Office for National Statistics

Article

Consumer price inflation basket of goods and services: 2020

The review process for the items making up the inflation basket used to calculate the UK consumer price inflation indices and how and why the various items in the basket are chosen.

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1 . Introduction

The "shopping baskets" of items used in compiling the various measures of consumer price inflation are reviewed each year. Some items are taken out of the baskets and some are brought in to make sure the measures are up-to-date and representative of consumer spending patterns.

In 2020, 16 items have been added to the UK Consumer Prices Index including owner occupiers' housing costs (CPIH) and Consumer Prices Index (CPI) baskets and 14 items have been removed.

This article describes the review process and explains how and why the various items in the consumer price inflation baskets are chosen. The contents of the baskets for 2020 are summarised in Annexes A and B, and the main changes from the 2019 price collection are discussed in this article. Similar articles have been published in previous years.

The following are the measures of consumer price inflation covered in the article.

CPIH

The most comprehensive measure of consumer price inflation, which extends the CPI to include owner occupiers' housing costs (OOH) and Council Tax. Aside from these two components, CPIH is identical to CPI.

CPI

A measure produced to international standards and in line with European regulations. First published in 1997 as the Harmonised Index of Consumer Prices (HICP), the CPI is the inflation measure used for the Bank of England's inflation target.

As the UK leaves the EU, it is important that our statistics continue to be of high quality and are internationally comparable. During the transition period, those UK statistics that align with EU practice and rules will continue to do so in the same way as before 31 January 2020.

After the transition period, we will continue to produce our consumer price statistics in line with the UK Statistics Authority's Code of Practice for Statistics and in accordance with internationally agreed statistical guidance and standards. For the CPI, these currently include the rules underlying the construction of the HICP, developed by Eurostat in conjunction with EU member states and European Economic Area countries.

Retail Prices Index (RPI)

A legacy measure that we continue to publish in accordance with the Statistics and Registration Service Act 2007 , and because of its use in long-term contracts and index-linked gilts. The Retail Prices Index and its derivatives were assessed against the Code of Practice for Statistics in 2013 and found not to meet the required standard for designation as a National Statistic. Shortcomings of the Retail Prices Index as a measure of inflation describes the issues.

The Authority recommended in 2019 that the publication of the RPI should be stopped at a point in the future and that in the interim, the shortcomings of the RPI should be addressed by introducing CPIH data sources and methods into its production. The Authority and HM Treasury have launched a consultation on the Authority's proposal to address the shortcomings of the RPI. HM Treasury is consulting on the appropriate timing for the proposed changes to the RPI to take place. The Authority is consulting on how to make its proposed methodological changes to the RPI in a way that follows best statistical practice. The consultation will run from 11th March to 22nd April 2020.

This article also summarises one other change relating to a new data source for producing "shop-type weights" used in compiling the indices. This is described in Section 6, Other change, with a link to a more detailed article on the subject.

2 . The shopping basket

Consumer price inflation is the rate at which the prices of goods and services bought by households rise or fall. A convenient way of thinking about this is to imagine a very large "shopping basket" containing those goods and services bought by households. As the prices of the various items in the basket change over time, so does the total cost of the basket. Movements in consumer price inflation indices represent the changing cost of the shopping basket.

In principle, the basket should contain all consumer goods and services purchased by households and the prices measured in every shop or outlet that supplies them. In practice, the consumer price indices are calculated by collecting a sample of prices for a selection of representative goods and services in a range of UK retail locations including the internet.

Currently, around 180,000 separate price quotations are collected every month in compiling the indices, covering around 720 representative consumer goods and services. These prices are collected in around 140 locations across the UK, from the internet and over the phone. In addition, around 300,000 quotes are used in measuring owner occupiers' housing costs each month. This measure is based principally on data from administrative sources.

Within each year, the consumer price indices represent the changing cost of a basket of goods and services of fixed composition, quantity and quality. In practice, this is achieved by:

- keeping the sample of representative goods and services constant

- applying a fixed set of weights to price changes for each of the items such that their influence on the overall index reflects their importance in the typical household budget

- taking care to ensure that replacements for brands that are no longer stocked in an individual shop are of comparable quality

In this way, changes in the consumer price indices from month to month reflect only changes in prices and not ongoing variations in the quality and quantity of items purchased by consumers.

