights and item list remained fixed, this would yield the same results. However, for the Carli index, the result would usually be that the index would grow more rapidly than it should, a phenomenon known as "price bounce".

5 . Treatment of owner-occupiers’ housing costs

The Retail Prices Index (RPI), like the Consumer Prices Index including owner occupiers' housing costs (CPIH), includes owner occupiers' housing costs (OOH). However, the RPI uses a variant of the user cost approach, which omits opportunity cost and capital gains, to measure OOH. The CPIH also measures user costs but instead uses a rental equivalence approach (for more information, please refer to our Private rents and owner-occupier housing aggregates in consumer prices article.

The RPI approach is sometimes also described as following a pseudo-payments approach because of the similarities with the payments approach. Nonetheless, there are a number of differences between the RPI measure and the payments approach, such as the RPI including a proxy for the depreciation cost of the property rather than directly accounting for major repairs and maintenance. A direct payments approach is used in the Household Costs Indices (HCIs), which additionally includes stamp duty.

In the CPIH, the preferred method for measuring OOH is the rental equivalence method because the exclusion of asset prices makes it more appropriate as a measure of consumption. The underlying data are of good quality and allow the measure to be reliably estimated. This is widely used internationally.

The housing component of RPI includes:

- Council Tax and rates
- depreciation
- DIY materials
- dwelling insurance and ground rent
- mortgage interest payments
- repairs and maintenance charges
- water and other charges

The following sections describe the approach currently adopted for mortgage interest payments, depreciation, Council Tax and estate agents' fees that are part of the household services component.

Mortgage Interest Payments (MIPs)

Both the weight and price changes for mortgage interest payments (MIPs) are modelled in the RPI and the HCIs. This model is designed to estimate the interest payment due on a standard dwelling for an average index household over time. A range of assumptions and parameters are employed, meaning that the calculation can appear complex in practice. However, the underlying approach may be summarised as follows.

Consistent with the fixed-basket approach adopted throughout the RPI, average payments are calculated each month with respect to a fixed stock of new and existing mortgages (of various ages) equivalent to those existing in the January base period. In calculating the index in subsequent periods, it is important that the base period stock of mortgages of various vintages is uprated according to changes in house prices. For example, a new mortgage taken in February will in most years be higher than the equivalent new mortgage taken in the January base period, reflecting the monthly increase in house prices. Similarly, in February the value of a mortgage taken, say, 24 months earlier will on average be higher than the equivalent two-year-old mortgage in January to the extent that house prices rose between the two months two years ago.

Interest payments on this basket of revalued base mortgages may then be calculated with reference to current period mortgage interest rates. It follows that current mortgage rates and movements in house prices over time are the main determinants of the MIPs component of the RPI.

Table 1 provides a stylised example of the monthly calculation underpinning the MIPs index.

Table 1: Example of monthly calculation of mortgage interest payments (MIPs) in the RPI, UK

	Average house price (£)	Proportion of repayment mortgages	Proportion of endowment mortgages	Proportion of debt outstanding for repayment mortgages	Proportion of mortgagor households	Current debt for repayment mortgages (£)	Current debt for endowment mortgages (£)	Current total debt (£)	Debt per household (£)
Column reference	a	b	c	d	e	f	g	h	i
Current month	141,553	0.75	0.25	1	0.0074	58,391	19,464	77,854	576.12
1 month ago	143,357	0.75	0.25	0.9981	0.0074	59,022	19,712	78,734	582.63
2 months ago	141,766	0.75	0.25	0.9962	0.0073	58,256	19,493	77,749	567.57
3 months ago	142,886	0.75	0.25	0.9943	0.0073	58,605	19,647	78,251	571.23
4 months ago	140,322	0.75	0.25	0.9924	0.0072	57,443	19,294	76,737	552.51
5 months ago	142,267	0.75	0.25	0.9904	0.0072	58,122	19,562	77,683	559.32
6 months ago	138,554	0.75	0.25	0.9885	0.0071	56,496	19,051	75,547	536.39
7 months ago	135,756	0.75	0.25	0.9866	0.0071	55,249	18,666	73,915	524.8
8 months ago	132,692	0.75	0.25	0.9847	0.007	53,898	18,245	72,143	505
9 months ago	131,101	0.75	0.25	0.9828	0.007	53,149	18,026	71,175	498.23
10 months ago	130,152	0.75	0.25	0.9809	0.007	52,662	17,896	70,558	493.91
11 months ago	127,913	0.75	0.25	0.979	0.0069	51,656	17,588	69,244	477.78
12 months ago	128,796	0.75	0.25	0.9771	0.0069	51,912	17,709	69,621	480.39
…	…	…	…	…	…	…	…	…	…
273 months ago	25,735	0.75	0.25	0.024	0.0012	255	3,539	3,794	4.55

274 months ago	25,555	0.75	0.25	0.0159	0.0012	168	3,514	3,682	4.42
275 months ago	25,376	0.75	0.25	0.0079	0.0012	83	3,489	3,572	4.29

Source: Consumer prices indices technical guidance from the Office for National Statistics

The calculation begins with the average price of new and existing dwellings based on the UK House Prices Index (column a). These prices reflect houses bought on mortgages in each month over a finite history (currently 23 years). The average house price is weighted to reflect a constant mix of house types across the UK, as described later. For each month in the 23-year calculation, house prices are then multiplied by the proportion of the purchase price that is borrowed to finance house purchase, fixed at 55% for houses.

