

Statistical bulletin

Household Costs Indices, UK: preliminary estimates 2005 to 2017

The first preliminary estimates of the Household Costs Indices (HCIs). Experimental indices are presented for UK household groups over the period January 2005 to June 2017.

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1 . Main points

- This article presents the first preliminary estimates from the work completed to date on developing the Household Costs Indices; experimental indices are presented for UK household groups over the period January 2005 to June 2017, an all-households index is provided for reference.
- The household group indices are compared with measures of nominal disposable income growth to demonstrate how these groups are faring in the economy between financial years ending 2006 and financial year ending 2016.
- Retired households have experienced stronger rises in their prices and costs than non-retired households over the periods explored, with price rises for retired households averaging 2.6% per year, compared with 2.3% for non-retired households; however, the disposable income received by retired households has grown considerably more than the disposable income received by non-retired households.
- Low-income households observe stronger rises in their prices and costs than high-income households, with poorer households (represented by the second income decile) seeing average annual price rises of 2.6%, while richer households (represented by the ninth income decile) saw annual average price rises of 2.2%; however, the divergence in growth is met by a similar divergence in growth in household disposable income for these two groups.
- Households without children have also experienced stronger rises in their prices and costs than households with children, but again, this growth is matched by similar growth in household disposable income for each group.

2 . Things you need to know about this release

What are the Household Costs Indices?

The Household Costs Indices (HCIs) are a set of experimental measures, currently in development, that aim to reflect UK households' experience of changing prices and costs. More specifically they will aim to measure how much the nominal disposable income of different household groups would need to change, in response to changing prices and costs, to enable households to purchase the same quantities of goods and services at a fixed quality. Put simply, the broad approach of the HCIs is to measure the outgoings of households.

Since initiating development of the HCIs, a number of methodologies have been explored that result in the indices showing different growth rates to the UK's lead measure of inflation, the Consumer Prices Index including owner occupiers' housing costs (CPIH)¹. The areas that have been explored, the impact that these methodologies would have if they were applied uniquely to the CPIH, and the cumulative impact of these changes are provided in the article [Household Costs Indices: methodology](#).

For this release, the following methodologies have been applied:

- the use of democratic weighting
- a payments approach to owner occupiers' housing costs (OOH)
- the use of gross expenditure to calculate the weight for insurance premia
- inclusion of a measure of interest on credit card debt

All other methodology remains consistent with the calculation of CPIH.

The HCIs are still in development and as such future estimates of the HCIs are expected to have different, or additional, items in scope. Furthermore, some of the aspects of methodology presented in this article may be improved. Therefore the aim of this article is to update users on progress towards development of the HCIs. For more information on other proposals that have been suggested for the HCIs, please refer to [Developing the Household Costs Indices](#).

What household groups are presented in this article?

This article will cover the following household groups:

- retired households and non-retired households
- household groups by equivalised disposable income deciles
- households with children and households without children

For definitions of these terms, please refer to the Glossary in section 7 of this article.

The indices for household groups are compared with an all-households index, constructed using the same methodology.

If you would like to provide feedback on the choice of household groups presented, please send comments to cpi@ons.gsi.gov.uk.

What is the structure of this release?

For each set of household groups, a similar structure is presented. The expenditure patterns for the household groups are covered first, followed by the average annual growth rates. Contributions to the change in the 12-month growth rate are presented, which highlight some of the main drivers of the growth rate for each household group.

The index for each household group is then compared with the growth in nominal mean equivalised disposable income for the respective household group. For more information on these terms, please refer to the Glossary in section 7.

What income measures are presented in this article?

Changes in prices and costs for household groups are presented in this article alongside measures of mean equivalised disposable income as produced within the [Household Disposable Income and Inequality](#) publication.

The interpretation of these results should be treated with caution, as there are elements within the two measures that mean they are not coherent. For example, the HCIs include changes in the cost of Council Tax, while the disposable income measure provided in this article deducts direct taxes (including Council Tax). This means that any changes in the cost of Council Tax will be counted in both measures. [The measurement of real income in the UK: options for a coherent approach](#) provides details of how measures of income and measures of changing prices and costs should be produced so that they are coherent.

Mean equivalised disposable household income is presented for each financial year (April to March) between financial year ending 2006 and financial year ending 2016. The annual figures presented are nominal, meaning that they do not make adjustments for changes in prices and costs. When comparing the HCIs with income, the indices have been re-referenced to the financial year ending 2006, and an annual average of each index values is used.

Quality and methodology information

For more information on the quality and methodology used to calculate these indices, please see “Quality and methodology” in section 8 of this article. We welcome feedback on these statistics to cpi@ons.gsi.gov.uk. We are also seeking feedback on the HCIs’ methodology to assist with prioritisation of future work. An optional questionnaire is provided in Annex A of the [Household Costs Indices: methodology article](#) to help guide responses. Any feedback should be sent to cpi@ons.gsi.gov.uk by Friday 23 February 2018.

Related publications

We have also produced [CPIH-consistent inflation rate estimates for UK household groups](#). The CPIH is [our most comprehensive measure of consumer price inflation](#). It measures the change in the prices of the goods and services consumed by households. However, because the consumption baskets of specific households differ and because prices do not all change at the same rate, the price experience of different groups of households may differ from the average figure for all households. Producing CPIH-consistent inflation rates for different household groups therefore provides an insight into how these price changes can vary between different groups, within an established framework based on economic principles.

Additional analysis is provided in Annex A (section 9) of this article that compares how the CPIH-consistent inflation rate estimates for UK household groups differ from the Household Costs Indices.

Notes for Things you need to know about this release

1. CPIH measures changes in the price of goods and services consumed by households. Measuring changes in the cost of consumption goods and services is extremely important for measuring economic activity in the UK; however, it does not always reflect the changes in costs that are directly experienced by UK households.

3 . Summary of results

Table 1: Average 12-month growth rates for selected household groups, UK, 2006 to 2016

Group	12-month growth rate (%)				
Decile of	1	2	9	10	All
Disposable income	2.7	2.6	2.2	2.3	2.4
Retired households					2.6
Non-retired households					2.3
Households with children					2.2
Households without children					2.5

Source: Office for National Statistics

Notes:

1. Deciles of disposable income are calculated on an equivalised basis, adjusting for the composition of the household. See Glossary for more details.
2. Equivalised income deciles (1 equals lowest-income households, 10 equals highest-income households).
3. The average presented is the compound average 12-month growth rate of the unrounded indices. Consequently, it may differ from the arithmetic average of the 12-month growth rates presented in this article.
4. The all-households index is not calculated as an average of the income deciles, but is calculated as an index in its own right.

4 . Retired and non-retired households' experience of changing prices and costs

How have prices and costs changed for retired and non-retired households?

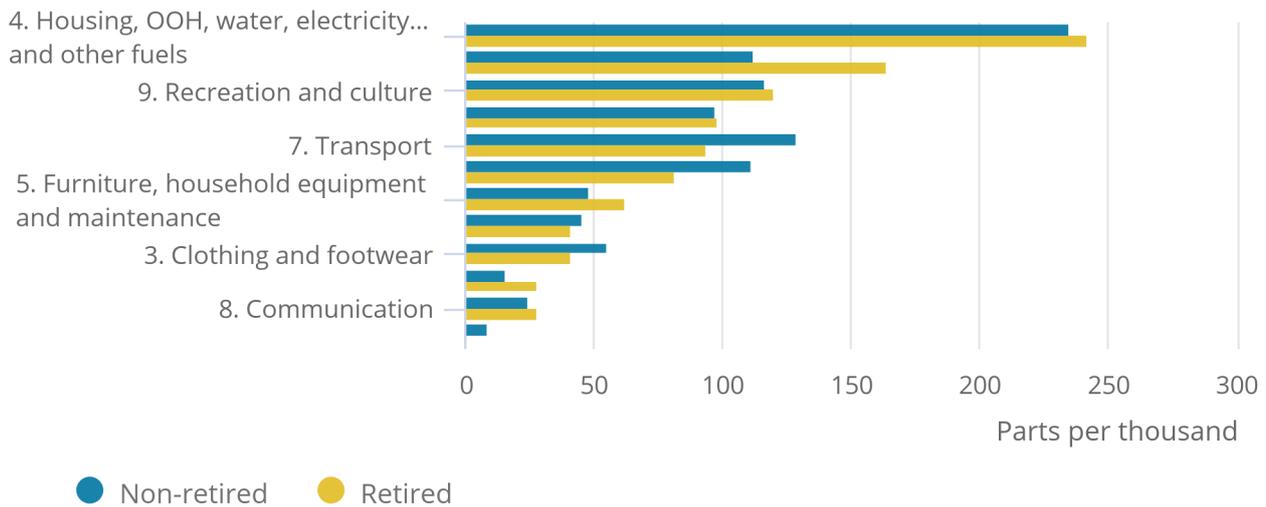
The only difference between the indices presented in this analysis result from differences in the share of expenditure attributed to each category of item (under the assumption that each household group experiences the same price changes). Figure 1 presents the average expenditure share on each category of spending as a proportion of total household spending, for retired and non-retired household groups, in parts per thousand.

Figure 1: Average expenditure shares for each category of spending, retired and non-retired households

UK, 2005 to 2017

Figure 1: Average expenditure shares for each category of spending, retired and non-retired households

UK, 2005 to 2017



Source: Office for National Statistics

Notes:

1. Expenditure shares may not sum to 1,000 due to rounding.
2. Weights for each category of spending are averaged across the period of 2005 to 2017 (only the weights for January 2017 are included in the average).

Broadly, retired and non-retired households spend similar proportions of their expenditure on the same categories of spending. For example, both retired and non-retired households spend the largest proportion of their expenditure on housing and housing-related services (4. Housing, water, electricity, gas and other fuels), and a very small proportion of expenditure on education (10. Education).

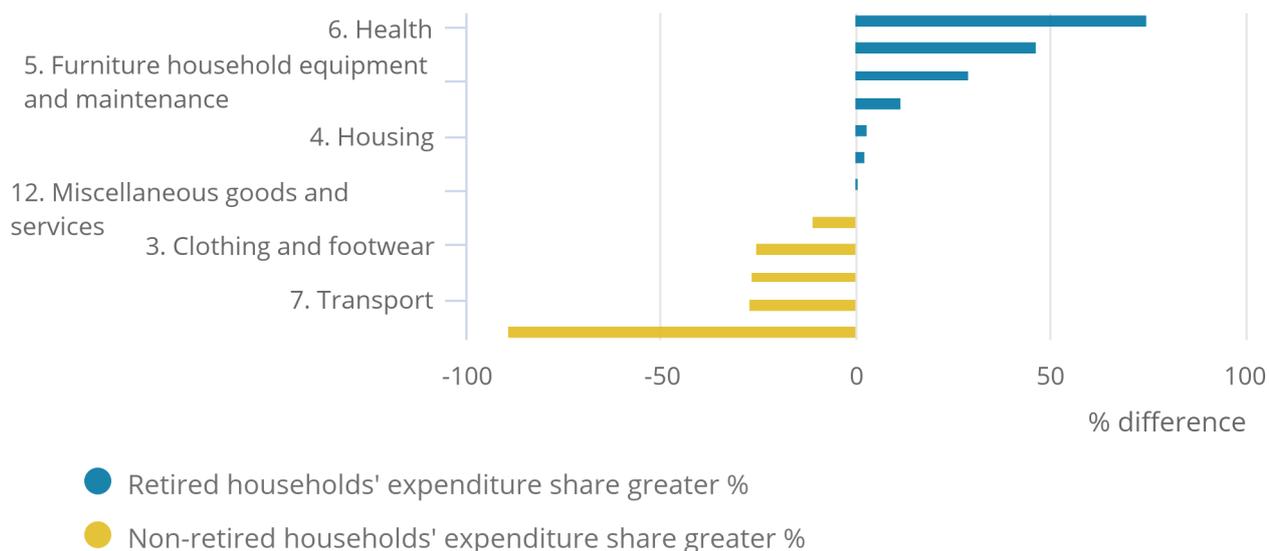
However, there are categories of spending where the expenditure shares differ substantially for the two groups. To explore this further, Figure 2 presents the percentage difference in average expenditure shares (2005 to 2017) between retired and non-retired households for the 12 categories of spending.

Figure 2: Percentage difference in average expenditure shares for each category of spending, retired and non-retired households

UK, 2005 to 2017

Figure 2: Percentage difference in average expenditure shares for each category of spending, retired and non-retired households

UK, 2005 to 2017



Source: Office for National Statistics

Notes:

- "4. Housing" is composed of Housing, Owner occupiers' housing costs (OOH), water, electricity, gas and other fuels.

On average, retired households have spent a larger proportion of their total expenditure on health than non-retired households between 2005 and 2017. Non-retired households spent a larger proportion of their total expenditure on education than retired households over the same period.

Both household groups spend a similar proportion of their expenditure on housing and housing-related services, recreation and culture, and miscellaneous goods and services. However, classifying these categories of spending in this way obscures some of the underlying trends. For example, when looking at the class level categories, the expenditure share on canteens, education and interest on credit card debt for non-retired households is nearly double that of retired households.

Conversely, retired households have an expenditure share more than double non-retired households for categories including: domestic services and household services (such as cleaners and gardeners); newspapers and periodicals; liquid fuels; medical services and equipment; postal services; gardens, plants and flowers; services for maintenance and repair of the dwelling; and fish.

Table 2 shows the 12-month growth rates experienced by retired and non-retired households between 2006 and 2016 (the last complete year of data), compared with an all-households index using the same methodology. The final row of the table shows the average 12-month growth rate for each group over the same period. On average over this period, retired households experience slightly faster growth than non-retired households (0.3 percentage points); however, looking at the individual years the trend is less clear. There are three distinct years where the trend is reversed and non-retired households experience stronger growth.

Table 2: 12-month growth rates for retired and non-retired household groups, alongside an all-households index, UK, 2006 to 2016

Year	Non-retired	Retired	All-households
2006	2.8	3.7	3.1
2007	3.4	3.7	3.5
2008	3.6	4.9	4
2009	0.4	1.7	0.8
2010	3.4	3	3.3
2011	4.6	4.8	4.7
2012	2.9	3.1	3
2013	2.4	2.6	2.5
2014	1.4	1.5	1.4
2015	0	-0.3	-0.1
2016	0.8	0.5	0.7
Compound average	2.3	2.6	2.4

Source: Office for National Statistics

Notes:

1. The average presented is the compound average 12-month growth rate of the unrounded indices. Consequently, it may differ from the arithmetic average of the 12-month growth rates presented in this article.

The 12-month growth rate by month (Figure 3) can provide more clarity on this trend. Between 2005 and 2009, retired households were experiencing stronger growth than non-retired households. Since 2010, this difference has converged. While there are a number of periods where retired households experienced stronger growth, there are also a number of periods where non-retired households experienced stronger growth, particularly since 2015, where the growth rate for retired households is marginally weaker.

Figure 3: 12-month growth rate for retired and non-retired households, alongside an all-households index

UK, January 2006 to June 2017

Figure 3: 12-month growth rate for retired and non-retired households, alongside an all-households index

UK, January 2006 to June 2017



Source: Office for National Statistics

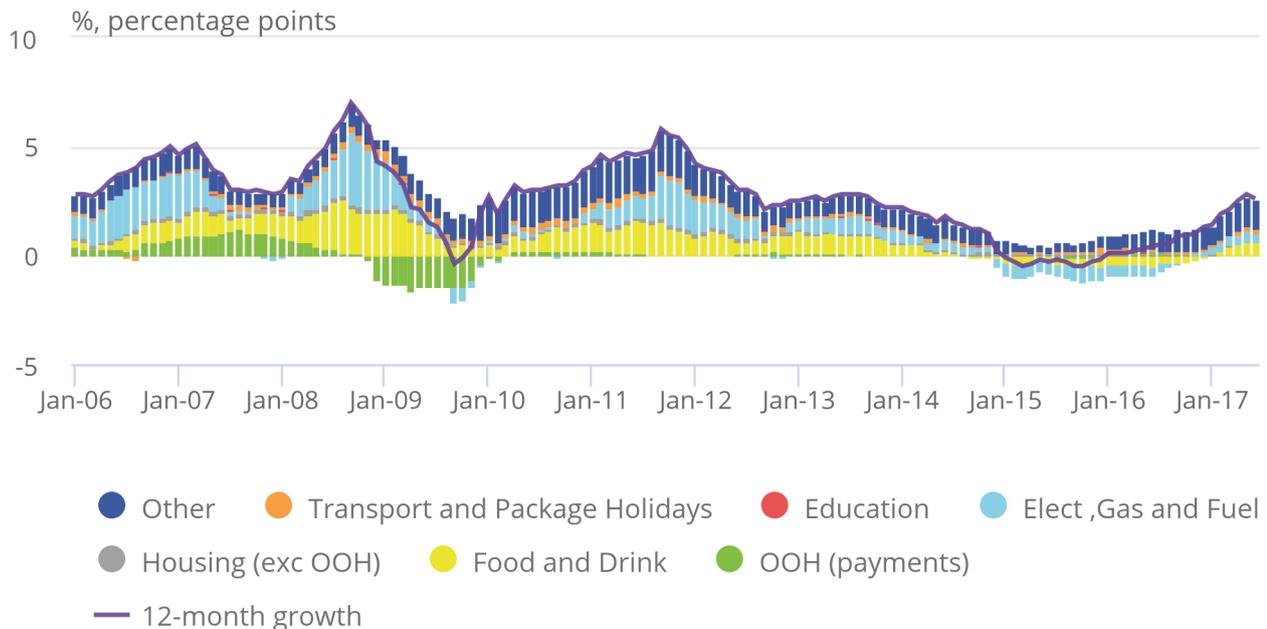
Figures 4 and 5 present the contributions to the 12-month growth rates for retired and non-retired households respectively, which provide useful insight into the main drivers of these trends over time. The two series are driven by similar components: food and drink, housing, and housing-related services. However, the differences in the magnitude with which these components affect the 12-month growth rates for each household group explain the divergence in growth between these groups (Figure 6).

