

Article

Effect of reweighting the consumer prices basket during the coronavirus (COVID-19) pandemic: October to December 2020

The effects of reweighting the UK consumer prices inflation basket accounting for changes in consumption patterns during the coronavirus (COVID-19) pandemic on the 12-month growth rates of the Consumer Prices Index including owner occupiers' housing costs (CPIH) and the Consumer Prices Index (CPI).

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1 . Main points

- For October to December 2020, reweighting the consumer prices inflation basket to account for changes in consumption patterns made only small differences to the 12-month growth rates of the Consumer Prices Index including owner occupiers' housing costs (CPIH) and the Consumer Prices Index (CPI), with the largest difference in the most recent period being for CPIH in October at 0.07 percentage points.
- Contributions from each division show more variation with positive and negative contribution differences largely offsetting each other.
- At the beginning of the coronavirus (COVID-19) pandemic, larger contributions from some divisions were driven by the reduction in total expenditure rather than by increased expenditure in those divisions, but this effect has reduced over time as expenditure has risen again.
- Total expenditure in December 2020 is estimated to have been around 100% of February 2020 total expenditure, up from 96% in October and 93% in November.

2 . Overview

For October to December 2020, reweighting the Consumer Prices Index including owner occupiers' housing costs (CPIH) basket to account for changes in consumer spending patterns made only small differences to the 12-month growth rate when compared with the re-chained official series, with the largest difference in the most recent period being 0.07 percentage points in October. Differences in the contributions made by each division largely offset one another although most divisions did see some difference in contribution between the reweighted and re-chained official baskets. The largest upward difference in a single month came from recreation and culture while the largest downward difference came from restaurants and hotels.

Differences in weights and contributions during the coronavirus (COVID-19) pandemic reflect both changes in spending in each division and changes in total consumer expenditure each month. At the beginning of the pandemic the effect of the difference in total expenditure was pronounced, as total expenditure fell by around 33%. This difference gradually decreased over subsequent months with expenditure in September reaching 100% of pre-pandemic levels before falling back again as restrictions were re-tightened. In December 2020, when local restrictions eased, spending rose again to 100% of the February level.

3 . The reweighting process

In August 2020, we published experimental series looking at [the impact of changing consumer spending patterns on consumer price inflation during the coronavirus \(COVID-19\) pandemic](#).

Social distancing policies, movement restrictions and changing consumer behaviour has led to some items being unavailable and expenditure on others changing significantly since April 2020. The weights used for the official consumer price statistics are fixed during the calendar year, however, to try to capture the impact of these changes we constructed an alternative measure of inflation, changing our expenditure weights each month to remove unavailable items and adjust the weight of remaining items according to our best available evidence of consumption patterns.

We use a range of data sources to make our adjustments, including official measures, such as the Retail Sales Index, payment processing data from Barclays PLC and transaction data from Revolut, and expert judgements.

In order to adjust weights from month to month to reflect changing consumer spending patterns it is necessary to link price changes between the latest month and the previous one onto the old series, a process called "chain-linking". This only takes place yearly for the official series for the Consumer Prices Index including owner occupiers' housing costs (CPIH) and the Consumer Prices Index (CPI) as the weights only change annually.

Frequent chain-linking can lead to "chain-drift", where the chained measure differs from an equivalent direct measure. Over time, chain-drift can accumulate, and this has caused increasing differences between the official rate and the reweighted rate, meaning that it would not be appropriate to draw direct comparisons between the reweighted basket and the official published rate.

For comparability it is therefore necessary to create another version of the official series, chain-linked monthly on a consistent basis with the reweighted series - referred to here as the re-chained official series. The full methodology for this is outlined in [Re-weighted consumer prices basket - adjusting for consumption changes during lockdown: July 2020](#).

This is also the reason that monthly weight changes were not used in the official CPIH and CPI series, as chain-drift causes movements in the inflation rate that are unrelated to price movements and would give a misleading impression of price growth over the period.

For this publication, we have also reviewed the process for adjusting expenditure weights for the reweighted basket. We identified an inconsistency in the seasonality of one of the data sources we used to update the CPIH and CPI subclass weights, and have therefore made methodological changes to ensure a consistent treatment. In most months, rounding to 1 decimal place would not lead to any changes. However, there would be increased impacts of 0.1 percentage points for the re-weighted CPI in July and August, and it would reduce the impact on the re-weighted CPIH in April to from 0.1 to 0 percentage points.

4 . Results

Table 1 shows the 12-month growth rates of the reweighted basket minus the 12-month growth rates of the re-chained measures for both the Consumer Prices Index including owner occupiers' housing costs (CPIH) and the Consumer Prices Index (CPI). This approach has been taken to put the reweighted basket and official measures on a methodologically consistent basis, to isolate the impact of changing consumer spending patterns.

For CPIH, in October, November and December 2020 prices in the reweighted basket grew by 0.07, 0.06 and 0.01 percentage points more on the year than the comparable official series did.

For CPI, prices in the reweighted basket grew 0.04 and 0.02 percentage points more than the comparable official series in October and November 2020 respectively, but then grew 0.03 percentage points less than the comparable official series in December.