The resulting time series for the value of the average mortgage advance is then used to calculate two separate current debt series, one for repayment mortgages and another for endowment-type mortgages. For repayment mortgages, debt is first multiplied by the current proportion of capital outstanding on a standard 23-year repayment mortgage started months earlier (derived from a standard annuity calculation in which the initial debt is amortised over 23 years assuming a fixed interest rate throughout – column d). Debt outstanding on an endowment-type mortgage, by contrast, does not decline over time. The two series are weighted by the proportions of households holding repayment and endowment-type mortgages (columns b and c).

The resulting series (columns f and g) are summed to give average current debt outstanding on mortgages of 276 different vintages, weighted by mortgage type (column h). Multiplying by the proportion of index households holding mortgages of each vintage (column e – proxied by the living costs and food survey (LCF) data showing the length of time owner-occupying index households have lived at their present address) and summing across all months yields the average mortgage debt currently outstanding per owner-occupying index household with a new or existing mortgage. Assuming that the example in Table 1 gives an average mortgage debt of £40,000, we now calculate an average weekly index payment.

This average debt figure is then scaled down to give an average over all index households, including outright owners and tenants. There are three scaling factors, derived from the LCF.

The proportion of all index households who have been at the same address for less than 23 years

£40,000 x 76% (revised annually) = £30,400

The proportion with mortgages

£30,400 x 73% = £22,192

The proportion of all index households who are owner-occupiers

£22,192 x 72% = £15,978.24

(All other types of index household will have, or are assumed to have, zero mortgage debt in the model.)

The resulting figure is multiplied by current-period mortgage interest rates (5% in this example):

- £15,978.24 x 5% = £798.91

And the average weekly payment per index household is derived as:

- £798.91 x (7 / 365) = £15.32

The estimated January average payment determines the weight of MIPs in the RPI for the current year (the average payment is expressed in weekly terms so that it can easily be combined with other LCF data used in the calculation of RPI section weights). The MIPs index, based on the previous January = 100, is calculated as the current month's average weekly payment expressed as a percentage of the average weekly payment in January. In-year indices are chained in the usual way to provide a long-run MIPs index based on January 1987 = 100.

House price estimates

Following the introduction of a new UK House Prices Index (UKHPI) in June 2016, there was an update to the calculation of the housing components of the RPI to reflect the new UKHPI rather than the historic House Prices Index (HPI). These changes were introduced in February 2017. A further improvement from the UKHPI was introduced in March 2026, relating to the imputation of missing property characteristics in the modelling process.

The UKHPI includes all residential properties purchased at market value in the UK. The UKHPI, which is produced by us but published by HM Land Registry, introduced improvements such as cash sales, which were previously excluded from our HPI, and using a geometric mean, while our HPI used an arithmetic mean.

However, although the published UKHPI uses a geometric mean, an arithmetic mean is required for the RPI. Therefore, a version of the UKHPI is calculated separately using an arithmetic mean for use in the RPI. The UKHPI is used in the calculation of some RPI housing components, namely mortgage interest payments, estate agents' fees, ground rent and house depreciation.

Sales only appear in the UKHPI once the purchase has been registered, meaning that there can be a delay before transactions feed into the index. The publication timetable of the monthly UKHPI is such that it is not available for direct use in the RPI calculation of that month. The house price estimate used in the RPI is therefore calculated by combining the monthly change in the Nationwide index with the latest available UKHPI average house price value. This assumes that the Nationwide index "leads" the UKHPI index by one month. Prior to February 2017, Halifax data was used for this forecast, but analysis of the two series found that the Nationwide index provides a better forecast. Calculation of the average house price for the mortgage interest payments (MIPs) index in any given month is, therefore, given by the following formulae:

Formula 4: The formula for forecasting the UKHPI using the Nationwide index

$$HP_t = UKHPI_{t-1}^{hp} \times \frac{NW_{t-1}^{ind}}{NW_{t-2}^{ind}}$$

$$HP_{t-1} = UKHPI_{t-1}^{hp}$$

Where:

- HP_t = house price in the current period
- HP_{t-1} = house price in period *t*-1
- $UKHPI_{t-1}^{hp}$ = UKHPI house price in period *t*-1
- NW_{t-1}^{ind} = Nationwide index in period *t*-1
- NW_{t-2}^{ind} = Nationwide index in period *t*-2

Sources of interest rate data

The interest rates used are a weighted average of interest rates charged by the largest banks and building societies. Up to January 2010, the interest rate was a weighted average of the Standard Variable Rate (SVR) of interest from the main bank and building society providers using data supplied by the Bank of England. However, the mortgage market had evolved with increased take up of alternative mortgage types including fixed rate, discount and tracker mortgages, which were not covered in the SVR measure. The main concern was that few mortgages were on SVR rates and as such the SVR did not reflect the average rate that borrowers were paying.

As an alternative measure of interest, we developed the Average Effective Rate (AER) jointly with the Bank of England. This is more representative of the mortgage rates available, covering around 90% of bank and building society lending. The AER is calculated using the same data as the Bank of England's published effective rate, which includes various mortgage rates weighted together based on market share. For the RPI, these rates are weighted by the relevant stock of mortgages each January (for the calculation of the "effective rate", the Bank reweight the index each month). The AER is in line with the Retail Prices Index (RPI) concept of a fixed basket with fixed weights within each year. The final mortgage interest payments (MIPs) series then reflects both new and existing mortgages and can follow the evolution of the mortgage market.

The AER for any month cannot be compiled in time to be included directly in that month's RPI. However, the Bank of England forecasts the effective rate for the current month using the latest available data, and this was extended to produce a forecast AER. Such an approach is consistent with the methodology used to estimate the change in house prices within the MIPs series. The forecast is produced by weighting together a combination of fixed and floating rate mortgage series. The fixed rate series uses two- and five-year quoted fixed rates weighted together after taking 24- and 60-month rolling averages respectively. The SVR is used for the stock of floating rates. The use of forecasting does have an effect on both the MIPs series and the all-items RPI, but any error introduced is much smaller than the difference between SVR- and AER-based series.

Re-weighting mortgage interest payments (MIPs)

At the annual Retail Prices Index (RPI) re-weighting, the data derived from the Living Costs and Food Survey (LCF) and the relative weights for different mortgage interest rates are all assessed and revised as necessary.

The various parameters used in the mortgage interest payments (MIPs) model need to be revised from time to time to ensure that the model continues to represent the experience of RPI households. Those factors that affect the quantity of owner-occupied housing are reviewed annually, while those that affect the quantity of mortgage financing are reviewed more infrequently, usually being kept fixed for at least five years at a time. Under these guidelines, the sources and frequency of updating the model parameters are shown in the following.

Reviewed annually

- Profile of length of time owner-occupiers have lived in their present houses: these data are used as a proxy for the profile of time since the initial mortgage was taken out, excluding owner-occupiers of more than 23 years' residence; data are obtained from the Living Costs and Food Survey (LCF) on an annual basis, and we interpolate these data into monthly values.
- The repayment of capital profile (that is, for repayment mortgages) is the proportion of the initial mortgage that is still outstanding for each month.
- Proportion of index households who are owner-occupiers and who have lived at current property for less than 23 years: these are derived from the LCF.
- Proportions of endowment-type versus repayment mortgages: data are obtained from the Council of Mortgage Lenders' survey of mortgage lending.

Reviewed periodically

- Average initial length of mortgage (currently 23 years): data are obtained from the Council of Mortgage Lenders' survey of mortgage lending.
- Proportion of owner-occupiers with duration of residence under 23 years with mortgages: data are obtained from LCF.

Owner-occupiers' housing depreciation

Since January 1995, as a result of the recommendations of a Retail Prices Index Advisory Committee (RPIAC) review of the treatment of owner-occupiers' housing costs in the RPI, a house depreciation component has been included in the RPI. Its inclusion represents the expenditure that all owner-occupiers would find necessary to maintain their house at a constant quality, the intention of the RPI being to measure prices of goods of constant quality.

Depreciation is measured at current replacement cost. It represents the notional amount needed to be put aside to cover large infrequent renovations required to make good deterioration and obsolescence and does not include routine repairs and maintenance covered elsewhere in the RPI. The cost of depreciation to owner-occupiers is a measure of the amount of housing "consumed" in the current period and, combined with mortgage interest payments (MIPs), provides an approximation of the current cost of shelter to owner-occupiers.

The RPIAC recommended that an index of house prices be used as a proxy for the depreciation component. To understand why this index was chosen as the price indicator, it is necessary to examine first how the weight for depreciation costs is calculated. The market value of the UK housing stock represents the price at which housing could be purchased at current prices, so using a proportion of market value as an RPI weighting component is consistent with the use of a house prices index as the price indicator. Ideally, it would relate to the price of dwellings excluding land, but there is no such index suitable for RPI purposes. Instead, the monthly house price index used is based on the UK House Prices Index (UKHPI) house price used for MIPs, as described in "Mortgage Interest Payments (MIPs)".