Although kept constant within year, the contents of the consumer price inflation basket of goods and services, and their associated expenditure weights, are updated annually. This is important in helping to avoid potential biases that might otherwise develop over time. This could be due to the development of entirely new goods and services, or the tendency for consumers to move away from buying goods and services whose prices have risen relatively rapidly to goods and services whose prices have fallen. For example, if the price of tea rose dramatically during one year, consumers might switch their spending towards coffee, making it necessary to adjust the expenditure weights accordingly in the following year.

These procedures also help to ensure that the indices reflect longer-term trends in consumer spending patterns. For example, the proportion of household expenditure devoted to services has broadly risen overall over the last 25 years. This is reflected both in an increasing weight for this component in the consumer price indices and the addition of new items in the basket to improve measurement of price changes in this area: examples include playgroup and nanny fees.

Changes to the items and their associated item weights are introduced in the February index each year, but prices are collected for both old and new items in January. This means that the figures for each year can be "chain-linked" together to form a long-run price index spanning many years. In other words, price changes between December and January are based on the old basket, while price changes between January and February, and beyond, are based on the new basket. This procedure ensures that the annual changes to the basket do not introduce a discontinuity in prices as measured by the indices.

Consumer price indices, a brief guide: 2017 provides a helpful introduction to the concepts and procedures underpinning the compilation of the consumer price indices. These are described in much greater detail in Consumer Price Indices – Technical Manual and CPIH Compendium.

In reality, the Consumer Prices Index including owner occupiers' housing costs (CPIH) and Consumer Prices Index (CPI) inflation baskets differ because CPIH includes a measure of owner occupiers' housing costs and Council Tax that are excluded from CPI. Both the CPIH and CPI baskets contain some items excluded from the Retail Prices Index (RPI) basket such as university accommodation fees and unit trust commissions. Similarly, the RPI basket contains some items (for example, estate agent fees) that are excluded from the CPIH and CPI baskets. The precise weights attached to the individual items also differ. The differences between the inflation measures are discussed in Users and uses of consumer price inflation statistics.

3 . Representative items

There are some individual goods and services where typical household spending is so large that they merit inclusion in the baskets in their own right: examples include petrol and electricity supply. However, it would be impractical to measure price changes of every item bought by every household in compiling the consumer price indices.

More commonly, a sample of specific goods and services has to be selected that gives a reliable measure of price movements for a broader range of similar items. For example, price changes for garden spades might be considered representative of price changes for other garden tools. The selection of these representative items is judgmental because of the significant difficulties involved in defining an adequate sampling frame, that is, a list of all the individual goods and services bought by households. This restricts the use of traditional random sampling methods when choosing representative items. Instead, selection is based on research into the various possible items that could be used, both using market research data and through investigation in outlets across the country.

For each product grouping, a number of items are selected whose price movements, when taken together, provide a good estimate of the overall change in prices for the group. For example, there are around 20 representative items in the Consumer Prices Index including owner occupiers' housing costs (CPIH) "furniture and furnishings" class whose prices are used to calculate an overall estimate of price change for all furniture products. These range from beds to kitchen units.

The prices collected for each product group are then combined to produce the overall consumer price indices, with weights proportional to total expenditure on the entire product group. So, the weight given to "furniture and furnishings" in the CPIH shopping basket reflects average household spending on all furniture products as opposed to spending on the basket items only. Similarly, the weight of garden spades would be derived from spending on all garden tools.

These expenditure weights are updated each year so that the indices reflect current spending patterns. The weights for the CPIH and Consumer Prices Index (CPI) classes and higher-level aggregates are updated with effect from the January index and, since 2017, again with the February index. This improvement to the procedure in 2017 was the result of an independent report; it brings the procedure into line with best practice and helps to better meet EU regulations. Assessing the impact of methodological improvements on the Consumer Prices Index , published on 18 October 2016, describes this change in more detail and analyses the impact. The Retail Prices Index (RPI) section weights and the distribution of weights for the more detailed individual item indices within each class or section are also revised each February. A more detailed article on changes to the published consumer price indices weights for 2020 will be published on 19 March 2020.

4 . Selecting the representative items

A number of factors need to be taken into account when choosing representative items. Of course, the items must be easy to find by the team of people collecting the price quotes, so ensuring that estimates of price change are based on an adequate number of quotes collected throughout the UK.

Since the consumer price inflation statistics are based on the cost of fixed in-year baskets of goods and services, ideally, they should also be available for purchase throughout the year. However, availability of some clothing and garden items is clearly seasonal and so these goods require a slightly different treatment in the indices. For example, prices of patio furniture are only collected during the summer months when the item is mostly found in shops. In winter months, their index is constructed based on the prices of other items in the furniture section of the basket.