Figure 4: Contributions to the 12-month growth rate, retired households

UK, January 2006 to June 2017

Figure 4: Contributions to the 12-month growth rate, retired households

UK, January 2006 to June 2017



Source: Office for National Statistics

Notes:

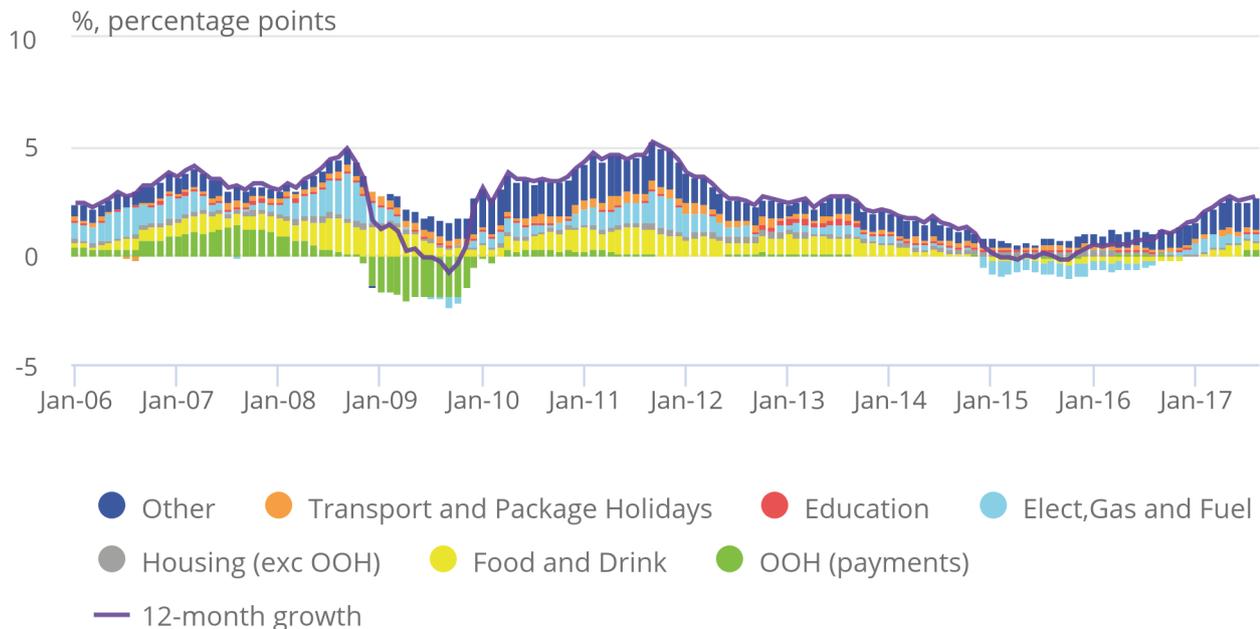
1. Stacked bars reflect the percentage point contributions of each of the 87 class-level items to the 12-month growth rate. The contribution of each of the 87 class-level items is estimated separately, before being aggregated to 7 distinct categories.
2. A reduction in the contribution of series to the annual rate of change need not imply falling prices, but could also reflect a lower rate of increase than the previous year.
3. "Food & Drink" is composed of food, non-alcoholic and alcoholic beverages and tobacco. "Housing exc. OOH" is composed of actual rents and products and services for the repair of dwellings. Owner occupiers' housing costs (payments) is a separate category. "Elect., gas and fuel" is composed of electricity, gas and other household fuels as well as fuels and lubricants for motor vehicles. "Transport and package holidays" includes passenger transport by road, rail, air and sea, as well as package holidays. "Education" reflects the division-level contribution. The "other" category reflects the combined contributions of the remaining class-level items, bringing the sum of contributions to the inflation rate.
4. Contributions may not sum due to rounding.

Figure 5: Contributions to the 12-month growth rate, non-retired households

UK, January 2006 to June 2017

Figure 5: Contributions to the 12-month growth rate, non-retired households

UK, January 2006 to June 2017



Source: Office for National Statistics

Notes:

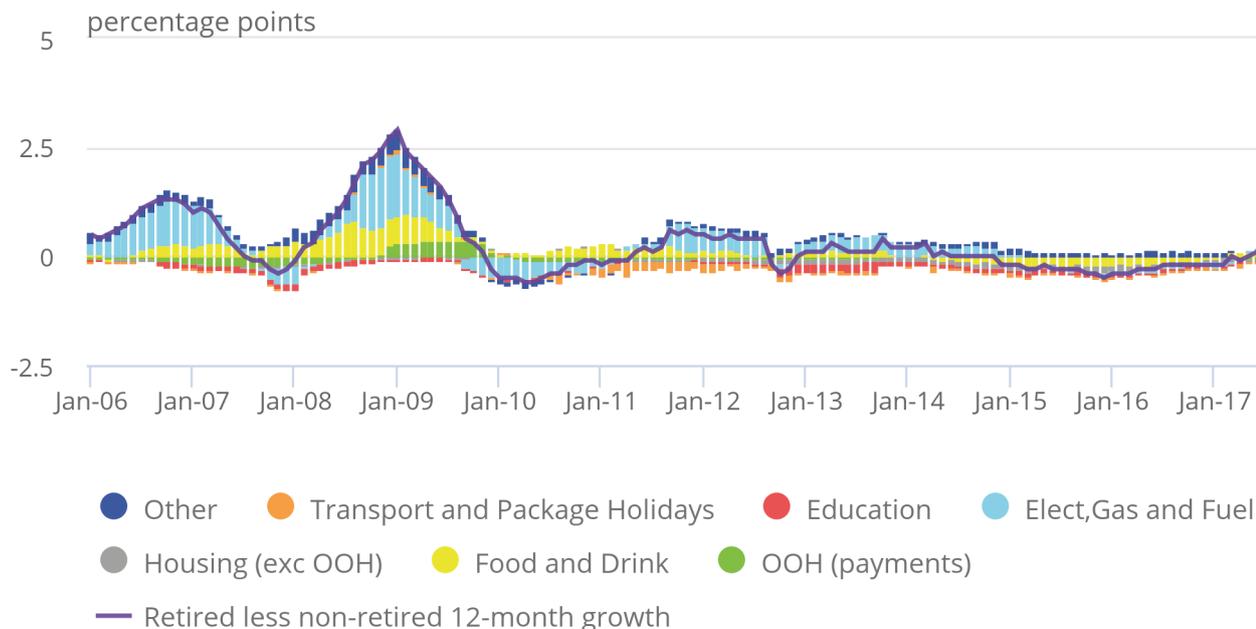
1. Stacked bars reflect the percentage point contributions of each of the 87 class-level items to the 12-month growth rate. The contribution of each of the 87 class-level items is estimated separately, before being aggregated to 7 distinct categories.
2. A reduction in the contribution of series to the annual rate of change need not imply falling prices, but could also reflect a lower rate of increase than the previous year.
3. "Food & Drink" is composed of food, non-alcoholic and alcoholic beverages and tobacco. "Housing exc. OOH" is composed of actual rents and products and services for the repair of dwellings. Owner occupiers' housing costs (payments) is a separate category. "Elect., gas and fuel" is composed of electricity, gas and other household fuels as well as fuels and lubricants for motor vehicles. "Transport and package holidays" includes passenger transport by road, rail, air and sea, as well as package holidays. "Education" reflects the division-level contribution. The "other" category reflects the combined contributions of the remaining class-level items, bringing the sum of contributions to the inflation rate.
4. Contributions may not sum due to rounding.

Figure 6: Contributions to the difference in the 12-month growth rate, retired households less non-retired households

UK, January 2006 to June 2017

Figure 6: Contributions to the difference in the 12-month growth rate, retired households less non-retired households

UK, January 2006 to June 2017



Source: Office for National Statistics

Notes:

1. Stacked bars reflect the percentage point contributions of each of the 87 class-level items to the difference in 12-month growth rates. The contribution of each of the 87 class-level items is estimated separately, before being aggregated to 7 distinct categories.
2. A reduction in the contribution of series to the annual rate of change need not imply falling prices, but could also reflect a lower rate of increase than the previous year.
3. "Food & Drink" is composed of food, non-alcoholic and alcoholic beverages and tobacco. "Housing exc. OOH" is composed of actual rents and products and services for the repair of dwellings. Owner occupiers' housing costs (payments) is a separate category. "Elect., gas and fuel" is composed of electricity, gas and other household fuels as well as fuels and lubricants for motor vehicles. "Transport and package holidays" includes passenger transport by road, rail, air and sea, as well as package holidays. "Education" reflects the division-level contribution. The "other" category reflects the combined contributions of the remaining class-level items, bringing the sum of contributions to the inflation rate.
4. Contributions may not sum due to rounding.

The two upward spikes observed in Figure 6 prior to October 2009 indicate that retired households experienced stronger growth in those periods than non-retired households. The difference was driven largely by food and drink and electricity, gas and other fuels. The prices for these categories of items were rising during these time periods, and as retired households are observed to spend a larger proportion of their expenditure on these categories of spending, they experience faster growth during these periods.

Stronger positive contributions from education have consistently increased the growth rate experienced by non-retired households. This is to be expected as a higher share of expenditure on education for non-retired households will accentuate any fluctuations in the price of education for that particular group.

Since 2012, the contributions that lead to retired households experiencing stronger growth (from food and drink, and electricity, gas and other fuels) have been offset by components such as education, transport and housing. Between 2014 and 2016, food and drink prices were falling, which contributed to non-retired households experiencing marginally faster growth.

How does nominal disposable income compare with changes in prices and costs for retired and non-retired households?

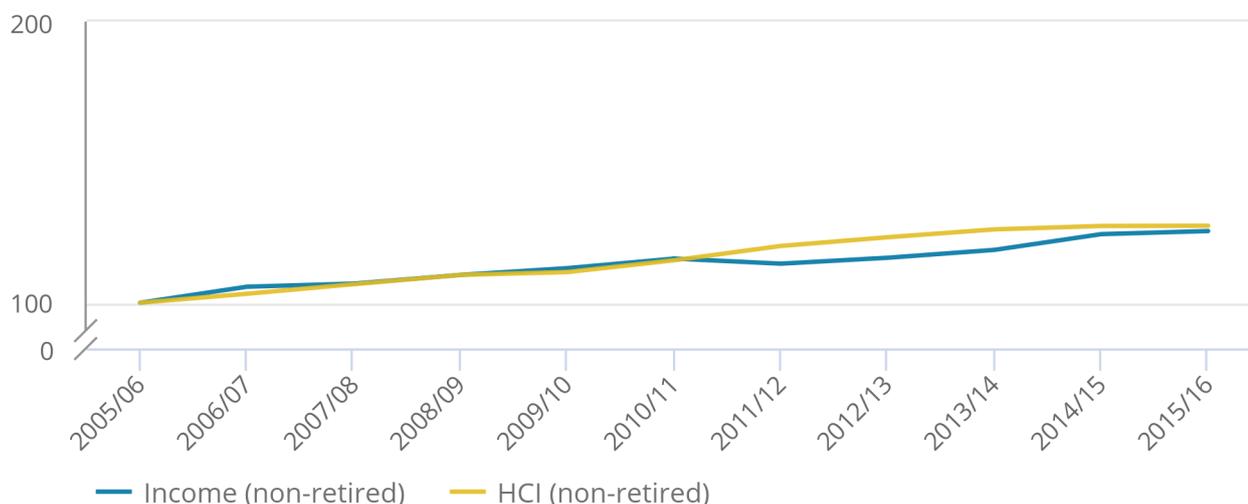
The cumulative income growth¹ is compared with the cumulative HCIs' growth in Figures 7 and 8 for non-retired and retired households respectively.

Figure 7: Mean equivalised disposable household income (nominal) and Household Costs Indices cumulative growth, non-retired households

UK, financial years ending 2006 to 2016, index financial year ending 2006 = 100

Figure 7: Mean equivalised disposable household income (nominal) and Household Costs Indices cumulative growth, non-retired households

UK, financial years ending 2006 to 2016, index financial year ending 2006 = 100



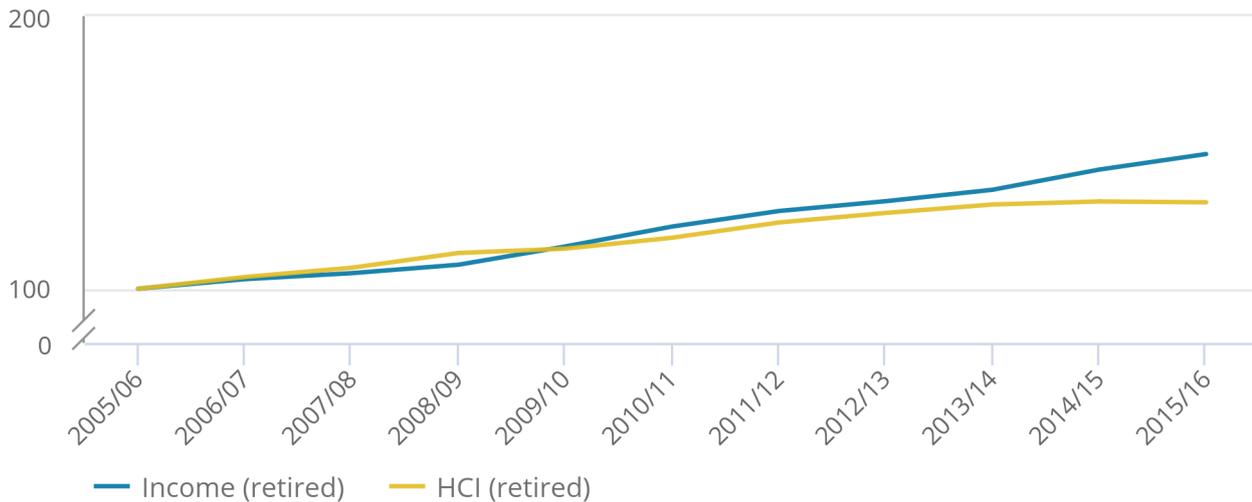
Source: Office for National Statistics

Figure 8: Mean equivalised disposable household income (nominal) and Household Costs Indices cumulative growth, retired households

UK, financial years ending 2006 to 2016, index financial year ending 2006 = 100

Figure 8: Mean equivalised disposable household income (nominal) and Household Costs Indices cumulative growth, retired households

UK, financial years ending 2006 to 2016, index financial year ending 2006 = 100



Between financial year ending 2006 and financial year ending 2016, non-retired households have experienced similar changes in their income and their household costs (as measured by the HCIs). Household income for non-retired households has increased by 26% over this period, while household costs for this group have increased 27%.

While household costs for retired households have increased at a faster rate than non-retired households, their income has also increased considerably more than non-retired households and considerably more than their household costs. Household income for retired households increased 49% between financial year ending 2006 and financial year ending 2016; however, household costs for retired households only increased 32% over this same period.

Notes for Retired and non-retired households' experience of changing prices and costs

1. Details of the income measure used within this publication are provided in Section 2 of this article, "Things you need to know about this release", under the heading "What income measures are presented in this article?"

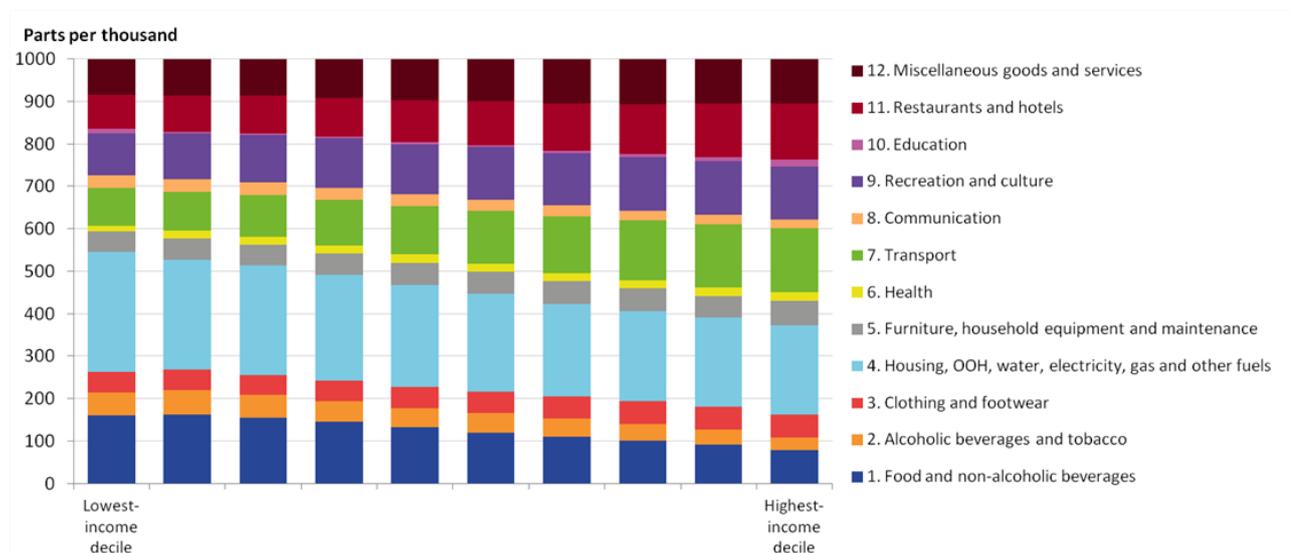
5 . Low- and high-income households' experience of changing prices and costs

How have prices and costs changed for households with different levels of income?

As well as dividing households by retirement status, the population of UK households can also be divided into income deciles: 10 equally-sized groups of households ranked by their equivalised disposable income (as described in the Glossary of this article). Figure 9 presents the average household expenditure share on each category (division) as a proportion of average expenditure on all items by each decile.

Figure 9: Average expenditure shares by category of spending, by equivalised disposable income decile

UK, 2005 to 2017



Over the period 2005 to 2017, average expenditure shares on essential items (such as food, housing and housing-related services) decline smoothly between the lowest- and highest-income deciles. Conversely, average expenditure shares on restaurants, hotels and transport gradually increase between the lowest- and highest-income deciles over this same period. Education shows an irregular trend, while the average expenditure share between the first and second income deciles reduces. The average expenditure share then increases again in the highest-income decile.

As the lowest (1) and highest (10) income deciles are expected to share the same unusual composition as described in [CPIH-consistent inflation rate estimates for UK household groups](#), they may display unusual spending patterns that could obscure the underlying trends. As such, for the remainder of this article the second and ninth deciles are chosen to be representative of low-income households and high-income households respectively.