The new UKHPI was introduced in June 2016, leading to there being an update in the calculation of the housing components of the RPI to reflect this. These changes were introduced in the February 2017 index published on 21 March 2017. Prior to this, house prices from our House Price Index (formerly produced by the Ministry of Housing, Communities and Local Government) were used. A further improvement from the UKHPI was introduced in March 2026, relating to the imputation of missing property characteristics in the modelling process.

From January 1995 to June 1996, the depreciation component of the RPI was based on the monthly Ministry of Housing, Communities and Local Government (MHCLG) House Price Index. However, this series was volatile, leading to volatility in the all-items RPI. As the depreciation component represents only notional, rather than actual expenditures, a smoothed version of the MHCLG House Price Index (not the index used for MIPs) has been used since July 1996. The smoothed index was scaled to have the same level in June 1996 as the unsmoothed index, so that no step change occurred. The smoothed index is also used for ground rent, which is also a notional measure. However, the unsmoothed index is still used for MIPs and estate agents' fees, as these represent actual expenditures. Since February 2017, the UKHPI has replaced the MHCLG House Price Index (produced by us after 2012) in this calculation.

The smoothing technique used is exponential smoothing.

Formula 5: Exponential smoothing formula used to calculate the depreciation index

$$S_t = \alpha H_t + (1 - \alpha) S_{t-1}$$

Where:

- H_t is the house price index for the current month
- S_t is the smoothed index for the current month
- S_{t-1} is the smoothed index for the previous month
- is a smoothing parameter

In practice, the UKHPI is not available until a month after it is needed. The current month's index for housing depreciation is therefore the smoothed index for the previous month calculated using the previous month's UKHPI data. Each January, the resultant series is re-scaled to 100. The parameter is currently set at 0.5. It is reviewed periodically. If the UKHPI index is rising (or falling) steadily, the smoothed series will be systematically below (or above) the original. This does not introduce bias, as only the change in the smoothed index affects the RPI.

The weight of the depreciation component in the RPI is calculated by multiplying the previous end-year's average house price, excluding land, by a rate of depreciation derived from UK national accounts data. This is then converted to obtain the notional weekly expenditure on depreciation by the average index household.

The rate of depreciation derived from UK national accounts' data is the ratio of the capital consumption of household sector dwellings at current replacement cost to the gross capital stock of household sector dwellings for the previous year, expressed as a percentage. The rate of depreciation actually used is the average of the rates over the last ten years. This is reviewed annually.

The previous end-year's average house price is calculated by dividing the total value of owner-occupied housing stock by the total number of owner-occupied dwellings. Then the average value of a small plot of building land is subtracted to arrive at an average value of an owner-occupied dwelling excluding land. This is recalculated during the annual RPI re-weighting.

Council Tax

The index is based on the average Band D Council Tax bills across all households in Great Britain. Council Tax bills for other bands are set as fixed proportions of the Band D bill and so the percentage change experienced by households occupying these homes will be the same as for a Band D property.

Information for England, Wales and Scotland is supplied by the MHCLG, the Welsh Government and the Scottish Government respectively. The average figures are weighted together using the number of chargeable properties in each country to give the overall figure for Great Britain. The index measures households' liability for Council Tax, rather than actual payments made, and is usually fixed for 12 months from April of each year, so the index increases only in April. However, "charge capping" of some local authorities' expenditure plans can cause the index to drop after April when the caps are implemented.

The average level of payments is slightly lower for index households than for all households. However, analysis of several years of data from the Living Costs and Food Survey (LCF) shows no significant difference in year-on-year percentage changes in bills for index and for non-index households, so no adjustment needs to be made to the price index. Use of the same sources for deriving the weight for Council Tax would, however, overstate the expenditure. The weight is thus adjusted using data from the LCF so that only index households are included. The figures are also adjusted for discounts reflecting householders' status. Since the RPI weight should reflect actual expenditure rather than liability, a final adjustment is made to the weight to allow for the proportion of households that evade paying Council Tax.

In Northern Ireland, domestic rates are still levied and there has been no community charge or Council Tax. The Department of Finance in Northern Ireland supplies the average net domestic rates bill annually and an index is derived by comparing the current year's bill with the previous year's bill. The calculation involves working out the gross domestic poundage rate and then multiplying this by the average domestic valuation to get the average gross rates bill per year. The average discount across all households is then removed from the gross figure to obtain the average net domestic rates bill per year.

Estate agents' fees

Estate agents normally quote a price for selling a house as a percentage of the house sale price, rather than as a fixed price. The price collection is done locally, and price collectors therefore collect the percentages charged (excluding Value Added Tax, VAT) by estate agents for average house prices for the region in which each location falls.