The number of items chosen to represent each product group within the indices depends both on the weight (that is, expenditure) of the group and also the variability of price changes between the various items that could be selected to represent the group (reflecting, for example, the diversity of products available). Intuitively, it makes sense to choose more items in product groups where spending is high. This helps to minimise sampling variability in the estimate of price change for high-weighted groups and therefore in the overall price index. However, if price movements of all possible items in the group are very similar, it is sufficient to collect prices for only a few. [1] In contrast, if price movements of all the possible items are very different, prices will be needed for many representative items to get a reliable overall estimate of price change for the group.

Based on this, the allocation of items to broad commodity groups can be analysed, as shown for the 12 divisions of the Consumer Prices Index including owner occupiers' housing costs (CPIH) in Table 1, and the balance used as a reference point for the annual review of the baskets.

The significant allocation of items to the food division relative to its index weight, for example, is partly explained by the relatively high variation in observed price changes between the individual goods in this area. Conversely, a smaller proportion of items relative to index weight is allocated to the restaurants and hotels division, reflecting greater similarity in observed price changes.

In some cases, such as transport and housing, apparent low allocations of items are explained by the presence of some dominant individual items (for example, car purchase and motor fuels, and owner occupiers' housing costs and housing rents respectively). Here, the case for adding further items to improve coverage of these divisions' remaining index weights is much weaker. Instead, it is far more important to ensure that the sampling of prices for these heavily weighted items is as comprehensive as possible.

Table 1: Allocation of items to Consumer Prices Index including owner occupiers' housing costs (CPIH) divisions in 2020

		CPIH weight, Jan 2020 (per cent)	Observed variation in price changes[1]	Representative items[2] (per cent of total)
1	Food and non-alcoholic beverages	7.9	Medium	24
2	Alcohol and tobacco	3.1	Low	4
3	Clothing and footwear	5.2	Medium	11
4	Housing and household services	29.5	Low	5
5	Furniture and household goods	5.1	Medium	10
6	Health	2.1	Low	3
7	Transport	12.1	Medium	6
8	Communication	1.7	Medium	2
9	Recreation and culture	13.6	Medium	17
10	Education	2.4	Low	1
11	Restaurants and hotels	9.6	Low	7
12	Miscellaneous goods and services	7.7	Medium	11

Source: Office for National Statistics

Notes

1. Based on an analysis of variation in price changes between the individual items chosen to represent each division in the period 2015 to 2019. Back to table

2. These figures should be treated as providing only a broad indication of the allocation of items to the 12 CPIH divisions. For example, the sample of prices underpinning an existing item might easily be stratified in some way to form two or more distinct items; conversely, items could be merged to form a single item representing a wider, more heterogeneous, spending category. A specific example of this is the item 'UK university tuition fees'. This is classified as one item but the index takes into account prices for undergraduate, postgraduate and part-time courses. Back to table

The analysis also helps to highlight those areas of CPIH that might benefit most from improved coverage, for example, where the current allocation of items is broadly comparable with index weight but variation in price changes appears relatively high, possibly reflecting the diversity of goods and services covered. As discussed later in this article, this type of analysis has motivated some of the additions to the baskets in 2020.

Conversely, it also helps to highlight areas where there is scope to remove items from the baskets without any significant loss of precision in the indices. It is important that growth in the overall size of the baskets is limited each year so that production costs and processing times are contained.

Such analysis cannot tell us which items should be priced and so choosing a particular set of items to represent each area remains a matter of judgement. Consumer price inflation commodity groupings are regularly reviewed with the aim that all significant items or distinct markets where consumers' expenditure exceeds around £400 million annually are explicitly represented in the baskets, except where those items are judged to be adequately represented by other items in the baskets.[2]

Conversely, where spending on items falls below the £100 million mark, there should be good reason for their continuing inclusion in the baskets. For example, while spending on acoustic guitars and power drills is relatively low, both are included in the baskets to represent wider markets (musical instruments and electrical tools respectively) that would otherwise not be covered explicitly. Trends in expenditure, as well as the latest available figures, help to inform the decisions in all cases.