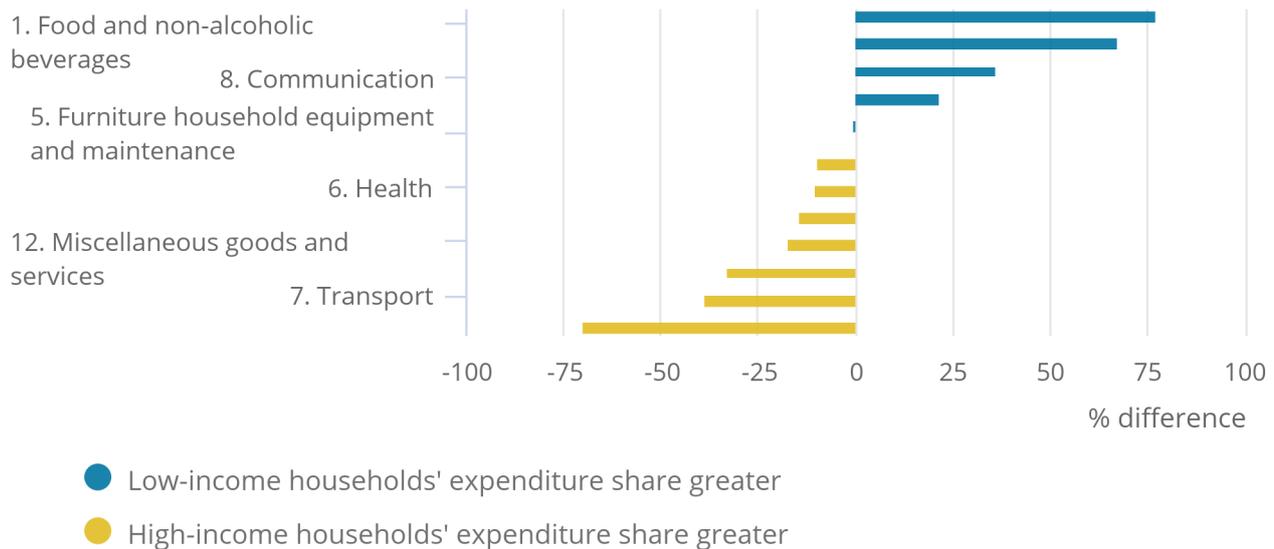
The difference in average weight between the second and ninth income decile for each category of spending are provided in Figure 10.

Figure 10: Percentage difference in average expenditure shares for each category of spending, low-income households (second decile) and high-income households (ninth decile)

UK, 2005 to 2017

Figure 10: Percentage difference in average expenditure shares for each category of spending, low-income households (second decile) and high-income households (ninth decile)

UK, 2005 to 2017



Source: Office for National Statistics

Notes:

- "4. Housing" is composed of Housing, Owner occupiers' housing costs (OOH), water, electricity, gas and other fuels.

Presenting the weights at this aggregate level obscures some of the underlying trends. For example, within the transport division, low-spending households (second decile) spend a much greater proportion of their expenditure on passenger transport by road (including coach, bus and taxi fares), whereas high-spending households (ninth decile) spend a much greater proportion of their expenditure on passenger transport by railway and the purchase of vehicles (including new and second-hand cars, motorbikes and bicycles).

The differences in the expenditure shares of households within each of the 10 income deciles drive differences in the growth rates experienced by these groups. Table 3 shows the average 12-month growth rate experienced by each equivalised income decile between 2006 and 2016 (the last complete year of data), compared with an all-households index that uses the same underlying methodology.

It can be observed that there is variation in the 12-month growth rate experienced by households with differing levels of equivalised income: the average 12-month growth rate over this period ranges from 2.7% for households in the lowest income decile to 2.3% for those in the highest decile. The all-households index has grown by 2.4% over this same period. This is equivalent to the average growth rate experienced by the fifth and sixth deciles within the income distribution.

Table 3: Average 12-month growth rate (%) for equivalised disposable income deciles, alongside an all-households index, UK, 2006 to 2016

Year	Equivalised disposable income decile										All-households
	1	2	3	4	5	6	7	8	9	10	
2006	3.6	3.4	3.4	3.2	3	2.9	2.9	2.7	2.8	2.7	3.1
2007	3.7	3.5	3.4	3.4	3.4	3.5	3.4	3.4	3.5	3.7	3.5
2008	4.5	4.5	4.4	4.2	4	3.9	3.7	3.6	3.4	3.5	4
2009	1.3	1.6	1.5	1.4	1	0.6	0.4	0.2	-0.1	-0.2	0.8
2010	2.9	2.9	3.2	3	3.3	3.4	3.4	3.7	3.7	3.6	3.3
2011	4.9	4.8	4.9	4.7	4.6	4.7	4.6	4.7	4.5	4.5	4.7
2012	3.5	3.3	3.3	3	3	2.9	2.8	2.7	2.6	2.6	3
2013	2.8	2.8	2.7	2.5	2.5	2.4	2.3	2.2	2.3	2.3	2.5
2014	1.8	1.6	1.5	1.4	1.4	1.4	1.3	1.2	1.3	1.4	1.4
2015	0	-0.1	-0.2	-0.1	-0.1	-0.2	-0.2	-0.1	-0.1	0.2	-0.1
2016	0.7	0.5	0.6	0.7	0.7	0.7	0.7	0.8	0.8	0.9	0.7
Compound average	2.7	2.6	2.6	2.5	2.4	2.4	2.3	2.3	2.2	2.3	2.4

Source: Office for National Statistics

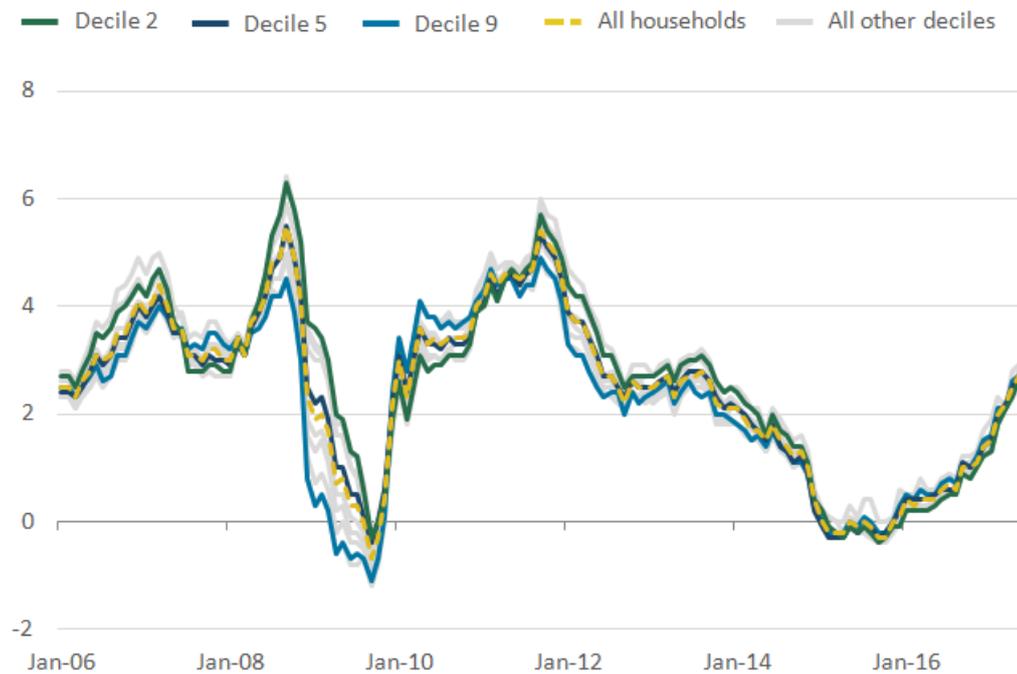
Notes:

1. Deciles of disposable income are calculated on an equivalised basis, adjusting for the composition of the household. See Glossary for more details.
2. Equivalised income deciles (1 equals lowest-income households, 10 equals highest-income households)
3. The average presented is the compound average 12-month growth rate of the unrounded indices. Consequently, it may differ from the arithmetic average of the 12-month growth rates presented in this article.

To provide more clarity on this trend, Figure 11 presents the 12-month growth rate for selected income deciles along with the range of rates for all income deciles and an all-households index, between January 2005 and June 2017. The spread between 12-month growth rates is largest between 2008 and 2009. Since 2013, all income deciles have experienced similar rates of growth.

Figure 11: Range of 12-month growth rates for selected equivalised income deciles, alongside an all-households index

UK, January 2006 to June 2017

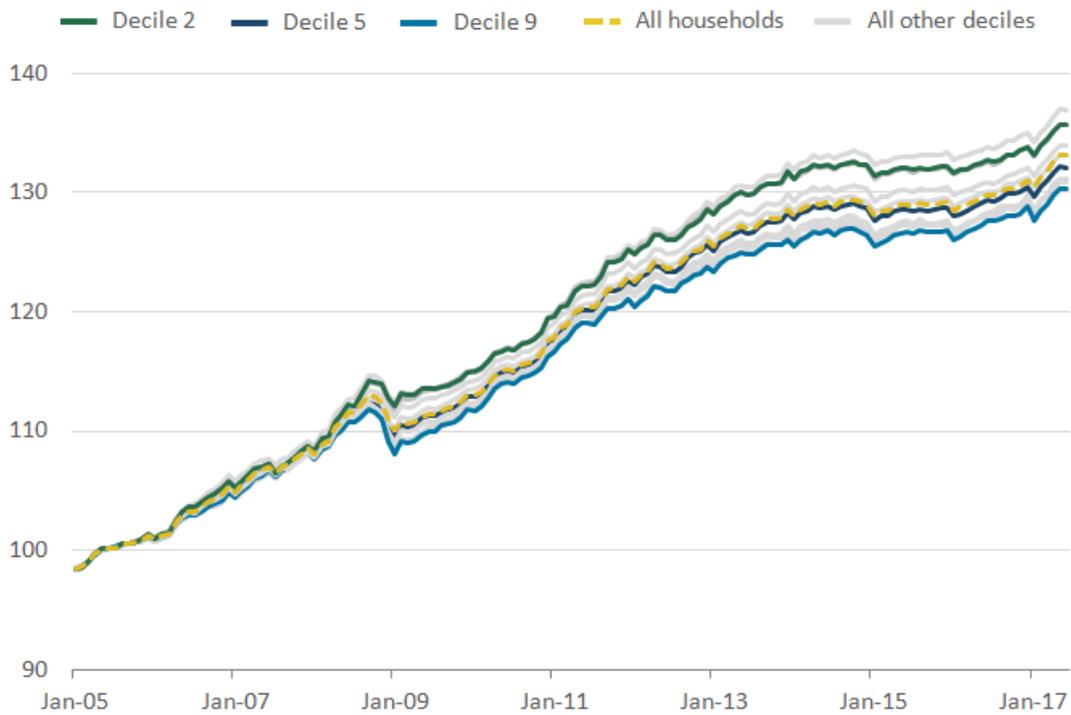


Cumulative changes in prices and costs over time can be seen in Figure 12. Since 2005, prices and costs of purchases by low-income households (second decile) have risen by 36%, while prices and costs of purchases by high-income households (ninth decile) have risen by 30%. The cumulative difference between the second and ninth deciles is therefore 5 index points over the period since 2005.

Note that individual households will only have experienced these differences if they were consistently placed in the same income decile through time. As it is expected that households would move between income deciles throughout their life-cycle, the cumulative growth presented in Figure 12 is for the goods, services and other financial transactions that households in each decile purchase through time, rather than the experience of the households themselves.

Figure 12: Cumulative changes in prices and costs for selected equivalised income deciles and an all-households index

UK, January 2005 to June 2017



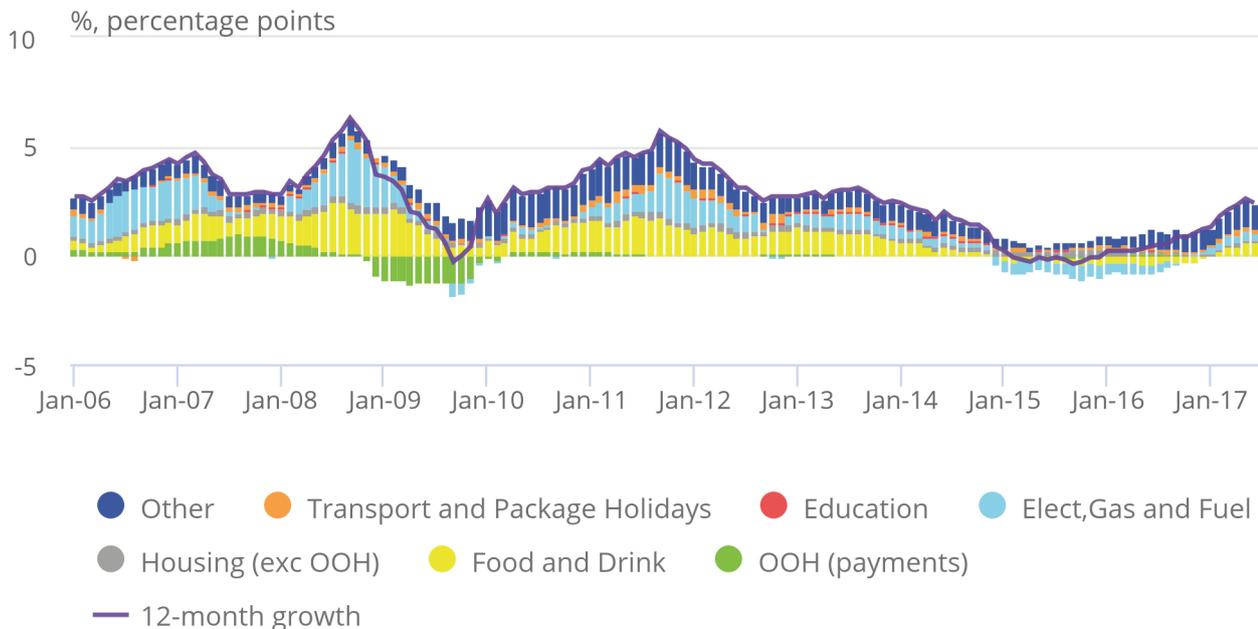
The contributions to the 12-month growth rate (Figures 13 and 14) give an overview of the main drivers of the 12-month growth rates for the second and ninth income deciles. These categories are broadly similar for both groups over time, including food and drink, and electricity, gas and fuels. To understand what is driving the disparity between the two series, the differences between the contributions to 12-month growth for these two household groups are provided in Figure 15.

Figure 13: Contributions to the 12-month growth rate, second equivalised disposable income decile

UK, January 2006 to June 2017

Figure 13: Contributions to the 12-month growth rate, second equivalised disposable income decile

UK, January 2006 to June 2017



Source: Office for National Statistics

Notes:

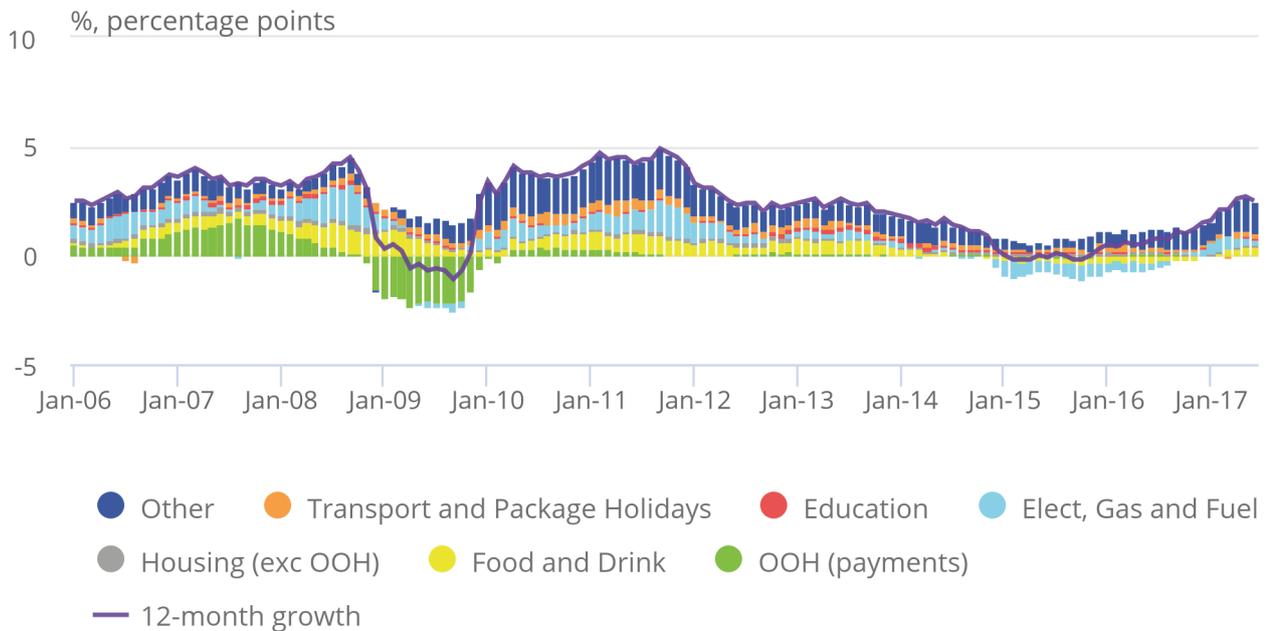
1. Stacked bars reflect the percentage point contributions of each of the 87 class-level items to the 12-month growth rate. The contribution of each of the 87 class-level items is estimated separately, before being aggregated to 7 distinct categories.
2. A reduction in the contribution of series to the annual rate of change need not imply falling prices, but could also reflect a lower rate of increase than the previous year.
3. "Food & Drink" is composed of food, non-alcoholic and alcoholic beverages and tobacco. "Housing exc. OOH" is composed of actual rents and products and services for the repair of dwellings. Owner occupiers' housing costs (payments) is a separate category. "Elect., gas and fuel" is composed of electricity, gas and other household fuels as well as fuels and lubricants for motor vehicles. "Transport and package holidays" includes passenger transport by road, rail, air and sea, as well as package holidays. "Education" reflects the division-level contribution. The "other" category reflects the combined contributions of the remaining class-level items, bringing the sum of contributions to the inflation rate.
4. Contributions may not sum due to rounding.