The regional average house prices are obtained from the UK House Prices Index (UKHPI) by region. The percentage fees are then averaged to form regional stratum average percentage charges. These stratum percentages are then weighted together using HM Revenue and Customs (HMRC) data on total value of house transactions by region, to construct a national average percentage charge. This is applied to the national average house price (using the same house price as for MIPs), to work out an average cash price, onto which VAT is then added.

These monthly average prices are then compared as usual with the previous January price to construct the item index.

6 . Weights

As with our other consumer price inflation statistics, all of the weights used in compiling the Retail Prices Index (RPI) are updated annually to coincide with general review of the representative items in the basket. Our Higher-level aggregation and weights in consumer prices article describes how the CPIH weights are calculated – many of the procedures are similar to those applied to the RPI. Within the RPI, the same central or regional shop weights and stratum weights are used as in the Consumer Prices Index (CPI), Consumer Prices Index including owner occupiers' housing costs (CPIH) and Household Costs Indices (HCIs).

RPI item weights are used for the section indices and section weights are used for the all-items index. RPI weights are mainly based on data from the Living Costs and Food Survey (LCF) and are related to expenditure by private households only, excluding the highest-income households and pensioner households mainly dependent on state benefits.

The RPI sources additional weight information for housing depreciation, Council Tax, and domestic rates and mortgage interest payments (MIPs). Details of the calculation of the weights are provided in the following.

Mortgage interest payments (MIPs)

The basis of any weight used in the RPI is the average expenditure per index household per week in the base period. For MIPs, this is the current January figure produced by the model used to calculate the average weekly index household expenditure on MIPs.

Council Tax and domestic rates

The section weight for Council Tax and domestic rates is derived from the most recently available Living Costs and Food Survey (LCF) data from the financial year of the current January. LCF data give the weekly average Council Tax liability after status discount among index households for each English region and devolved nation in Britain. It is necessary to stratify by region to take account of the differential survey response rates across regions. Otherwise, the lower response rates for some regions for which Council Tax liability is typically higher (for example, London) would bias the result downward.

A weighted average of the average liabilities in the nine English regions is derived using estimates from the Ministry of Housing, Communities and Local Government (MHCLG) of the total number of households in each region. (These are not restricted to index households.) The figures giving the average liability for England, Wales and Scotland are adjusted to reflect actual expenditure by using estimates of the respective non-payment rates (supplied from the MHCLG, the Welsh Government and the Scottish Executive). In Northern Ireland, rates are still levied. The average level of rates (including water and sewerage charges) applicable in Northern Ireland, and an estimate of the number of households, are provided by the Northern Ireland Department of Finance and Personnel.

The figures for average expenditure on Council Tax or rates (as appropriate) for England, Wales, Scotland and Northern Ireland are then combined to form a weighted average using the estimates of total number of households in each area.

Housing depreciation

The section weight for owner-occupiers' depreciation costs is calculated from an estimate of the previous end year's market value of the owner-occupied housing stock (from the national accounts) divided by the number of owner-occupied dwellings in the United Kingdom (from the Ministry of Housing, Communities and Local Government, MHCLG) with an estimate of the average land value per plot (also from MHCLG) deducted. The resulting average owner-occupied dwelling value excluding land is then multiplied by a rate of depreciation derived from UK national accounts data. This is currently 1.4% per annum, but it is reviewed every five years. The product is then multiplied by a factor, obtained from the LCF, representing the proportion of all households (owners and tenants) that are owner-occupiers, and divided by 52 to give the notional weekly household expenditure on depreciation.

Insurance

In the RPI, gross expenditure on insurance premiums is assigned to the relevant insurance heading when calculating the weights. In the CPIH, only the difference between expenditure on insurance premiums and the amount paid out to households in claims (that is, the service charge) is allocated to the relevant insurance heading. The amount paid out to households in claims is instead allocated to other relevant headings according to the nature of the claims (for instance, expenditure on repairing a car is attributed to the heading for maintenance and repair of vehicles). This calculation is based on the average of the most recent three years' data. The Household Costs Indices (HCIs) use a gross expenditure like RPI but assign the weight to the relevant insurance heading like CPI.

This difference in approach means that the weight of insurance in the RPI is significantly higher than in the CPIH, and so the impact of changes in the cost of insurance at the all-items index level is correspondingly larger. However, note that the insurance indices are constructed based on the gross premium price, both in the RPI and our other consumer price inflation statistics.

7 . Publication

Retail Prices Index (RPI) data are available electronically on our website in the published Consumer price inflation tables. Official indices for the RPI and its components are available monthly back to January 1947. The current index series is based on 1987 = 100.