The consistently higher figure for CPIH is explained by the additional items and the impact of reweighting. The differences between CPI and CPIH are found in housing and household services and include Council Tax and imputed rents. The positive contribution of these additional items means that while housing and household services has made a negative contribution to the CPI 12-month growth rate for the official re-chained and reweighted measures from April to December 2020, the contribution to the CPIH 12-month growth rate has been positive for these measures in each month over the same period.

Reduced expenditure in other divisions means that reweighting the basket gives housing and household services a relatively higher weight in both CPI and CPIH. However, the inclusion of Council Tax and imputed rents results in the weight being higher for CPIH. This has the effect of amplifying the contribution of housing and household services, which has the effect of pushing up CPIH against the comparable re-chained measure and pushing down CPI against its comparable re-chained measure.

Table 1: Difference between 12-month growth rates for reweighted and re-chained official measures of CPIH and CPI

UK, April 2020 to December 2020, Percentage points

	April	May	June	July	August	September	October	November	December
CPIH	0.04	0.11	0.08	-0.01	0	0	0.07	0.06	0.01
CPI	-0.04	0.05	0.01	-0.08	-0.06	-0.06	0.04	0.02	-0.03

Source: Office for National Statistics - Consumer Price Index including owner occupiers' housing costs and Reweighted consumer prices basket

Notes

1. Calculated as contribution to reweighted minus contribution to re-chained.

Although the all item 12-month growth rates for the reweighted basket have been very similar to the comparable official series over the last three months, there have nonetheless been offsetting effects from specific divisions that have differed between the series.

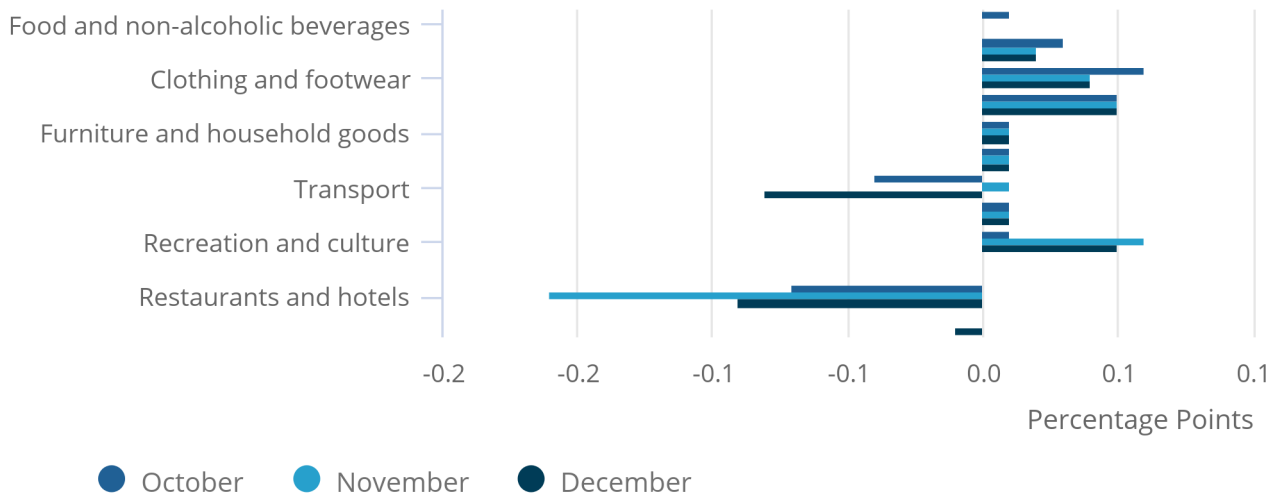
Figure 1 shows the difference between the contributions each division of CPIH made to the 12-month growth rates of the reweighted and the re-chained official series each month from October to December 2020. A positive difference means that the division made a higher contribution to the 12-month growth rate of the reweighted series than the comparable official series, while a negative difference means the contribution to the growth rate for the reweighted series was lower.

Figure 1: Difference in contributions to the 12-month growth rate of CPIH between reweighted and re-chained official series by division

UK, October to December 2020

Figure 1: Difference in contributions to the 12-month growth rate of CPIH between reweighted and re-chained official series by division

UK, October to December 2020



Source: Office for National Statistics - Consumer Price Index including owner occupiers' housing costs and reweighted consumer prices basket

Notes:

1. Calculated as contribution to reweighted minus contribution to re-chained.

Data for the reweighted basket show that, for each of the last three months, a higher proportion of consumer spending went on alcohol and tobacco, clothing and footwear, housing and household services, furniture and household goods, health, communication, and recreation and culture than is assumed in the official CPIH and CPI baskets. However, a lower proportion was spent on restaurants and hotels, and miscellaneous goods and services.

This increased proportion does not necessarily correspond to higher overall spending as it also reflects differences in the amount of total expenditure between the official basket and the reweighted basket. This is illustrated in Table 2, which shows the weights for each division of CPIH for each month since the reweighted series began in April 2020 and the weight for each division in the fixed-weight official basket.