Figure 14: Contributions to the 12-month growth rate, ninth equivalised disposable income decile

UK, January 2006 to June 2017

Figure 14: Contributions to the 12-month growth rate, ninth equivalised disposable income decile

UK, January 2006 to June 2017



Source: Office for National Statistics

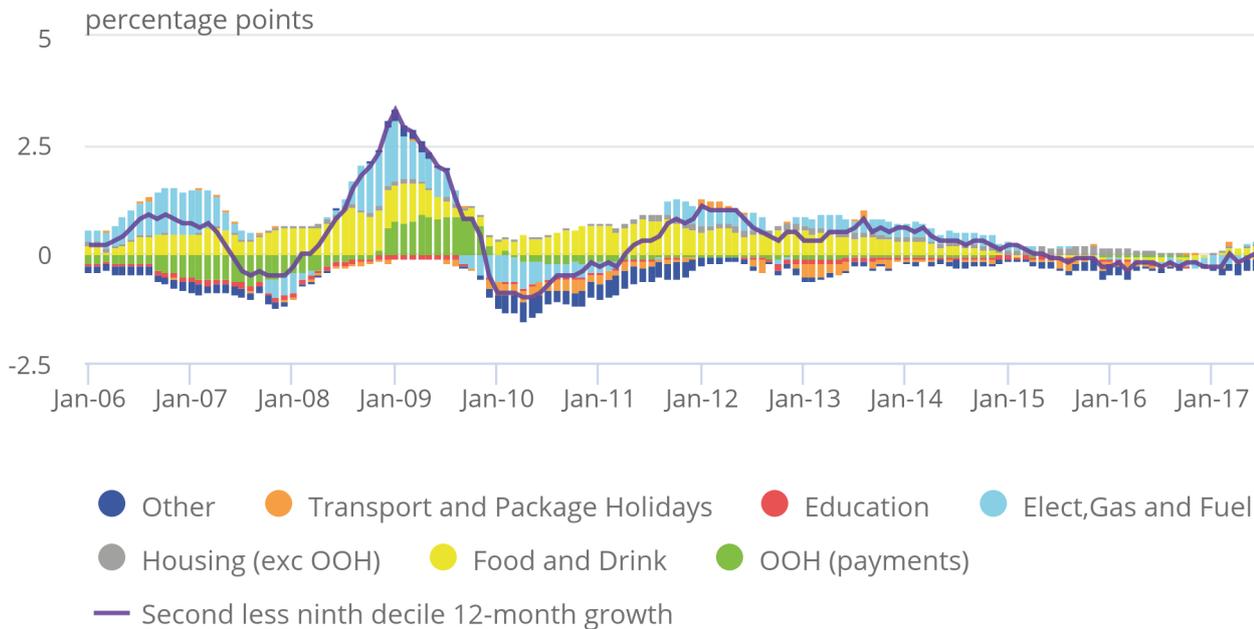
Notes:

1. Stacked bars reflect the percentage point contributions of each of the 87 class-level items to the 12-month growth rate. The contribution of each of the 87 class-level items is estimated separately, before being aggregated to 7 distinct categories.
2. A reduction in the contribution of series to the annual rate of change need not imply falling prices, but could also reflect a lower rate of increase than the previous year.
3. "Food & Drink" is composed of food, non-alcoholic and alcoholic beverages and tobacco. "Housing exc. OOH" is composed of actual rents and products and services for the repair of dwellings. Owner occupiers' housing costs (payments) is a separate category. "Elect., gas and fuel" is composed of electricity, gas and other household fuels as well as fuels and lubricants for motor vehicles. "Transport and package holidays" includes passenger transport by road, rail, air and sea, as well as package holidays. "Education" reflects the division-level contribution. The "other" category reflects the combined contributions of the remaining class-level items, bringing the sum of contributions to the inflation rate.
4. Contributions may not sum due to rounding.

Figure 15: Contributions to the difference in 12-month growth experienced by equivalised disposable income deciles, second decile less ninth decile

Figure 15: Contributions to the difference in 12-month growth experienced by equivalised disposable income deciles, second decile less ninth decile

High income households growth rate



Notes:

1. Stacked bars reflect the percentage point contributions of each of the 87 class-level items to the difference in 12-month growth rates. The contribution of each of the 87 class-level items is estimated separately, before being aggregated to 7 distinct categories.
2. A reduction in the contribution of series to the annual rate of change need not imply falling prices, but could also reflect a lower rate of increase than the previous year.
3. “Food & Drink” is composed of food, non-alcoholic and alcoholic beverages and tobacco. “Housing exc. OOH” is composed of actual rents and products and services for the repair of dwellings. Owner occupiers’ housing costs (payments) is a separate category. “Elect., gas and fuel” is composed of electricity, gas and other household fuels as well as fuels and lubricants for motor vehicles. “Transport and package holidays” includes passenger transport by road, rail, air and sea, as well as package holidays. “Education” reflects the division-level contribution. The “other” category reflects the combined contributions of the remaining class-level items, bringing the sum of contributions to the inflation rate.
4. Contributions may not sum due to rounding.

Figure 15 suggests that it is food and drink, as well as electricity, gas and fuels, that act to increase the 12-month growth rate for the lower-income households (represented by the second income decile) compared with higher-income households (represented by the ninth income decile). However, when there are increases in the cost of owner occupation (as measured by the payments approach), high-income households experience a stronger 12-month growth rate. This is because households with higher-income spend a larger proportion of their expenditure on owner-occupiers’ housing costs (OOH). When OOH are falling (for example, when mortgage interest payments declined in 2009), the downward pull on the growth of high-income households leads to low-income households experiencing stronger growth.

Since 2014, the contributions from all categories have been subdued suggesting the prices and costs for these items have remained relatively stable. The contributions to low-income households experiencing stronger growth are offset by contributions that would lead to high-income households experiencing stronger growth.

How does nominal disposable income compare with changes in prices and costs for households with different levels of income?

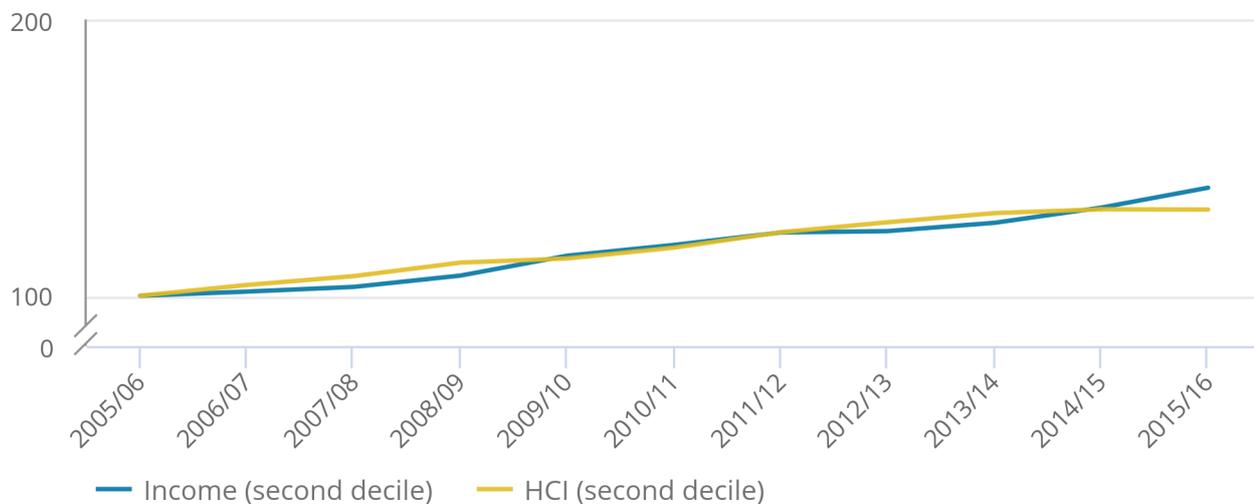
The cumulative income growth¹ is compared with the cumulative HCIs' growth in Figures 16, 17 and 18 for low-income households (represented by households within the second equivalised disposable income decile), mid-income households (represented by households within the fifth equivalised disposable income decile) and high-income households (represented by households within the ninth equivalised disposable income decile) respectively.

Figure 16: Mean equivalised disposable household income (nominal) and Household Costs Indices cumulative growth, low-income households

UK, financial years ending 2006 to 2016, index financial year ending 2006 = 100

Figure 16: Mean equivalised disposable household income (nominal) and Household Costs Indices cumulative growth, low-income households

UK, financial years ending 2006 to 2016, index financial year ending 2006 = 100



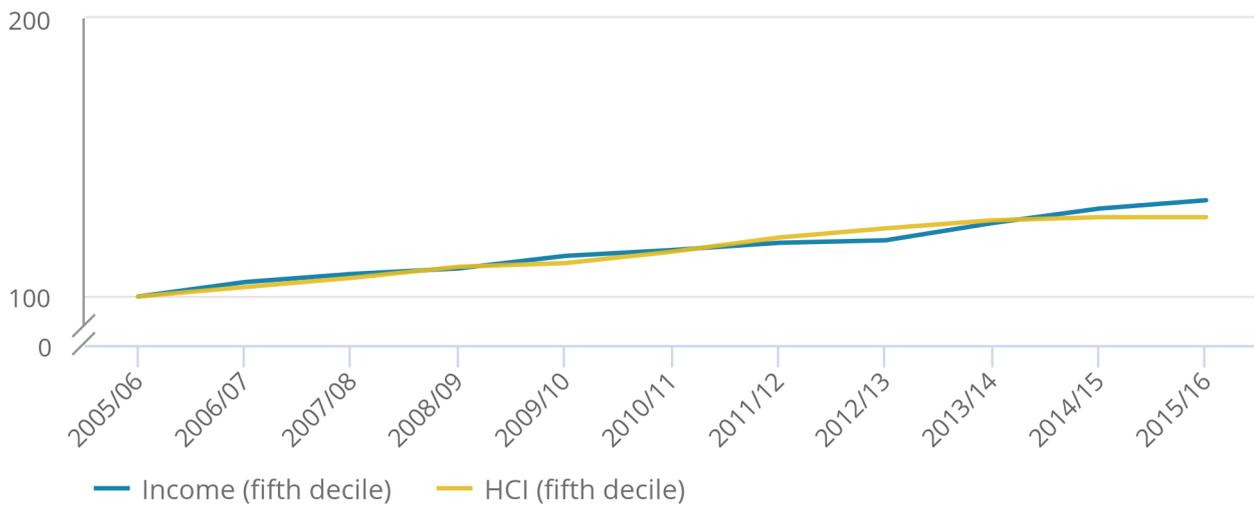
Source: Office for National Statistics

Figure 17: Mean equivalised disposable household income (nominal) and Household Costs Indices cumulative growth, mid-income households

UK, financial years ending 2006 to 2016, index financial year ending 2006 = 100

Figure 17: Mean equivalised disposable household income (nominal) and Household Costs Indices cumulative growth, mid-income households

UK, financial years ending 2006 to 2016, index financial year ending 2006 = 100



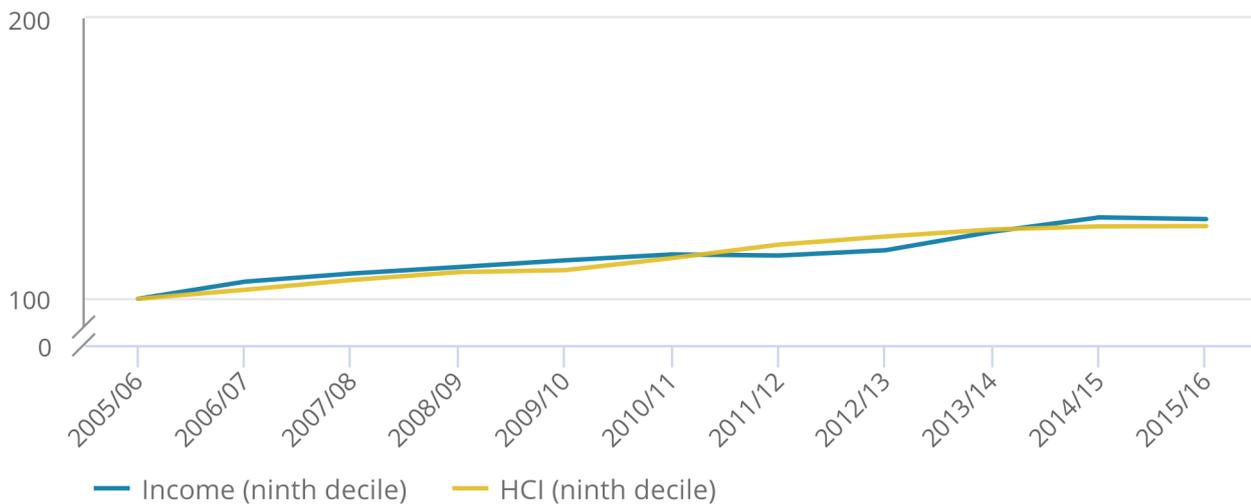
Source: Office for National Statistics

Figure 18: Mean equivalised disposable household income (nominal) and Household Costs Indices cumulative growth, high-income households

UK, financial years ending 2006 to 2016, index financial year ending 2006 = 100

Figure 18: Mean equivalised disposable household income (nominal) and Household Costs Indices cumulative growth, high-income households

UK, financial years ending 2006 to 2016, index financial year ending 2006 = 100



Source: Office for National Statistics

Figures 16 to 18 show that while there are divergences in changes in prices and costs for households within different equivalised disposable income deciles, these changes are typically matched with similar changes in income. While prices and costs of purchases by low-income households have grown faster (31% over the period 2005 to 2006 to financial year ending 2016) than prices and costs of high-income households (26% over the same period), the income of low-income households has also experienced stronger growth (39% for low-income households compared with 28% for high-income households).

The most recent year’s data available shows a strong divergence for the low-income group, however, given this pattern has only been seen at one time point it is difficult to discern whether this is a trend in the data or a temporary divergence in the figures.

Notes for Low- and high-income households’ experience of changing prices and costs

1. Details of the income measure used within this publication are provided in Section 2 of this article, “Things you need to know about this release”, and under the heading “What income measures are presented in this article?”

6 . Experience of changing prices and costs for households with and without children

How have prices and costs changed for households with and without children?

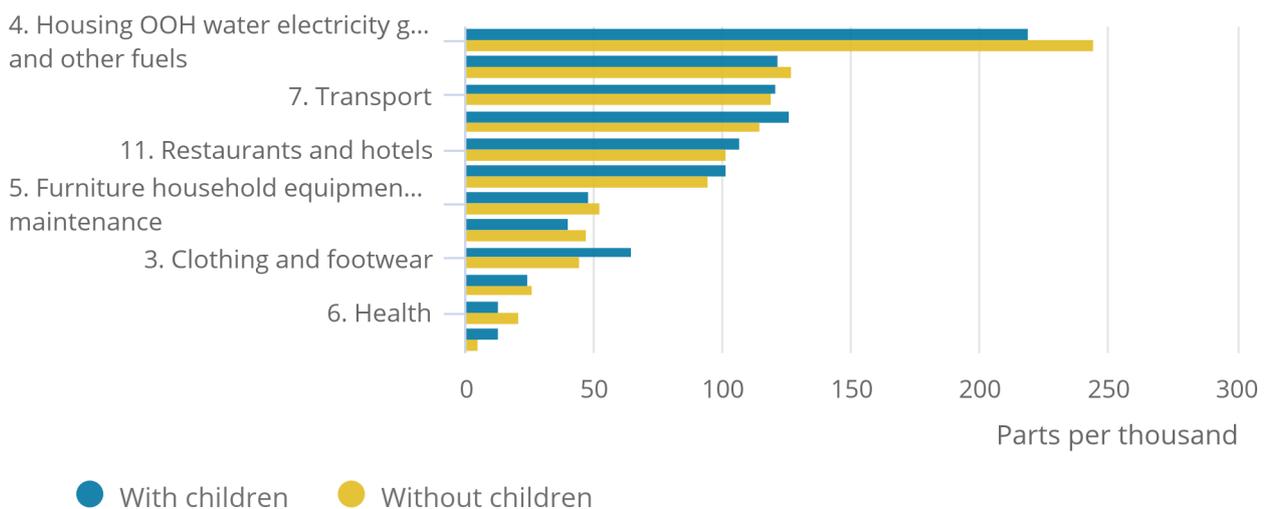
Another interesting way to group households within the population is by comparing changing prices and costs for households with children with households who do not have children. Whether or not there are children within a household can influence the goods and services that the household purchases. Figure 19 presents the average expenditure shares of households with and without children by category of spending over the period 2005 to 2017.

Figure 19: Average expenditure shares by category of spending, households with and without children

UK, 2005 to 2017

Figure 19: Average expenditure shares by category of spending, households with and without children

UK, 2005 to 2017



Source: Office for National Statistics

Notes:

1. Expenditure shares may not sum to 1,000 due to rounding.
2. Weights for each category of spending are averaged across the period of 2005 to 2017 (only the weights for January 2017 are included in the average).

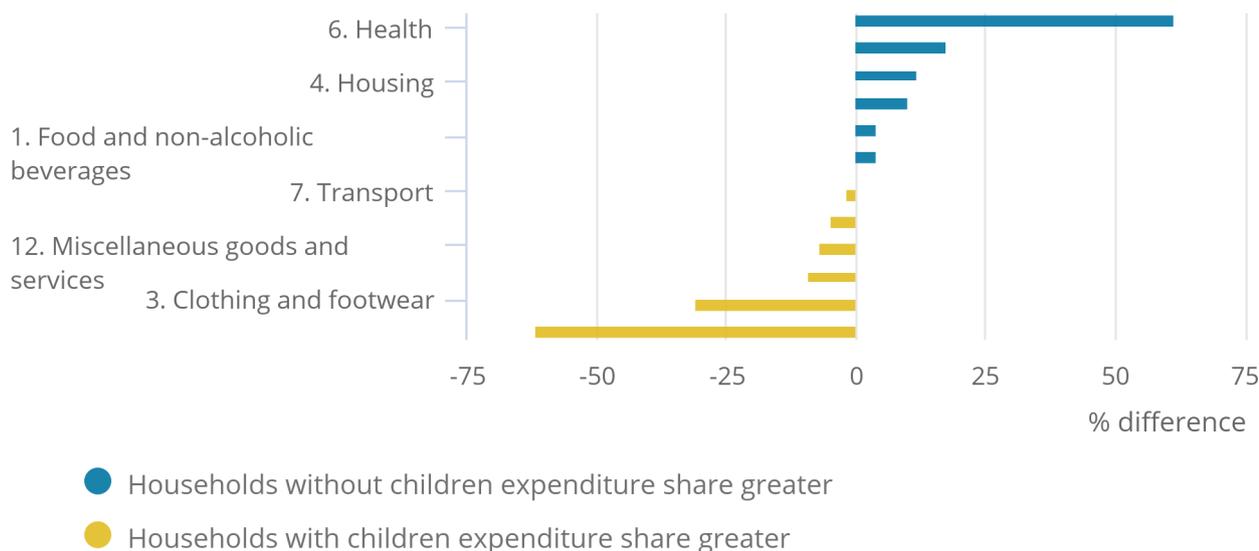
The patterns of household spending between households with and without children appear extremely similar. Figure 20 provides the percentage difference between average expenditure shares of households with children and households without children.

Figure 20: Percentage difference in average expenditure shares for each category of spending between households with children and households without children

UK, 2005 to 2017

Figure 20: Percentage difference in average expenditure shares for each category of spending between households with children and households without children

UK, 2005 to 2017



Source: Office for National Statistics

Notes:

- "4. Housing" is composed of Housing, Owner occupiers' housing costs (OOH), water, electricity, gas and other fuels.