Annual and quarterly averages

The RPI approach to the calculation of quarterly and annual average indices differs from the Consumer Prices Index including owner occupiers' housing costs (CPIH) (for more information please refer to our How we publish our consumer prices outputs article. The RPI quarterly and annual indices are calculated as an average of the published rounded monthly indices. The resulting indices are then published rounded to one decimal place, with changes over 12 months in the quarterly and annual average indices being calculated from these rounded quarterly and annual average indices.

Rounding policy and the effects of rounding

Our How we publish our consumer prices outputs article described how unlike the CPIH, the RPI calculations are based on the published rounded indices, which can lead to some extreme rounding effects when publishing rounded indices to 1 decimal place, and then calculating percentage changes from these rounded indices, which are then themselves rounded to 1 decimal place.

The following example illustrates this. It appears from published, rounded figures that the inflation rates for the RPI excluding mortgage interest payments (MIPs) and RPI excluding housing have both fallen by 0.1 percentage points (from 2.0 to 1.9 and 1.1 to 1.0 respectively). However, the picture based on unrounded figures shows the RPI excluding MIPs to have increased by 0.1 percentage points (from 1.9 to 2.0) and the RPI excluding housing to have fallen by 0.3 percentage points (from 1.2 to 0.9).

Table 2: Illustrative example of the effects of rounding, UK, July 2002

	Date	Unrounded index	Rounded index (1dp)	Percentage change (based on unrounded index)	Percentage change (based on rounded index)
RPI excluding MIPs	July 2002	174.75	174.8	1.931=1.9	1.984=2.0
	July 2001	171.44	171.4		
RPI excluding MIPs	August 2002	175.34	175.3	1.966=2.0	1.919=1.9
	August 2001	171.96	172		
RPI excluding housing	July 2002	165.44	165.4	1.156=1.2	1.100=1.1
	July 2001	163.55	163.6		
RPI excluding housing	August 2002	165.65	165.7	0.920=0.9	0.975=1.0
	August 2001	164.14	164.1		

Source: Consumer prices indices technical guidance from the Office for National Statistics

Notes

1. This table is for illustrative purposes. It does not use the real unrounded RPI figures for these months.

How to construct bespoke aggregates

As with the CPIH, the indices for the RPI groups and sections can be combined to suit users' particular requirements where the standard aggregates are not appropriate. The aggregate indices are calculated in a similar way to the CPIH (as described in our Higher-level aggregation and weights in consumer prices article, with the exception of part a., where it is not necessary to divide the January index for each year by the previous year's December's index, since the RPI series is only chained-linked once a year.

Contribution to changes in the all-items RPI

Like the CPIH, it is often of interest to estimate the effect of a group or section on the change in the RPI. The contribution of a component to a change in the all-items RPI over a given period of time is defined as the change that would have occurred in the all-items index if that component had undergone its observed change but all other component indices had remained frozen at their values at the start of the period (and all weights are kept the same). The effect of each component depends on both the size of its change and its weight.

The following formula for calculating the contribution of a component to the monthly change in the RPI differs from that used for the CPIH, given the different approach to chain linking. The RPI formula is:

Formula 6: Calculation of the contribution of a component to the monthly change in all-items RPI

$$Contribution\ of\ component\ i\ to\ monthly\ change\ in\ all\ items\ RPI = \left(\frac{I_t^i}{I_{t-1}^i} - 1\right) \times 100 \times \frac{I_{t-1}^i}{I_{t-1}^a} \times \frac{w_t^i}{1000}$$

The formula for calculating the contributions of components to the all-items RPI 12-month rate is:

Formula 7: Calculation of the contribution of a component to the annual change in all-items RPI

$$Contribution\ of\ component\ i\ to\ annual\ change\ in\ the\ all\ items\ RPI = = \frac{w_{t-12}^i}{1000} \times \frac{\left(I_L^i - I_{t-12}^i\right)}{I_{t-12}^a} \times 100 + \frac{w_t^i}{1000} \times \frac{\left(I_t^i - 100\right)}{I_{t-12}^a} \times I_L^a$$

Where:

- i = component i
- a = all-items RPI
- I_t^i = index for component i (base previous January = 100) in month t
- I_L^i = index for component i in “Link” month L (that is, the index for current January based on previous January = 100)
- w_t^i = weight (parts per 1000) of component i in all items RPI in month t

As the definition of the variables makes clear, it is important that these calculations are performed using unchained (that is, base period January = 100) indices. The following example illustrates this point.

Using the previous formula, the contribution of housing to the RPI all-items annual rate for October 2003 can be calculated using the following steps.