Restaurants and hotels saw by far the biggest difference in contribution between the reweighted and re-chained official series. This reflects the prevalence of unavailable items in this category and the role of imputation in accounting for unavailable components in the official series. The difference was most pronounced in November 2020 when the whole of England entered lockdown and many items were unavailable, but consumption was also reduced in October and December 2020 as local lockdowns across the UK restricted access to these services.

Housing and household services saw the largest consistent positive difference between contributions to the reweighted basket growth rate and the re-chained official growth rate. This was primarily driven by higher expenditure on imputed rents and Council Tax.

Differences in the contributions from transport largely reflect the seasonal patterns of some of its components. In particular, air fares typically see rising prices throughout the autumn but made a strongly negative contribution to the reweighted basket in October and December 2020 as demand was unusually low. In November 2020 air fares were unavailable so were removed from the reweighted basket and offset by upward contributions from other components of the division.

Table 2 shows the total expenditure assumed each month as a proportion of the February expenditure, which is carried forward for the rest of the year in the official series. Usually, total expenditure follows a relatively consistent seasonal pattern over the year so a fixed approach using an annual weight is most appropriate but, during the pandemic, total consumer expenditure has changed substantially.

Table 2: Divisional weights for CPIH official and reweighted baskets, and total expenditure UK, April 2020 to December 2020, Parts per thousand and percentage

Division	Normal weights ¹	April	May	June	July	August	September	October	November	December
Food and non-alcoholic beverages	79	134.61	126.89	108.84	88.49	87.26	81.22	85.21	99.52	93.82
Alcohol and tobacco	32	65.17	59.78	50.72	40.22	37.11	30.08	36.09	49.23	46.4
Clothing and footwear	51	29.73	35.48	49.49	53.29	56.17	53.14	56.14	55.46	71.62
Housing and household services	296	452.77	419.85	362.34	309.7	303.91	287.78	301.75	327.67	290.53
Furniture and household goods	50	39.1	45.09	59.18	62.34	59.18	59.16	70.17	78.12	66.58
Health	22	14.38	14.73	18.02	25.14	23.07	23.06	25.06	26.56	26.23
Transport	120	50.34	68.84	108.49	124.69	116.35	161.32	120.18	106.93	105.84
Communication	17	26.71	25.17	21.13	18.1	18.05	17.05	18.04	20.33	17.15
Recreation and culture	136	65.85	73.17	86.36	102.9	103.04	102.36	103.54	102.76	114.9
Education	24	39.53	34.61	29.59	25.14	25.07	24.07	24.06	27.82	24.21
Restaurants and hotels	96	9.51	12.26	19.95	66.54	87.54	82.54	74.55	16.77	57.01
Miscellaneous goods and services	77	72.3	84.14	85.89	83.46	83.25	78.21	85.21	88.82	85.71
Total expenditure as a proportion of February total		66.61	70.75	83.22	93.69	94.94	100.38	96.33	92.78	100.39

Source: Office for National Statistics - Consumer Price Index including owner occupiers' housing costs and Reweighted consumer prices basket

Notes

1. Refers to the official consumer prices 2020 weights.

In April 2020, total consumer expenditure fell considerably to around 67% of the usual expenditure level, rising gradually to reach 100% of February's expenditure in September 2020 before falling back again as tighter restrictions were re-introduced including a national lockdown in November 2020.

This likely reflects the initial impact of restrictions imposed from the end of March 2020 when [non-essential businesses were closed and employees were encouraged to work from home if possible](#). At that time spending on transport, for example, fell sharply as people made fewer journeys, and spending on recreation and culture, and restaurants and hotels also fell as many items within those divisions were unavailable. Spending on some other items increased, such as food and non-alcoholic beverages, and alcohol and tobacco. Alcohol here refers to alcohol bought from retailers, not from restaurants and bars, and likely increased as many restaurants and bars were closed.

Following the easing of lockdown restrictions in December 2020, overall spending has risen again to February 2020 levels. However, there remain differences in the make-up of that spending as some restrictions continue and consumer behaviour has changed. For example, spending on recreation and culture remains lower than it was before the pandemic and spending on restaurants and hotels fell as a proportion of spending to its third lowest level in November 2020.

Some parts of the basket are assumed to have relatively fixed levels of expenditure, such as education, and housing and household services. Weights for these divisions rose sharply in April 2020 as this expenditure represented a considerably higher proportion of total spending. Over the subsequent months, these weights gradually fell and rose broadly in line with changes in total expenditure.

These results show that, while the 12-month growth rate of the reweighted basket has recently been the same as the re-chained official rate, there remains considerable variation in the scale and make-up of consumer spending compared with the pre-pandemic period.

5 . Related links

[Re-weighted consumer prices basket – adjusting for consumption changes during lockdown: July 2020](#)

Article | Released 19 August 2020

Constructing an alternative consumer price inflation measure removing the impact of unavailable items and taking account of changes in consumer spending patterns over Quarter 2 (Apr to June) 2020 as the UK lockdown and subsequent easing took hold.

[Consumer price inflation, UK](#)

Bulletin | Monthly

Price indices, percentage changes and weights for the different measures of consumer price inflation.