This focus on expenditures in determining the contents of the baskets partly reflects the data that are available describing household spending patterns. One major source of information comes from the diaries and questionnaires filled in by people taking part in the Office for National Statistics (ONS) Living Costs and Food Survey, a continuous survey of around 5,000 households each year. This is supplemented by detailed analyses of trends presented by market research companies, trade journals and in press reports. Changes in the retail environment are also reported to the ONS by the price collectors. Together, these various sources of information help to ensure that the goods and services bought by the average household are appropriately represented in the inflation baskets.

It is very important to note that the contents of the baskets and, in particular, changes from one year to the next should not be given significance beyond their purpose as representative items used in estimating consumer price changes. Changes to the baskets will reflect evolving consumer tastes but only over a long run of years. In any particular year, changes to the baskets will reflect a range of considerations such as practical experience in collecting prices, the desire to improve coverage in high-spending areas, or analysis that suggests that estimated price changes could be improved by varying the number or type of representative items collected.

Indeed, within each product grouping there is usually a point at which the exact number and choice of items and the precise weights attached to them become a matter of relatively fine judgement. At this detailed level, it is unlikely that such choices would have any significant impact on the consumer price indices. For example, a selection of specific household appliances has been chosen to represent spending on small electrical goods, including irons and kettles. However, other representations would clearly be possible and equally valid.

It should also be noted that the vast majority of the around 700 representative items remain unchanged in 2020. In total, 16 items have been added to the CPIH basket and 14 items have been removed. Also, a small number of items have been modified in a total of 722 items. The modifications usually relate to the type of shop where items are priced.

In summary, selection of representative items is based on several factors, including:

- ease of finding and pricing the product

- availability throughout the year

- amount spent on a particular item or the group of items

- variability of prices within a class

- analysis of balance across the basket

Notes for: Selecting the representative items

1. At the extreme, if price changes for all the possible items that could be selected in a particular group were identical each month, it would be necessary to select only one of the items for inclusion in the basket. Price changes for this one item would be perfectly representative of price changes for the group as a whole.

2. Under European regulations, items should be included in the Consumer Prices Index (CPI) where estimated consumers' expenditure is one part per thousand or more of all expenditure covered by the CPI. Based on household final consumption data underpinning the calculation of the 2020 CPI weights, this is over £1,000 million.

5 . Changes to the baskets in 2020

Changes to the baskets of goods and services this year are being introduced with the February 2020 consumer price inflation statistics to be published on 25 March 2020. The baskets will be updated again at the same time next year.

Additions

New additions to the baskets in 2020 and those items removed are set out in Tables 2 and 3, together with a summary of the motivation for these changes. As the tables make clear, these motivations are diverse. As in previous years, changes to the baskets in 2020 certainly should not be viewed as a simple indicator of those products or services whose popularity has either grown or fallen significantly over the past year. All of the changes made this year affect all of the consumer price indices.

A number of new items have been introduced to represent specific markets where consumer spending is significant or growing and existing items in the baskets may not adequately represent price changes for such goods. For example, gluten-free cereal has been added to reflect increased shelf space and consumer spending on gluten-free foods. Its inclusion complements the existing non-dairy milk drink in the baskets and expands coverage of "free from" products. Similarly, a pre-mixed spirit drink has been introduced to represent a "cocktail in a can", reflecting an increasing number of brands introducing this type of spirit mix to their ranges.

In addition to introducing items to represent distinct sectors or markets, some items have been added to diversify the range of products collected for already established groupings, usually where spending is significant. For example, a re-usable bottle or mug has been introduced highlighting a trend of consumers moving away from single-use bottles and mugs, possibly influenced by membership of fitness clubs and more recently environmental concerns surrounding single-use plastic. Vegetable crisps have been added to help aid interpretation of data in the crisps area where prices can be volatile because of promotional activity from retailers.

Whilst gin is already part of the baskets in the spirits "off sales" class, it has now been introduced as a new item in the "on sales" area to reflect its increasing popularity in bars and restaurants shown by the wide range of varieties and flavours available and the associated increase in expenditure.

Finally, airport parking is a further item that has been added to help diversify the range of products collected in its class, "other services in respect of personal transport equipment". The existing car park item represents short-term parking typically used by shoppers or those working in the local area whereas the new item will capture charges incurred over a longer period of time.

Analysis of the broad balance of the existing sample of representative items across CPIH highlighted the scope to reduce the number of items in the audio-visual part of the baskets. This has been achieved by replacing separate DVD player and Blu-ray disc player items by one combined item. The decision to replace the two specific items was based on their low weight in the section but the change has been made principally as part of the rebalancing of the baskets to improve their representation of overall price change and not the spending on or product history of the two items.