The published (chained) index values, based on January 1987 = 100, for housing and the all-items RPI are as follows:

Table 3: Published (chained) index for all-items and housing component (January 1987=100), UK, January and October 2002, and January and October 2003

	Jan 2002	Oct 2002	Jan 2003	Oct 2003
Housing	218.4	232.8	236.7	248.3
All items	173.3	177.9	178.4	182.6

Source: Consumer Price Inflation, UK, from the Office for National Statistics

To work out the contribution of housing to the all-items RPI 12-month rate for September 2003, it is necessary to unchain the indices so that they are based on the most recent January. This is done by dividing the current month's index by the previous January's figure. For instance, the housing index for January 2003 (the link month) is calculated as:

$$I_L^i = \frac{236.7}{218.4} \times 100 = 108.38$$

Performing this calculation for each of the dates gives the following set of unchained index values:

Table 4: Unchained index based on previous January, UK, January and October 2002, and January and October 2003

	Jan 2002	Oct 2002	Jan 2003	Oct 2003
Housing	100.00	106.59	108.38	104.90
All items	100.00	102.65	102.94	102.35

Source: Consumer Price Inflation, UK, from the Office for National Statistics

The contribution of housing to the 12-month rate for October 2003 can then be calculated as follows, given that the weights for housing in 2002 and 2003 are 199 and 203 parts per thousand, respectively:

$$Contribution$$

$$= \frac{199}{1000} \times \frac{(108.38 - 106.59)}{102.65} \times 100 + \frac{203}{1000} \times \frac{(104.90 - 100)}{102.65} \times 102.94$$

$$= 1.34\%$$

Thus, housing contributed 1.34 percentage points to the all-items RPI 12-month rate in October 2003. The way that these contributions to the annual rate are usually used is as follows: for any given month (for example, October 2003) the contribution of each group to the 12-month rate is calculated. This is also done for the previous month (September 2003 in this case). The October contribution less the September one is described as the contribution to the change in the all-items 12-month rate between the two months. Thus, housing contributed 1.40 points to the 12-month change to September and 1.34 points to the change to October, so it contributed 1.34 – 1.40 = negative 0.06 points to the change in the 12-month rate between September and October which was 2.6 – 2.8 = negative 0.2 percentage points.

Contributions are derived with maximum precision at every stage of the calculation. But they are based on rounded indices, and in order to provide meaningful analysis, are published to two decimal places. The RPI is given as a unique official figure that is published rounded to the nearest single decimal place.

Reconciliation of RPI and CPIH or CPI annual rates

There is often interest in understanding the factors contributing to differences between the 12-month rates of change for the RPI and the CPIH and CPI. Each month, we publish a reconciliation of these differences. The reconciliation between the headline rates is performed using contributions, as previously described at "Contribution to changes in the all-items RPI", and in our How we publish our consumer prices outputs article, based on the following elements:

Housing components included in the RPI but excluded from the CPIH and CPI

This shows by how much the annual rate for the RPI would be different if it did not include the following housing elements that are excluded from the CPIH and CPI: mortgage interest payments (MIPs); Council Tax; housing depreciation; buildings insurance and ground rent; surveyors' fees; estate agents' fees; and conveyancing costs. Within this category, the contributions from MIPs and the other housing components are shown separately.

Housing components included in the CPIH but excluded from the RPI

This shows how much the annual rate for the RPI would be different if it included a measure of imputed rents. This could therefore be considered an offsetting term that taken together with the impact from the RPI housing components not in the CPIH or CPI, shows the impact on the RPI annual rate owing to differences in housing. This covers the owner-occupiers' housing component of the CPIH and therefore does not impact on the reconciliation of the differences between the RPI and the CPI.

Other differences in coverage of goods and services

This shows the effect of other differences between the RPI and the CPIH or CPI in the coverage of goods and services (more information is available in our Scope and coverage of consumer prices indices article. This includes items such as unit trust and stockbroker charges, overseas students' university fees and accommodation costs in university halls of residence, which are included in the CPIH and CPI but are excluded from the RPI. Prior to 2012, vehicle excise duty, trade unions' subscriptions and TV licences would have also contributed to the difference in coverage, since these were previously not included in the CPIH or CPI but were (and are) included in the RPI.

Formula effect

This shows the effect on the CPIH annual rate of using the geometric mean for elementary aggregation without weights, rather than arithmetic means as used in the RPI. This is derived by recalculating the CPIH using arithmetic means and subtracting the result from the actual CPIH. In general, the geometric mean of a given set of values is lower than the corresponding arithmetic mean. This means that, for a given set of price relatives, the geometric mean formula used in the CPIH (the Jevons) will produce a lower estimate of price change for an elementary index than one based on an arithmetic mean (the Carli). RPI uses Carli predominantly in the clothing and footwear basket, which is where the formula effect is largest. For this reason, the formula effect is consistently negative.

Other differences, including weights

This is then calculated as the residual of the additive components in this list.

Prior to June 2010, a different method was used to reconcile the difference between the RPI and CPI annual rates of inflation. This is detailed in the 2010 version of the Consumer Prices Technical Manual.