As would be expected, households with children spend a greater proportion of their expenditure on education than households without children. Conversely, households without children spend a greater proportion of their expenditure on health. This could be explained through the assumption that a greater proportion of retired households make up this group and, as shown in section 4, retired households spend a larger proportion of their expenditure on health than non-retired households. Differences in other categories of spending are minor, and investigations into class level categories provide little more insight than explorations of the data at this aggregate level.

The differences in the expenditure shares of households with and without children drive differences in the growth rates experienced by these groups. Table 4 shows the average 12-month growth rate experienced by these household groups between 2006 and 2016 (the last complete year of data), compared with an all-households index that uses the same underlying methodology. The final row of the table shows the compound average 12-month growth rate for each group over the same period.

On average over this period, households without children have experienced faster growth than households with children (0.3 percentage points). This trend is consistent across the years 2006 to 2014. In 2015 and 2016, on average the two groups experienced the same level of growth.

Table 4: 12-month growth rates for households with and without children, alongside an all-households index, UK, 2006 to 2016

	%		
Year	With children	Without children	All-households
2006	2.6	3.3	3.1
2007	3.3	3.6	3.5
2008	3.5	4.2	4
2009	0.3	1	0.8
2010	3.2	3.3	3.3
2011	4.4	4.8	4.7
2012	2.8	3	3
2013	2.4	2.5	2.5
2014	1.4	1.5	1.4
2015	-0.1	-0.1	-0.1
2016	0.7	0.7	0.7
Compound average	2.2	2.5	2.4

Source: Office for National Statistics

Notes:

1. The average presented is the compound average 12-month growth rate of the unrounded indices. Consequently, it may differ from the arithmetic average of the 12-month growth rates presented in this article.

To present this trend more clearly, Figure 21 displays the 12-month growth rates for households with and without children between January 2006 and June 2017, alongside an all-household index measured using the same methodology. The growth rate experienced by households without children is typically more in line with the all-households index; however, these differences have converged in recent years.

Figure 21: 12-month growth rate for households with and without children, alongside an all-households index

UK, January 2006 to June 2017

Figure 21: 12-month growth rate for households with and without children, alongside an all-households index

UK, January 2006 to June 2017



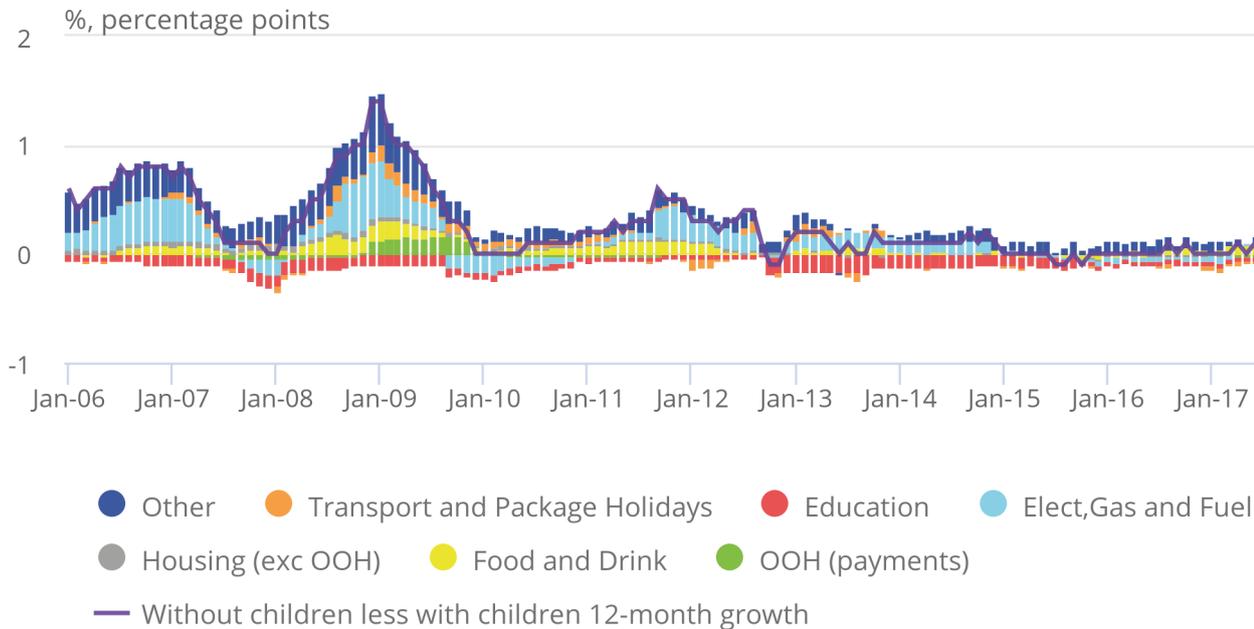
Source: Office for National Statistics

To explore this further, Figure 22 explores the difference in contributions to the 12-month growth rate for households with and without children.

Figure 22: Contributions to the difference in 12-month growth experienced by households with and without children: households without children less households with children

Figure 22: Contributions to the difference in 12-month growth experienced by households with and without children: households without children less households with children

Growth rate higher for households



Source: Office for National Statistics

Categories of spending that have a larger weight for households without children (such as food and drink, housing and electricity, gas and fuel) typically have greater price movements and are a large weight, therefore they lead to households without children experiencing stronger growth between 2006 and 2013. Households with children have a marginally larger weight for owner occupiers' housing costs (OOH) (payments) than households without children, therefore when prices are seen to decrease in this category in 2009, this further contributes to households without children experiencing stronger growth.

Households without children experiencing stronger growth is partially offset by changes in the cost of education. As households with children spend a greater proportion of their expenditure on this category, any price rises will have a greater influence on their 12-month growth rate.

How does nominal disposable income compare with changes in prices and costs for households with and without children?

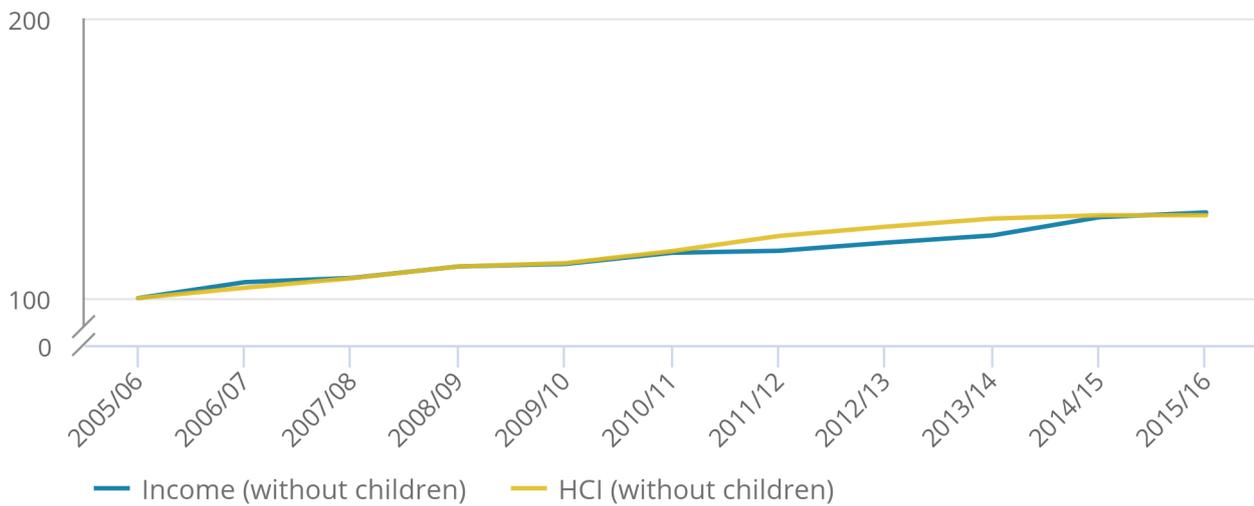
The cumulative income growth¹ is compared with the cumulative HCIs' growth in Figures 23 and 24 for households with children and households without children respectively.

Figure 23: Mean equivalised disposable household income (nominal) and Household Costs Indices cumulative growth, households without children

UK, financial years ending 2006 to 2016, index financial year ending 2006 equals 100

Figure 23: Mean equivalised disposable household income (nominal) and Household Costs Indices cumulative growth, households without children

UK, financial years ending 2006 to 2016, index financial year ending 2006 equals 100



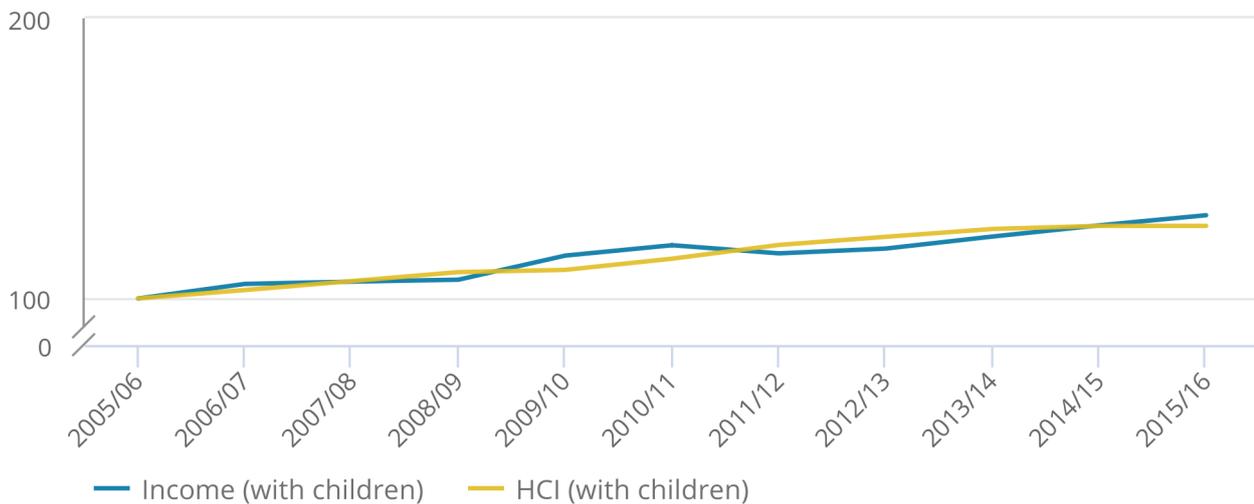
Source: Office for National Statistics

Figure 24: Mean equivalised disposable household income (nominal) and Household Costs Indices cumulative growth, households with children

UK, financial years ending 2006 to 2016, index financial year ending 2006 equals 100

Figure 24: Mean equivalised disposable household income (nominal) and Household Costs Indices cumulative growth, households with children

UK, financial years ending 2006 to 2016, index financial year ending 2006 equals 100



Source: Office for National Statistics

The mean equivalised disposable income of households with and without children has grown at a remarkably similar rate over this period (30% increase for households with children and 31% increase for households without children). While households without children have faced similar cumulative growth in their prices and costs over this period (30% increase), households with children have shown slower growth (26% increase). However, this divergence between disposable income and costs for households with children is only seen in the most recent period of data (financial year ending 2015 to financial year ending 2016), so it is difficult to observe whether this is a trend in the data or just a temporary divergence in the figures.

Notes for Experience of changing prices and costs for households with and without children

1. Details of the income measure used within this publication are provided in Section 2 of this article, “Things you need to know about this release”, and under the heading “What income measures are presented in this article?”

7. Glossary

Equivalised

Equivalisation is the process of accounting for the fact that households with many members are likely to need a higher income to achieve the same standard of living as households with fewer members.

Equivalisation takes into account the number of people living in the household and their ages, acknowledging that while a household with two people in it will need more money to sustain the same living standards as one with a single person, the two-person household is unlikely to need double the income. This analysis uses the [modified-Organisation for Economic Co-operation and Development \(OECD\) equivalisation scale](#) (PDF, 166KB).

Disposable income

Disposable income is that which is available for consumption and is equal to all income from wages and salaries, self-employment, private pensions and investments, plus cash benefits less direct taxes.

Disposable income deciles

Households are grouped into deciles (or tenths) based on their equivalised disposable income. The richest decile (decile 10) is the 10% of households with the highest equivalised disposable income. Similarly, the poorest decile (decile one) is the 10% of households with the lowest equivalised disposable income.

Households with children

Households with children are defined as any household with one or more household members who are under 18 years of age, in full-time education and have never been married.

Retired persons and households

A retired person is defined as anyone who describes themselves (in the Living Costs and Food Survey (LCF)) as “retired” or anyone over minimum National Insurance pension age describing themselves as “unoccupied” or “sick or injured but not intending to seek work”. A retired household is defined as one where the combined income of retired members amounts to at least half the total gross income of the household.

8. Quality and methodology

More information on the methodology used to calculate these indices can be found in the related [Household Costs Indices: methodology article](#).

With regards to creating subgroup measures, the methods used in this article are consistent with the [methodology to calculate CPIH-consistent inflation rates for UK household groups](#). Where differences to this methodology arise, they are discussed within this section.

Owner occupiers' housing costs (OOH)

As the Household Costs Indices (HCIs) use a different approach to measuring OOH, the aggregate expenditure on OOH (payments) is reconciled with households in the Living Costs and Food Survey (LCF) based on their expenditure on housing-related payments (such as mortgage interest payments, transaction costs and taxes).

Interest costs on credit card debt

This measure is unique to the HCIs. The aggregate expenditure on interest costs on credit card debt is reconciled with households in the LCF based on their reported expenditure on credit card interest.

Weights

Price indices are constructed using price and expenditure data. These expenditure shares can be calculated using different methodological approaches; the main two are democratic and plutocratic weighting. An overview of these approaches and their associated concepts can be found in section 7.2 of the [Consumer Price Indices Technical Manual](#) (PDF, 674B). We have also produced a methodology article [Investigating the impact of](#)

[different weighting methods on CPIH](#) that compares the two approaches, alongside additional approaches to weighting a price index.

For the purpose of this article, democratic weighting is used, for both the household group indices and the all-households index.

Limitations

While the calculation of household group measures is straightforward analytically, a range of data constraints make their estimation challenging in practice. For instance, an analysis of household group-specific rates would ideally use price indices and expenditure weights specific to each household group. This would reflect the fact that different households will purchase goods and services from different outlets and therefore face different prices.

However, data are not available on household-group-specific price indices and therefore this article uses national price indices as an approximation. There are also a number of challenges that arise from the data sources that are available to calculate the expenditure shares. For more information, please see the [methodology publication](#).

9. Annex A: Differences between HCIs and CPIH-consistent rates for UK household groups

This Annex explores the differences in divergence that are observed between household groups when using HCIs methodology (as published within this article) and CPIH-consistent methodology (as published in [CPIH-consistent inflation rate estimates for UK household groups](#)).

Differences between the divergence in the HCIs and CPIH-consistent rates for household groups are driven primarily by differences in expenditure shares. There are also a couple of differences in the price indices used (for example, in the way that owner occupiers' housing costs (OOH) are calculated) that lead to different results. The [HCIs methodology document](#) provides details of the differences in CPIH and HCIs methodology, and the difference between these indices for all-households.

How do the HCIs differ to CPIH-consistent rates for retired and non-retired households?

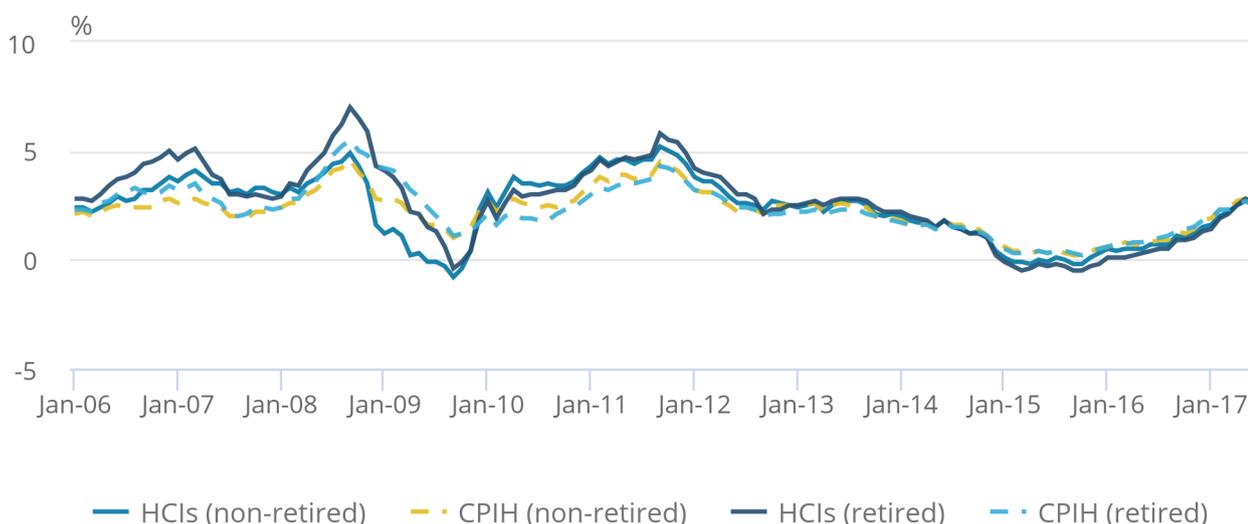
The 12-month growth rate for retired and non-retired households in the HCIs are compared with the CPIH-consistent inflation rates for retired and non-retired households in Figure 25a. The indices calculated based on HCIs methodology show a greater divergence than the CPIH-consistent indices. To show this difference in divergence more clearly, Figure 25b provides a bar chart of the percentage point difference between retired and non-retired households using HCIs methodology and the percentage point difference between retired and non-retired households using CPIH-consistent methodology.