This aim of rebalancing the baskets can also apply within specific categories and, this year, crumpets have replaced individual fruit pies in the bread and cereals class. Crumpets are not used as a dessert in the same way as fruit pies and their inclusion improves the balance of bakery products, with desserts still represented by a sponge and individual cakes.

In other cases, new items are direct replacements for similar products with the change made for a variety of reasons. Computer games exhibit one of the most volatile price series in the baskets, which can make interpretation difficult for users. To attempt to address this, the existing shop-bought item is being replaced by three game items defined by platform. This will result in more price quotes being collected for a wider range of games in total and will split the weight of the existing item. In turn, this should improve the reliability of the overall series and aid interpretation.

A further example is the replacement of an MP4 player by a portable digital music player. The rise of smartphones has reduced the popularity and availability of MP4 players on the market and replacing it with the more widely defined portable digital music player will increase the number of products that can be priced and hence the number of price quotes used in the index. The new item will continue to include MP4 players but also allow, for example, MP3 players to be priced.

A final type of replacement is where price collection difficulties suggest a change would improve the coverage and quality of price series in specific areas of the baskets. This year, a beef roasting joint has replaced a beef topside joint where the number of price quotes used each month has been falling as a result of unclear labelling and reduced availability in shops. Research has found that the new item would be easier for collectors to price, would result in more consistent pricing and have better coverage that the previous item. Similarly, fresh diced or minced turkey has been introduced as a direct replacement for turkey steaks, with research showing that diced or minced turkey is more readily available for pricing.

Removals

As noted earlier, it is important that growth in the overall size of the baskets is limited each year so that production costs and processing times may be contained. Also, that it retains its relevance by removing historic items that no longer attract much spending. A number of items therefore have been removed from the baskets in 2020 to make space for the new additions.

In some cases this reflects low or decreasing expenditure, and resulting falls in stock levels, such as with frozen imported legs of lamb. This item has been dropped because of falls in the number of price quotes being collected, with research suggesting stock levels have reduced over recent years. The removal of this item has a direct effect on the detailed breakdown published for the Retail Prices Index. Previously, indices have been published for home-killed lamb, imported lamb and lamb in total but this was the only imported lamb item in the basket so, from the publication of the February index in March 2020, only a total for lamb will be released.

In other cases, removal does not necessarily imply that the markets for these goods and services are very small or are declining significantly. Some items have been removed to make way for new additions to the baskets within the same product grouping. For example, this year, individual fruit pies have been replaced by crumpets. As already mentioned, the change rebalances the bakery products within the bread and cereals class and the individual fruit pies will continue to be represented by the individual cakes item.

In some cases, a product will remain represented in the baskets even if there is no longer an explicit item. For example, an MP4 player has been removed but some prices will continue to be collected as part of a more widely-defined portable digital music player item.

Elsewhere, analysis suggested that there was scope to remove items from certain product groupings without any significant loss of precision in estimates of price changes overall. Within these groupings, items are generally chosen that have relatively low index weights, that are variants of others or have a relatively low number of price quotes. This year, frozen chicken breasts have been removed because they have a lower weight than other uncooked chicken items and there is a degree of overlap with fresh chicken breasts; car batteries have been removed from the "spare parts and accessories" class because of the number of price quotes collected being generally lower than for other items in this part of the baskets; and softwood has been chosen for removal in preference to medium-density fibreboard (MDF) in the "materials for maintenance and repair" class because of MDF being more commonly used for do-it-yourself work around the home.

Collection issues can influence changes and, as already mentioned, a beef topside joint has been removed partly as a result of unclear labelling. A further example is bank overdraft charges. Most banks are in the process of dropping their fixed service charges and replacing them with a single interest rate on overdrafts. However, international regulations specify that interest payments are out of scope of consumer price indices, so the existing overdraft charge is being dropped in anticipation of the change, which most banks report to be introducing in March or April.

6 . Other change

One other change is being introduced with the publication of the February index on 25 March 2020. This relates to the source of data used to produce "shop-type weights". These are used to weight together low-level stratum price indices for multiple and independent shop-types.

The Annual Business Survey conducted by the Office for National Statistics (ONS) is the new data source for the spending information needed. Impact of introducing a new data source for shop-type weights on consumer price indices describes the way in which these weights are used, the change being made and its effect on historical price indices.