8 . Definitions

All-items index

An index that is constructed using price indices that represent every type of expenditure within the scope of the consumer price statistic. It is an average measure of the change in the prices of goods and services bought for the purpose of consumption in the UK.

Aggregates

Aggregates (or "strata") are classifications into which the raw data can be separated. The strata "region" and "shop type" within item are generally used for the Consumer Prices Index including owner occupiers' housing costs (CPIH), Consumer Prices Index (CPI), Retail Prices Index (RPI) and the Household Costs Indices (HCIs). The data within each stratum are combined, and the resulting indices for each of the strata are then combined using stratum weights.

Basket

A convenient way to understand the nature of consumer price inflation statistics is to envisage a very large shopping basket comprising all the different kinds of goods and services bought by a typical household. As the prices of individual items in this basket vary, the total cost of the basket will also vary – consumer price statistics measure the change from month to month in this total cost.

Base prices

Our index methods measure price change between two months: the base month and the current month. Base prices are the prices that are used to represent the price of a product in the base month. This representative price may be a single sampled price, or an average of many different prices.

Carli Index

In line with international best practice, we consider the use of Carli to be inappropriate. The Carli index is an unweighted index number formula, which is the arithmetic mean of price relatives.

Consumption segment

A consumption segment is broader in scope than individual items but is still intended to be relatively homogenous, with respect to price change.

For example, the consumption segment "rice" includes various representative items, such as dry rice, microwaveable rice, and rice snacks (like rice cakes) from the traditional data collection. For alternative data sources, the consumption segment includes all rice products that have been sold.

In areas of the basket where we are not using alternative data, a consumption segment matches one of our representative items exactly.

Coverage

Those transactions that can be identified and measured in practice. This is determined by the expenditure categories for which weights are compiled.

Current price

Our index methods measure price change between two months: the base month and the current month. Current prices are the prices that are used to represent the price of a product in the current month. This representative price may be a single sampled price, or an average of many different prices.

Dutot Index

An unweighted index number formula, which is the ratio of average prices.

Elementary aggregates

The set of indices calculated at the very first stage of aggregation.

Group

In the CPIH and CPI, all categories of expenditure on which significant amounts of money are spent are arranged into 12 divisions, which are subdivided into groups. Examples of groups are food, postal services and insurance.

In the Retail Prices Index (RPI), all categories of expenditure on which significant amounts of money are spent are arranged into 14 groups, such as food, housing and motoring costs.

We publish price indices for each CPIH/CPI and RPI group.

Index day

The specific Tuesday within index week when price collectors collect the majority of prices for traditional data sources. This maximises consistency in monthtomonth comparisons.

Index week

The designated week, at or near the middle of each month, during which local price collectors gather prices. Index day falls within Index week.

Index households

Index households are all households that are included in the scope of the RPI. These are all private households in the UK, except pensioner households, that derive at least three-quarters of their income from state pensions and benefits, and high-income households whose total household income is in the top 4%, as measured by our Living Costs and Food Survey (LCF).

Items

Any type of consumer good or service that can be purchased, for example, apples. Several different varieties of that item may be available, for example, Granny Smith and Braeburn apples.

Local collection items

Prices for items collected either in-store, online or by phone by price collectors in various locations across the country. These are supplemented by prices collected by head office staff for shops with national pricing policies, and regional services collection prices collected by phone, email or online for local services, such as plumbers, taxi hire and hotels.

Jevons Index

An unweighted index number formula, which is the geometric mean of price relatives.

Scope

All transactions that one would ideally want to measure.

Section

In the RPI, all categories of expenditure on which significant amounts of money are spent are arranged into 14 groups, which are then subdivided into about 85 sections. Examples of sections are bread, cigarettes, postage, footwear, and rail fares.

We publish price indices for each section.

Strata (stratum)

Strata (or "aggregates") are classifications into which the raw data can be separated. The strata "region" and "shop type" within item are generally used for the CPIH, CPI, RPI and HCIs. The data within each stratum are combined, and the resulting indices for each of the strata are then combined using stratum weights.

Weight

A factor by which a component is multiplied to reflect the level of consumers' expenditure on that component.

9 . Related links

Consumer prices indices technical guidance
Methodology | Last revised 25 March 2026
How measures of consumer price inflation and associated indices are compiled.

Consumer price inflation, UK
Bulletin | Released monthly
Price indices, percentage changes, and weights for the different measures of consumer price inflation.

Household Costs Indices for UK household groups
Bulletin | Released quarterly
Household Costs Indices, 12-month growth rates, expenditure shares, and contributions for UK household groups and all households.

10 . Cite this methodology article

Office for National Statistics (ONS), published 25 March 2026, ONS website, methodology article, Calculating the Retail Prices Index