Figure 25a: 12-month growth rate for retired and non-retired households using both HCIs and CPIH-consistent methodology

UK, January 2006 to June 2017

Figure 25a: 12-month growth rate for retired and non-retired households using both HCIs and CPIH-consistent methodology

UK, January 2006 to June 2017



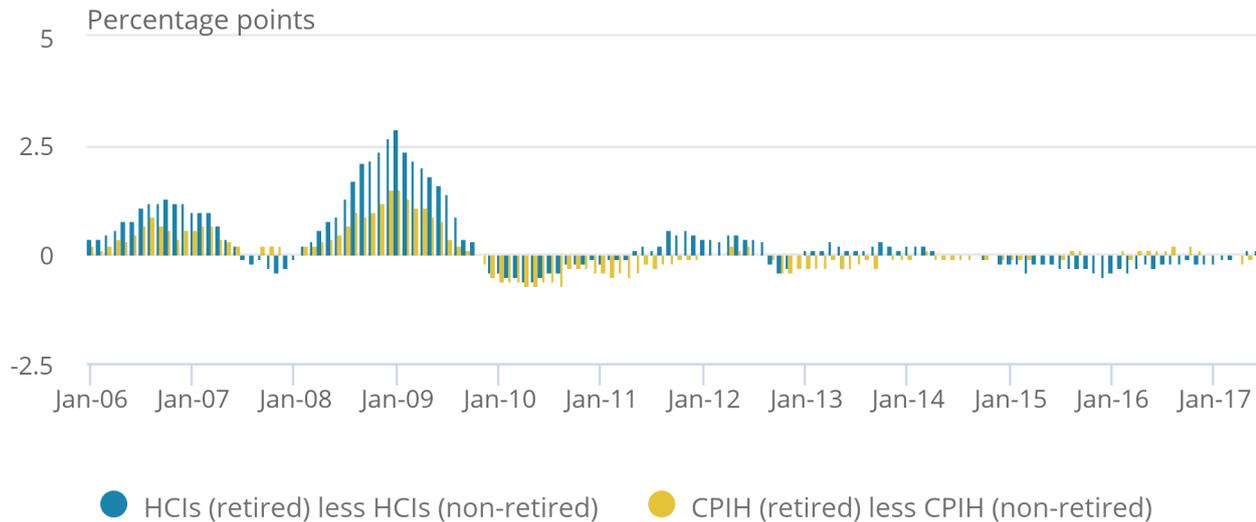
Source: Office for National Statistics

Figure 25b: Difference in 12-month growth rate for retired and non-retired households using both HCIs and CPIH-consistent methodology

UK, January 2006 to June 2017

Figure 25b: Difference in 12-month growth rate for retired and non-retired households using both HCIs and CPIH-consistent methodology

UK, January 2006 to June 2017



Source: Office for National Statistics

The HCIs typically show larger divergences between retired and non-retired households than are observed in CPIH-consistent rates for the same groups. Prior to 2011, both sets of indices displayed similar trends, with retired households typically experiencing stronger growth than non-retired households. Since 2011, the stories have diverged and the CPIH-consistent rates often show the reverse of the HCIs, for example in 2013, the HCIs show retired households to experience stronger growth than non-retired households, while the CPIH-consistent rates show non-retired households to be experiencing stronger growth.

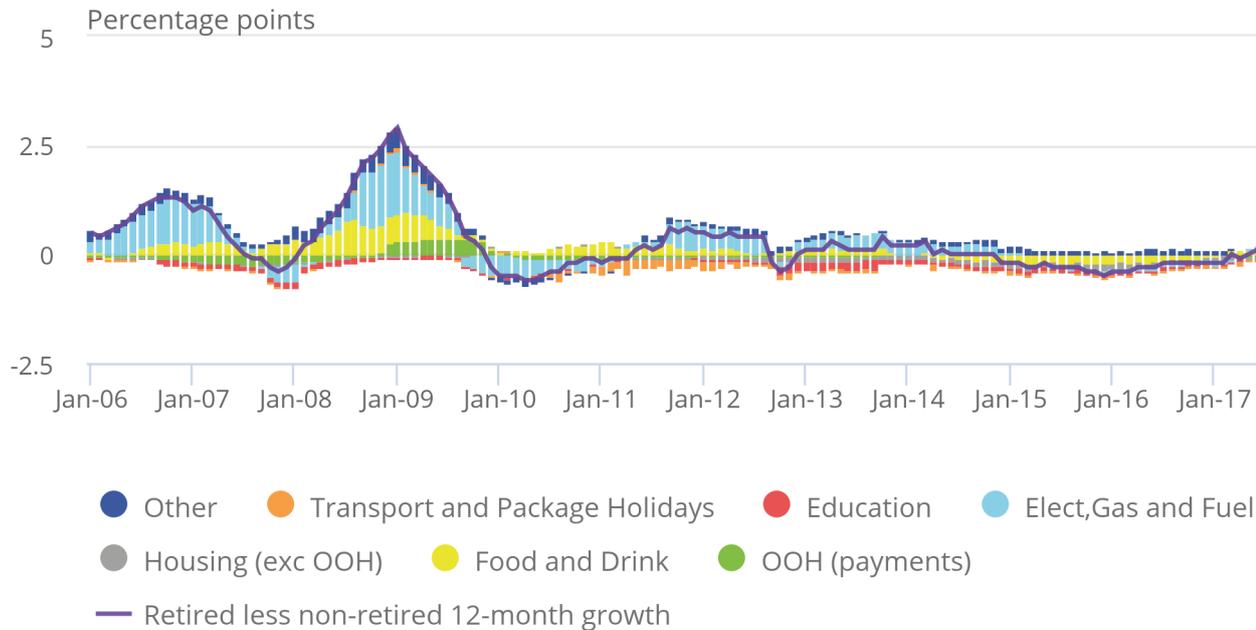
To explore this further, Figure 26 displays the contributions that led to differences between the 12-month growth rates for retired and non-retired households in the HCIs. Figure 27 displays the contributions that led to the differences between the 12-month growth rates for retired and non-retired households using CPIH-consistent data.

Figure 26: Contributions to the difference in the 12-month growth rate: HCIs retired households less non-retired households

UK, January 2006 to June 2017

Figure 26: Contributions to the difference in the 12-month growth rate: HCIs retired households less non-retired households

UK, January 2006 to June 2017



Source: Office for National Statistics

Notes:

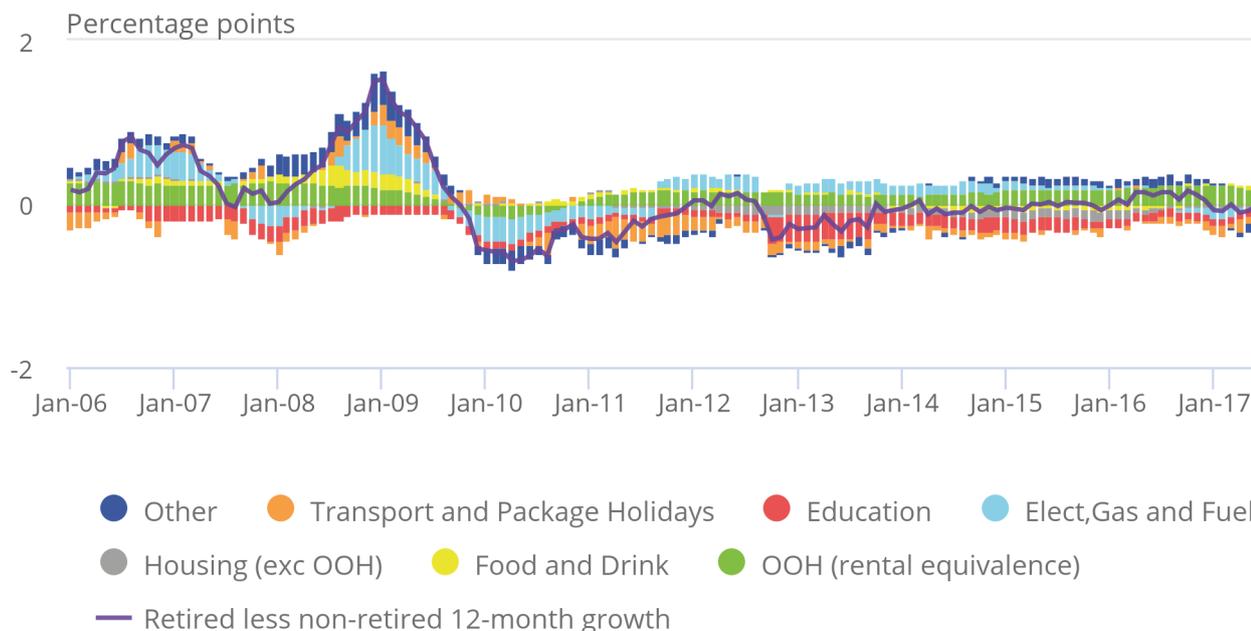
1. Stacked bars reflect the percentage point contributions of each of the 87 class-level items to the difference in 12-month growth rates. The contribution of each of the 87 class-level items is estimated separately, before being aggregated to 7 distinct categories.
2. "Food & Drink" is composed of food, non-alcoholic and alcoholic beverages and tobacco. "Housing (exc. OOH)" is composed of actual rents and products and services for the repair of dwellings. Owner occupiers' housing costs is a separate category, measured using the payments approach. "Elect., gas and fuel" is composed of electricity, gas and other household fuels as well as fuels and lubricants for motor vehicles. "Transport and package holidays" includes passenger transport by road, rail, air and sea, as well as package holidays. "Education" reflects the division-level contribution. The "other" category reflects the combined contributions of the remaining class-level items, bringing the sum of contributions to the inflation rate.
3. A reduction in the contribution of series to the annual rate of change need not imply falling prices, but could also reflect a lower rate of increase than the previous year.
4. Contributions may not sum due to rounding.

Figure 27: Contributions to the difference in 12-month growth: CPIH-consistent non-retired households less CPIH-consistent retired households

UK, January 2006 to June 2017

Figure 27: Contributions to the difference in 12-month growth: CPIH-consistent non-retired households less CPIH-consistent retired households

UK, January 2006 to June 2017



Source: Office for National Statistics

Notes:

1. Stacked bars reflect the percentage point contributions of each of the 87 class-level items to the difference in 12-month growth rates. The contribution of each of the 87 class-level items is estimated separately, before being aggregated to 7 distinct categories.
2. "Food & Drink" is composed of food, non-alcoholic and alcoholic beverages and tobacco. "Housing (exc. OOH)" is composed of actual rents and products and services for the repair of dwellings. Owner occupiers' housing costs is a separate category, measured using the rental equivalence approach. "Elect., gas and fuel" is composed of electricity, gas and other household fuels as well as fuels and lubricants for motor vehicles. "Transport and package holidays" includes passenger transport by road, rail, air and sea, as well as package holidays. "Education" reflects the division-level contribution. The "other" category reflects the combined contributions of the remaining class-level items, bringing the sum of contributions to the inflation rate.
3. A reduction in the contribution of series to the annual rate of change need not imply falling prices, but could also reflect a lower rate of increase than the previous year.
4. Contributions may not sum due to rounding.

Using the data presented in Figure 26 and Figure 27, Figure 28 shows the main categories that cause larger differences between retired and non-retired households in the HCIs compared with the differences observed between retired and non-retired households using CPIH-consistent data.

In essence, it shows the difference between the contributions to the 12-month growth rate for retired households less non-retired households in the HCIs (Figure 26), less the difference between the contributions to the 12-

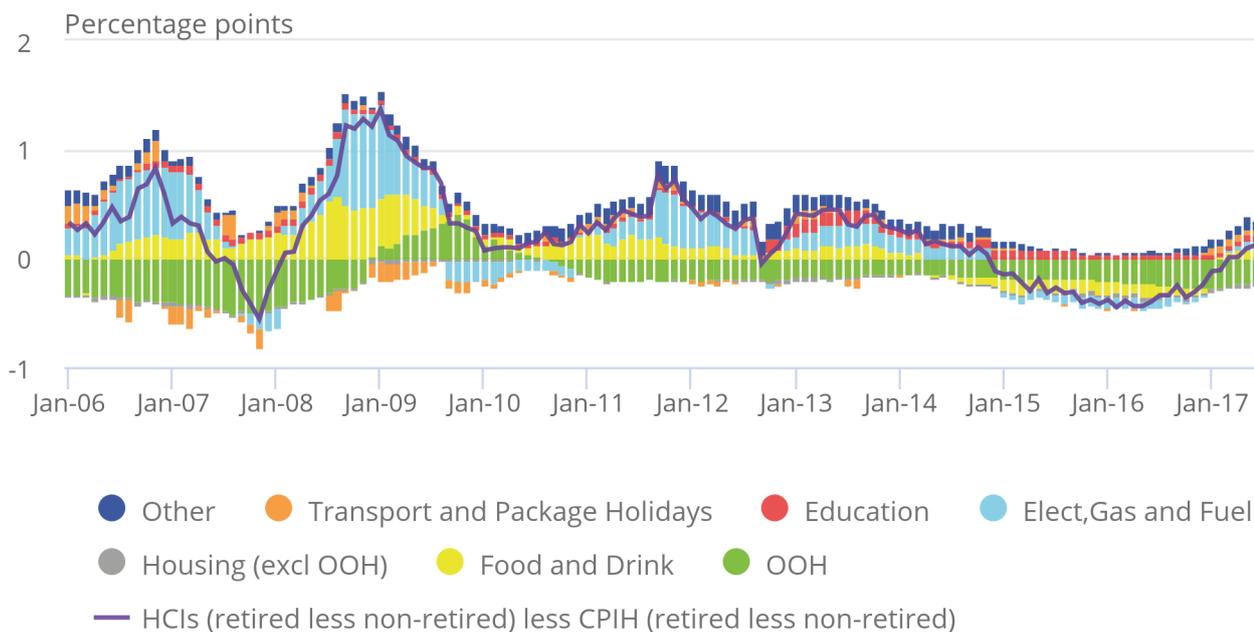
month growth rate for retired households less non-retired households based on CPIH-consistent data (Figure 27). Therefore where the line lies above zero this reflects a greater difference between retired and non-retired households in the HCIs and where the line lies below zero this reflects a greater difference between retired and non-retired households when using CPIH-consistent measures.

Figure 28: Contributions to the difference between retired and non-retired households' 12-month growth rates between HCIs and CPIH estimates

UK, January 2006 to June 2017

Figure 28: Contributions to the difference between retired and non-retired households' 12-month growth rates between HCIs and CPIH estimates

UK, January 2006 to June 2017



Source: Office for National Statistics

Notes:

1. Stacked bars reflect the difference between the percentage point contributions of each of the 87 class-level items to the difference in the 12-month growth rates. The contribution of each of the 87 class-level items is estimated separately, before being aggregated to 7 distinct categories.
2. "Food & Drink" is composed of food, non-alcoholic and alcoholic beverages and tobacco. "Housing (exc. OOH)" is composed of actual rents and products and services for the repair of dwellings. OOH is owner occupiers' housing costs and is a separate category, measured using the payments approach in the HCIs and the rental equivalence approach in the CPIH. "Elect., gas and fuel" is composed of electricity, gas and other household fuels as well as fuels and lubricants for motor vehicles. "Transport and package holidays" includes passenger transport by road, rail, air and sea, as well as package holidays. "Education" reflects the division-level contribution. The "other" category reflects the combined contributions of the remaining class-level items, bringing the sum of contributions to the inflation rate.
3. A reduction in the contribution of series to the annual rate of change need not imply falling prices, but could also reflect a lower rate of increase than the previous year.
4. Contributions may not sum due to rounding.

The categories that typically lead to greater divergences between retired and non-retired households in the HCIs than in the CPIH-consistent data are food and drink, and electricity, gas and fuel. The categories that cause

higher divergence in the HCIs are partially offset by owner-occupiers' housing costs (OOH), where there is a greater divergence between retired and non-retired households in the CPIH-consistent rates. To explore this further, the average expenditure shares for the period 2005 to 2017 for retired and non-retired households are provided in Figure 29, comparing HCIs and CPIH-consistent weights.

The greatest difference between the retired and non-retired households weights calculated using the HCIs and CPIH-consistent methodology is with regards to housing costs. Retired and non-retired households spend a greater proportion of their expenditure on housing costs when measured using CPIH-consistent methodology and there is also a greater divergence seen between these groups. However, greater divergence for food and drink is observed between retired and non-retired households using HCIs methodology than when using the CPIH-consistent approach.

Figure 29: Average expenditure shares for each category of spending, retired and non-retired households, HCIs and CPIH-consistent rates

UK, 2005 to 2017

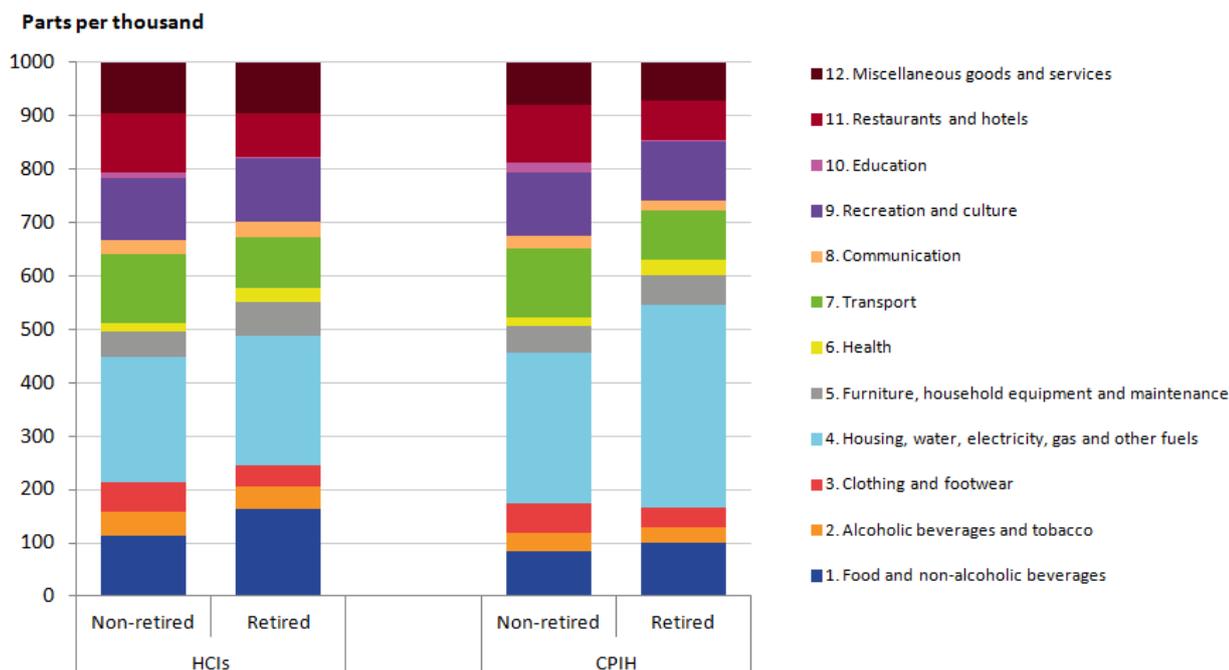


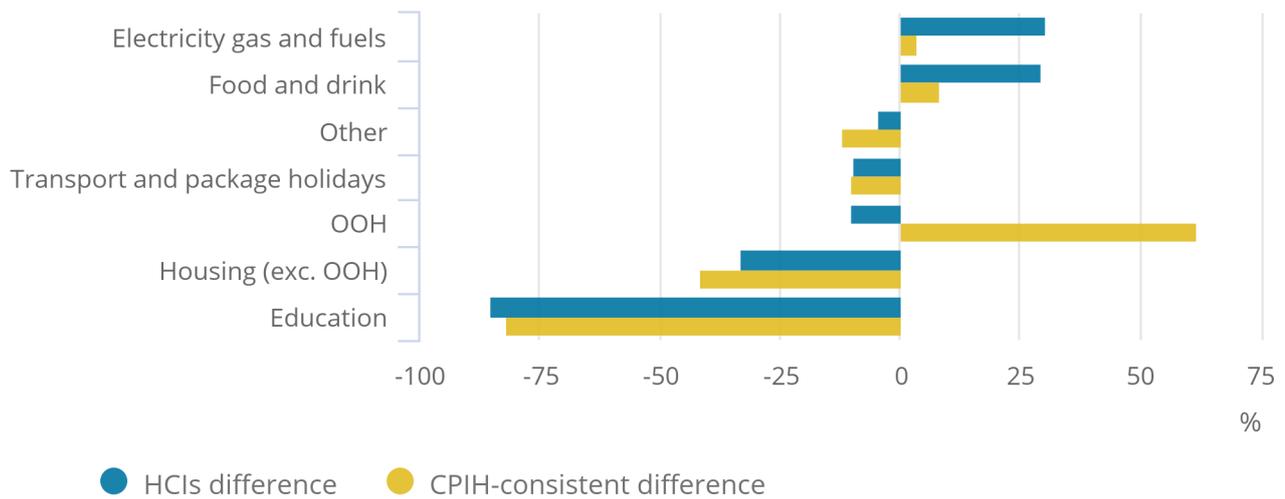
Figure 30 explores the differences in expenditure shares for the categories of spending provided in the contributions charts in Figures 26 to 28. These are: food and drink; housing (excluding OOH); OOH; electricity, gas and fuels; transport and package holidays; education; and other.

Figure 30: Percentage difference in average expenditure shares for each category of spending, retired and non-retired households, HCIs and CPIH-consistent rates

UK, 2005 to 2017

Figure 30: Percentage difference in average expenditure shares for each category of spending, retired and non-retired households, HCIs and CPIH-consistent rates

UK, 2005 to 2017



Source: Office for National Statistics

Retired and non-retired households show a notably greater divergence in expenditure patterns for the categories food and drink, and electricity, gas and fuels using HCIs methodology than when using CPIH-consistent methodology. Conversely, the divergence in expenditure patterns for OOH is considerably greater when using CPIH-consistent methodology as opposed to HCIs methodology.

When coupled with categories of spending that typically experience regular changes in price (for example, food and drink, and electricity, gas and fuels), divergences in expenditure shares result in greater divergences in the household group indices.

How do the HCIs differ to CPIH-consistent rates for low-income and high-income households?

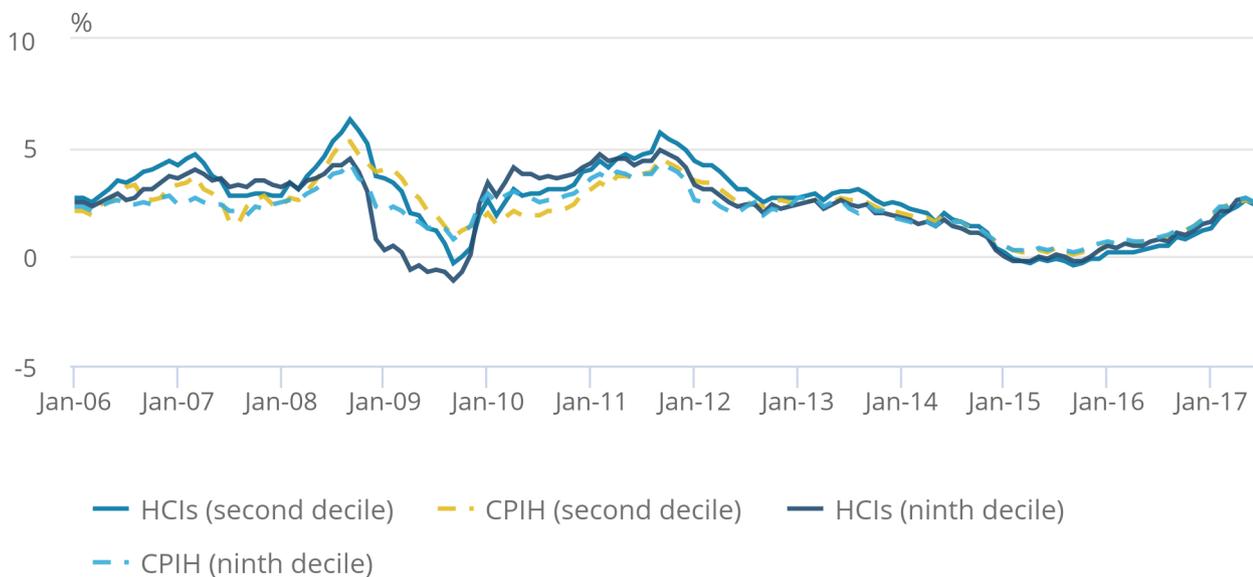
The 12-month growth rate for low- and high-income households in the HCIs (represented by the second and ninth decile respectively) are compared with the CPIH-consistent inflation rates for low- and high-income households (represented by the same deciles) in Figure 31a. To show this difference in divergence more clearly, Figure 31b provides a bar chart of the percentage point difference between low- and high-income households using HCIs methodology and the percentage point difference between low- and high-income households using CPIH-consistent methodology.

Figure 31a: 12-month growth rate for low- and high-income households (using the second and ninth deciles respectively), using both HCIs and CPIH-consistent methodology

UK, January 2006 to June 2017

Figure 31a: 12-month growth rate for low- and high-income households (using the second and ninth deciles respectively), using both HCIs and CPIH-consistent methodology

UK, January 2006 to June 2017



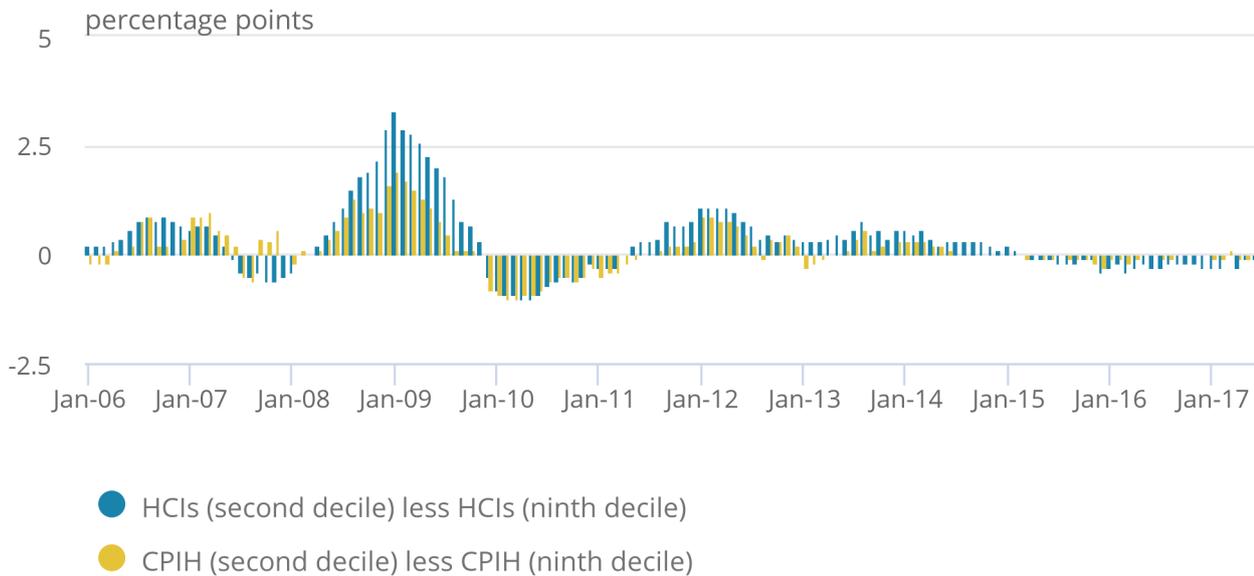
Source: Office for National Statistics

Figure 31b: Difference in 12-month growth rate for low- and high-income households using both HCIs and CPIH-consistent methodology

UK, January 2006 to June 2017

Figure 31b: Difference in 12-month growth rate for low- and high-income households using both HCIs and CPIH-consistent methodology

UK, January 2006 to June 2017



Source: Office for National Statistics

The HCIs typically show larger divergences between low- and high-income households than are observed in the CPIH-consistent rates for the same groups. Although the observed difference between low- and high-income groups is greater in the HCIs typically the same patterns emerge irrespective of which methodology is used.

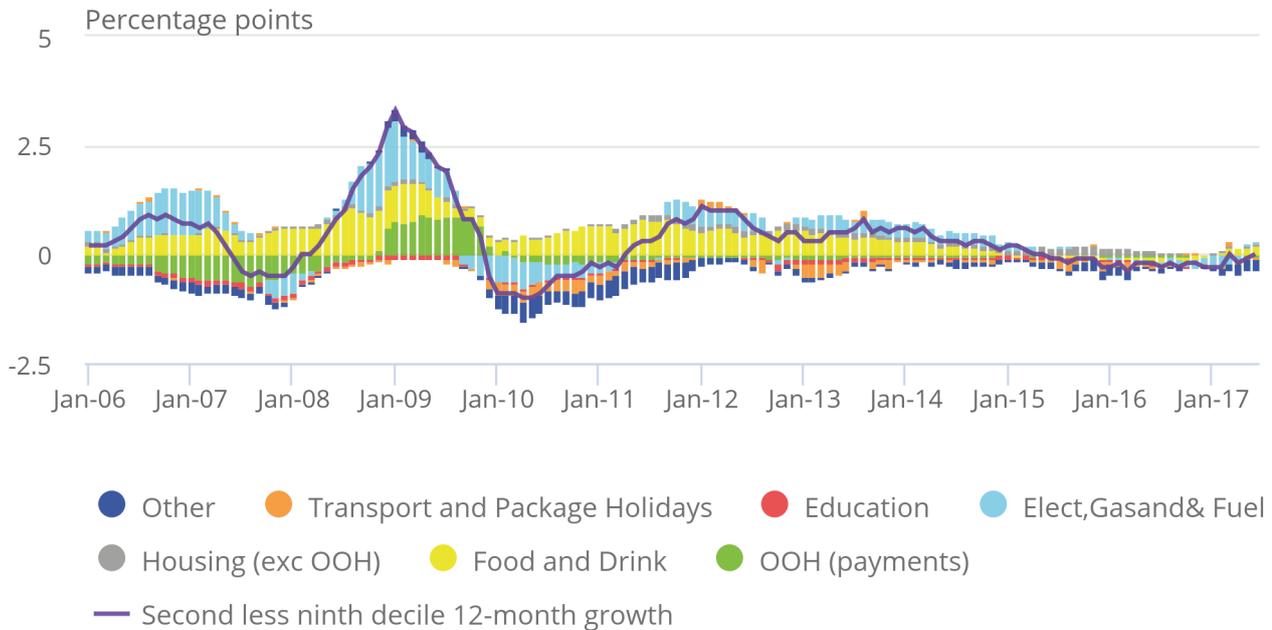
To explore this further, Figure 32 displays the contributions that led to differences between the 12-month growth rates for low- and high-income households in the HCIs. Figure 33 displays the contributions that led to the differences between the 12-month growth rates for low- and high-income households using CPIH-consistent data.

Figure 32: Contributions to the difference in the 12-month growth rate, low-income households (second decile) less high-income households (ninth decile), HCIs methodology

UK, January 2006 to June 2017

Figure 32: Contributions to the difference in the 12-month growth rate, low-income households (second decile) less high-income households (ninth decile), HCIs methodology

UK, January 2006 to June 2017



Source: Office for National Statistics

Notes:

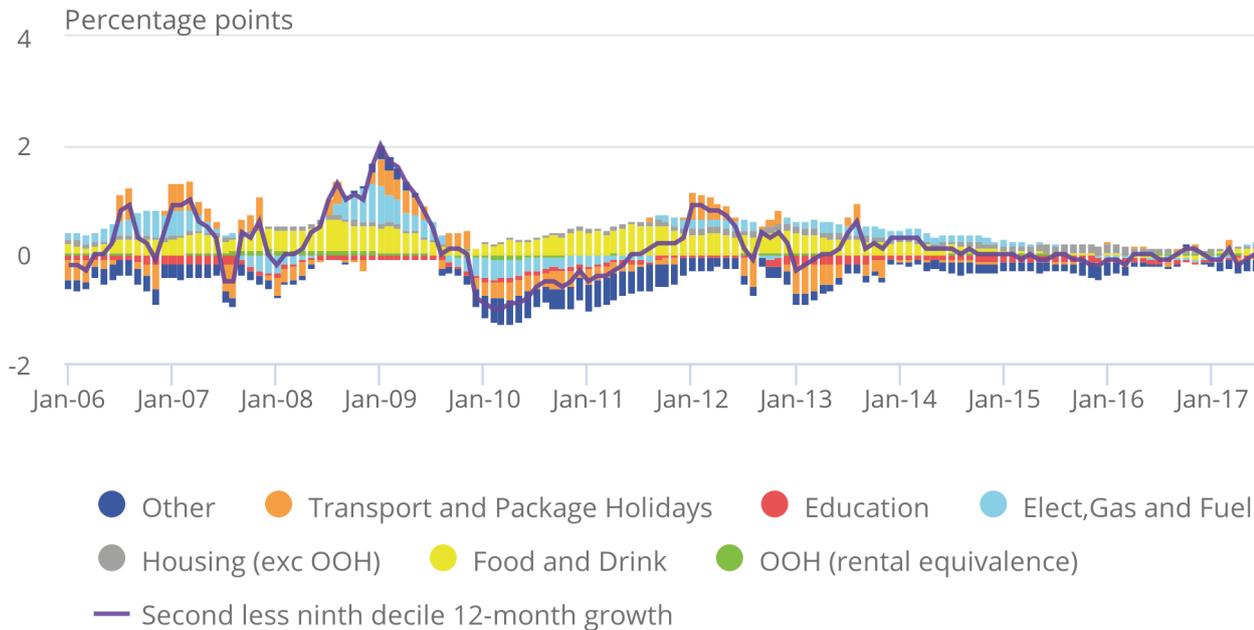
1. Stacked bars reflect the percentage point contributions of each of the 87 class-level items to the difference in 12-month growth rates. The contribution of each of the 87 class-level items is estimated separately, before being aggregated to 7 distinct categories.
2. "Food & Drink" is composed of food, non-alcoholic and alcoholic beverages and tobacco. "Housing (exc. OOH)" is composed of actual rents and products and services for the repair of dwellings. Owner occupiers' housing costs is a separate category, measured using the payments approach. "Elect., gas and fuel" is composed of electricity, gas and other household fuels as well as fuels and lubricants for motor vehicles. "Transport and package holidays" includes passenger transport by road, rail, air and sea, as well as package holidays. "Education" reflects the division-level contribution. The "other" category reflects the combined contributions of the remaining class-level items, bringing the sum of contributions to the inflation rate.
3. A reduction in the contribution of series to the annual rate of change need not imply falling prices, but could also reflect a lower rate of increase than the previous year.
4. Contributions may not sum due to rounding.

Figure 33: Contributions to the difference in the 12-month growth rate: low-income households (second decile) less high-income households (ninth decile), CPIH-consistent methodology

UK, January 2006 to June 2017

Figure 33: Contributions to the difference in the 12-month growth rate: low-income households (second decile) less high-income households (ninth decile), CPIH-consistent methodology

UK, January 2006 to June 2017



Source: Office for National Statistics

Notes:

1. Stacked bars reflect the percentage point contributions of each of the 87 class-level items to the difference in 12-month growth rates. The contribution of each of the 87 class-level items is estimated separately, before being aggregated to 7 distinct categories.
2. "Food & Drink" is composed of food, non-alcoholic and alcoholic beverages and tobacco. "Housing (exc. OOH)" is composed of actual rents and products and services for the repair of dwellings. Owner occupiers' housing costs is a separate category, measured using the rental equivalence approach. "Elect., gas and fuel" is composed of electricity, gas and other household fuels as well as fuels and lubricants for motor vehicles. "Transport and package holidays" includes passenger transport by road, rail, air and sea, as well as package holidays. "Education" reflects the division-level contribution. The "other" category reflects the combined contributions of the remaining class-level items, bringing the sum of contributions to the inflation rate.
3. A reduction in the contribution of series to the annual rate of change need not imply falling prices, but could also reflect a lower rate of increase than the previous year.
4. Contributions may not sum due to rounding.

Using the data presented in Figure 32 and Figure 33, Figure 34 shows the main categories that cause larger differences between low- and high-income households in the HCIs compared with the differences observed between low- and high-income households using CPIH-consistent data.

In essence, it shows the difference between the contributions to the 12-month growth rate for low-income households less high-income households in the HCIs (Figure 32), less the difference between the contributions to

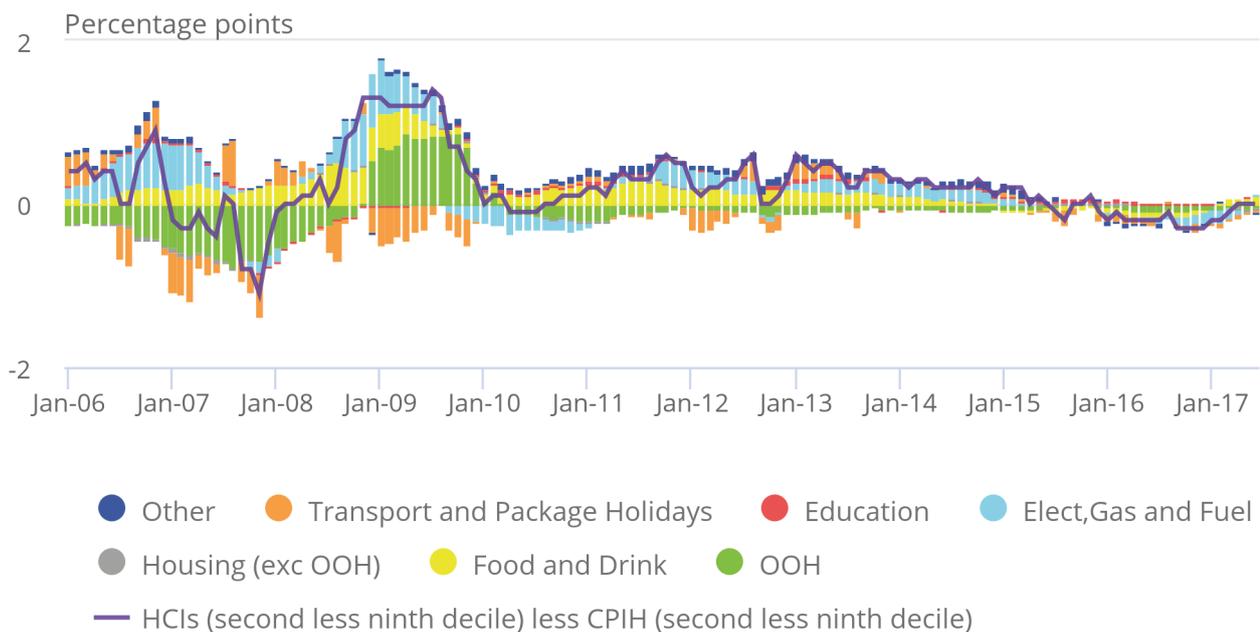
the 12-month growth rate for low-income households less high-income households based on CPIH-consistent data (Figure 33). Therefore where the line and contributions lie above zero this reflects a greater difference between low- and high-income households in the HCIs and where the line and contributions lie below zero this reflects a greater difference between low- and high-income households when using CPIH-consistent measures.

Figure 34: Contributions to the difference between low- and high-income households' 12-month growth rates between HCIs and CPIH estimates

UK, January 2006 to June 2017

Figure 34: Contributions to the difference between low- and high-income households' 12-month growth rates between HCIs and CPIH estimates

UK, January 2006 to June 2017



Source: Office for National Statistics

Notes:

1. Stacked bars reflect the difference between the percentage point contributions of each of the 87 class-level items to the difference in the 12-month growth rates. The contribution of each of the 87 class-level items is estimated separately, before being aggregated to 7 distinct categories.
2. "Food & Drink" is composed of food, non-alcoholic and alcoholic beverages and tobacco. "Housing (exc. OOH)" is composed of actual rents and products and services for the repair of dwellings. OOH is owner occupiers' housing costs and is a separate category, measured using the payments approach in the HCIs and the rental equivalence approach in the CPIH. "Elect., gas and fuel" is composed of electricity, gas and other household fuels as well as fuels and lubricants for motor vehicles. "Transport and package holidays" includes passenger transport by road, rail, air and sea, as well as package holidays. "Education" reflects the division-level contribution. The "other" category reflects the combined contributions of the remaining class-level items, bringing the sum of contributions to the inflation rate.
3. A reduction in the contribution of series to the annual rate of change need not imply falling prices, but could also reflect a lower rate of increase than the previous year.
4. Contributions may not sum due to rounding.

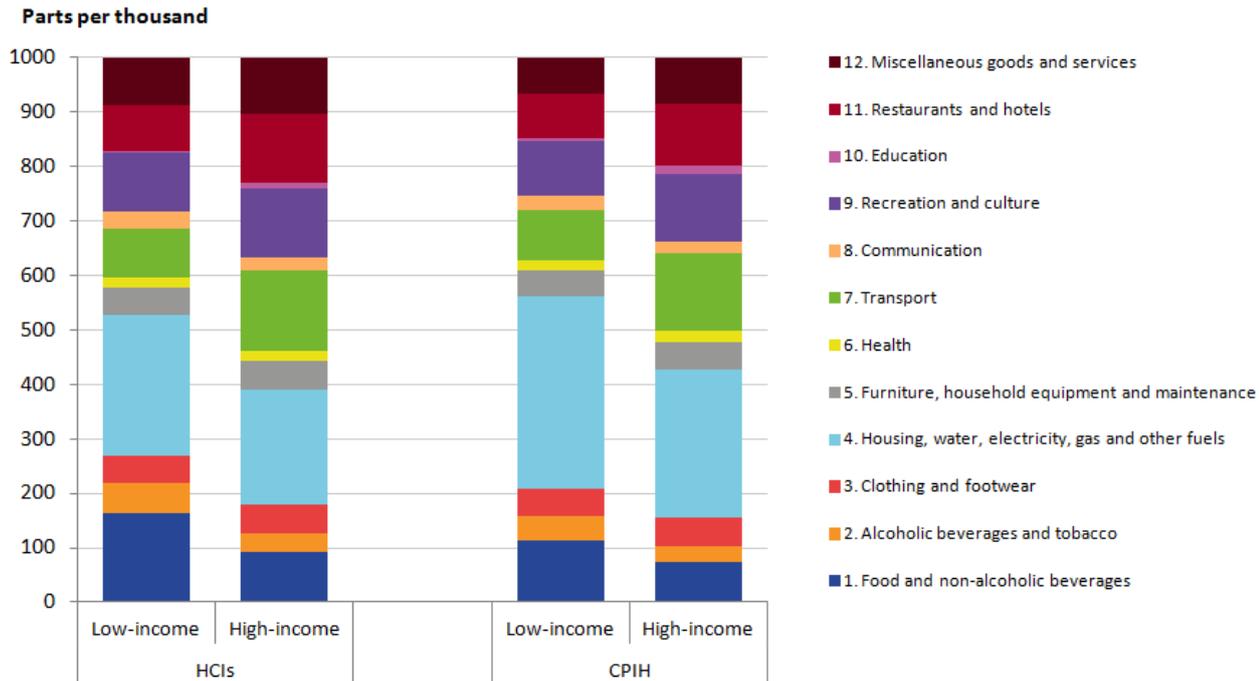
The categories that typically lead to greater divergences between low- and high-income households in the HCIs than in the CPIH-consistent data are food and drink, and electricity, gas and fuel. OOH is an interesting category

as it shows opposing movements throughout much of the period of analysis covered, depending on which method is used. While changes in OOH typically contribute to high-income households experiencing stronger growth in the HCIs, these changes contribute to low-income households experiencing stronger growth in the CPIH-consistent groups. These opposing differences in contributions within this category of spending lead to the offsetting trend displayed in Figure 34.

Another interesting category is transport and package holidays, which are showing some volatility in contributions between the two sets of measures. To explore these trends further, the average expenditure shares for all categories of spending for low- and high-income households are provided in Figure 35, comparing HCIs and CPIH-consistent weights between 2005 and 2017.

Figure 35: Average expenditure shares for each category of spending, low- and high-income households, HCIs and CPIH-consistent rates

UK, 2005 to 2017



The greatest difference between the low- and high-income households' weights calculated using the HCIs and CPIH-consistent methodology is with regards to housing costs. Low- and high-income households spend a greater proportion of their expenditure on housing costs when measured using CPIH-consistent methodology. Greater divergence for food and drink are observed between low- and high-income households using HCIs methodology than when using the CPIH-consistent approach.

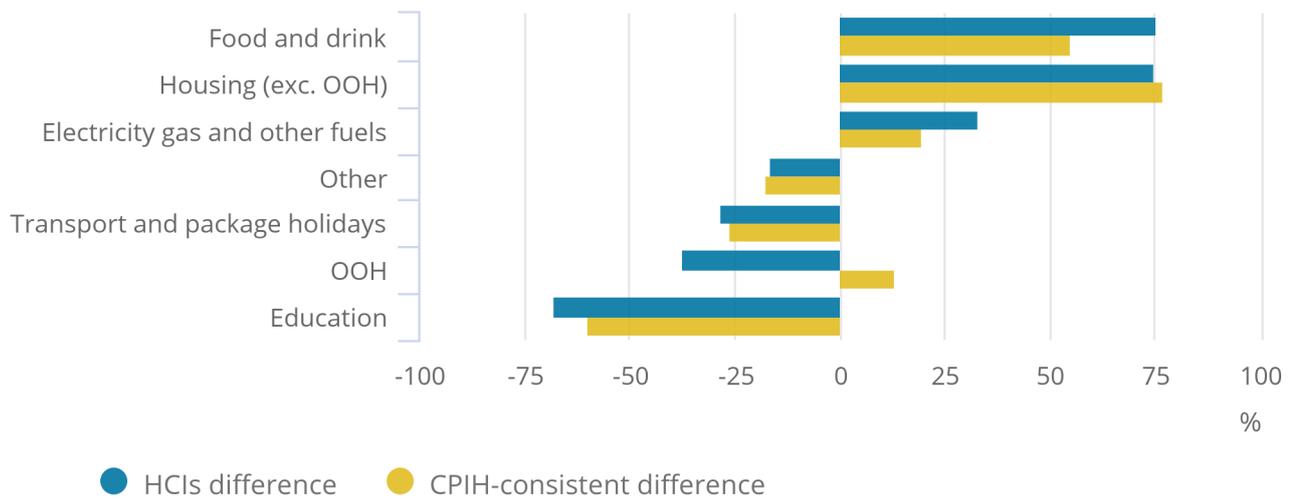
Figure 36 explores the differences in expenditure shares for the categories of spending provided in Figures 32 to 34. These are: food and drink; housing (excluding OOH); OOH; electricity, gas and fuels; transport and package holidays; education; and other.

Figure 36: Percentage difference in average expenditure shares for each category of spending, low- and high-income households, HCIs and CPIH-consistent rates

UK, 2005 to 2017

Figure 36: Percentage difference in average expenditure shares for each category of spending, low- and high-income households, HCIs and CPIH-consistent rates

UK, 2005 to 2017



Source: Office for National Statistics

The HCI subgroups show a greater divergence in food and drink, and electricity, gas and fuels. Coupled with large price movements in these categories of spending, these are the categories of spending that contribute the most to the difference in HCIs being greater than the difference in CPIH-consistent rates between low- and high-income households.

While the divergence in expenditure shares in transport and package holidays seems similar using the previous aggregated categories, there are still large contributions coming from within this sector. The averaging of the expenditure across all years of analysis obscures some of the changes in weights. The volatility in weights for "passenger transport by air" leads to the discrepancies in divergence between the HCIs and CPIH-consistent rates.

How do the HCIs differ to CPIH-consistent rates for households with and without children?

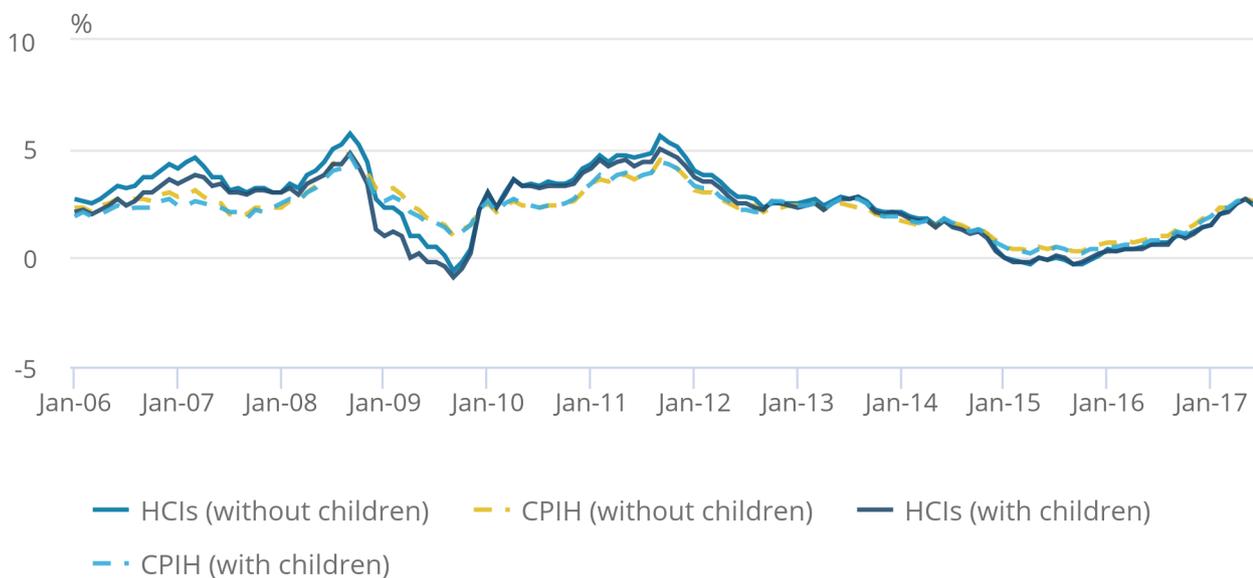
The 12-month growth rates for households with and without children in the HCIs are compared with the CPIH-consistent inflation rates for households with and without children in Figure 37a. To show the difference in divergence more clearly, Figure 37b provides a bar chart of the percentage point difference between households with and without children using HCIs methodology and the percentage point difference between households with and without children using CPIH-consistent methodology.

Figure 37a: 12-month growth rate for households with and without children using both HCIs and CPIH-consistent methodology

UK, January 2006 to June 2017

Figure 37a: 12-month growth rate for households with and without children using both HCIs and CPIH-consistent methodology

UK, January 2006 to June 2017



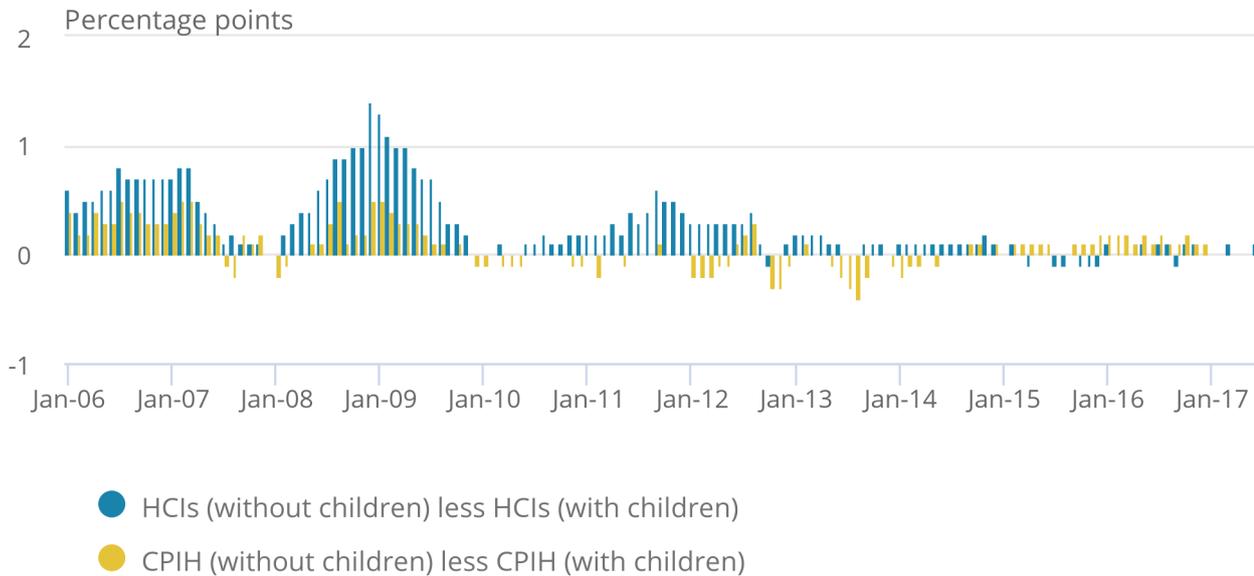
Source: Office for National Statistics

Figure 37b: Difference in 12-month growth rate for households with and without children using both HCIs and CPIH-consistent methodology

UK, January 2006 to June 2017

Figure 37b: Difference in 12-month growth rate for households with and without children using both HCIs and CPIH-consistent methodology

UK, January 2006 to June 2017



Source: Office for National Statistics

Prior to 2013, households with and without children showed a greater divergence in their 12-month growth rate when measured using HCIs methodology as opposed to when they are measured using CPIH-consistent methodology. Less divergence between the two groups has been seen since 2013 and this is true irrespective of the methodology used. While in earlier years of the analysis (2006 to 2010) households without children experienced stronger growth than households with children using both methods, since 2010 the data provides a less consistent pattern.

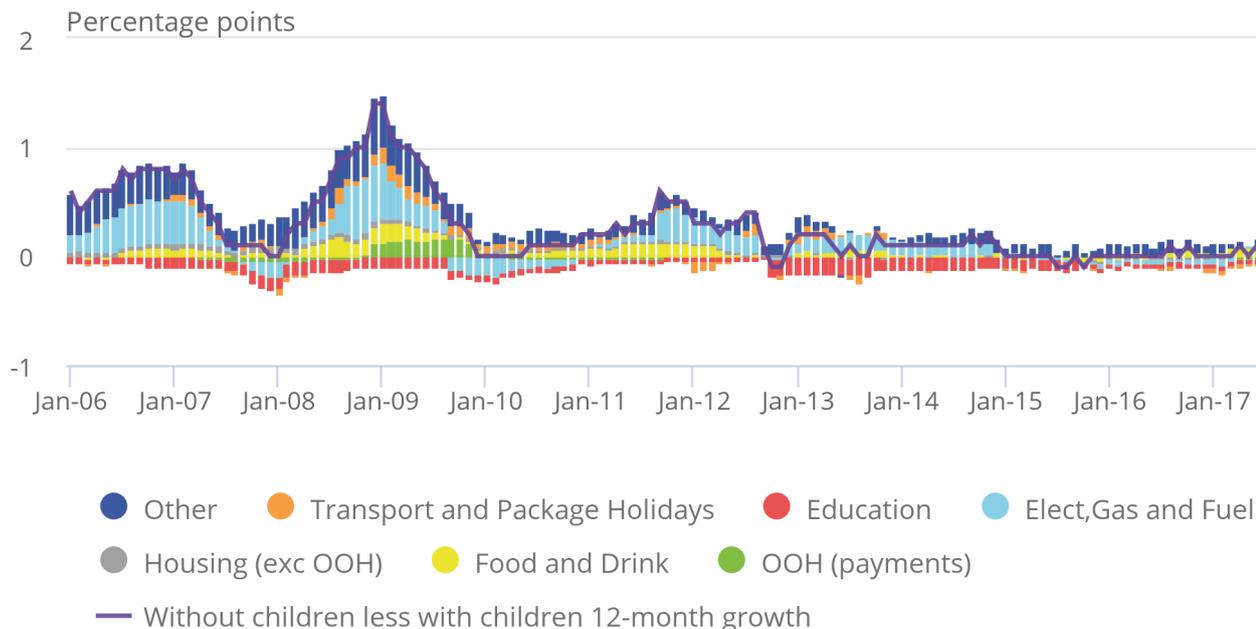
To explore this further, Figure 38 displays the contributions that led to differences between the 12-month growth rates for households with and without children in the HCIs. Figure 39 displays the contributions that led to the differences between the 12-month growth rates for households with and without children using CPIH-consistent data.

Figure 38: Contributions to the difference in the 12-month growth rate, households without and with children, HCIs methodology

UK, January 2006 to June 2017

Figure 38: Contributions to the difference in the 12-month growth rate, households without and with children, HCIs methodology

UK, January 2006 to June 2017



Source: Office for National Statistics

Notes:

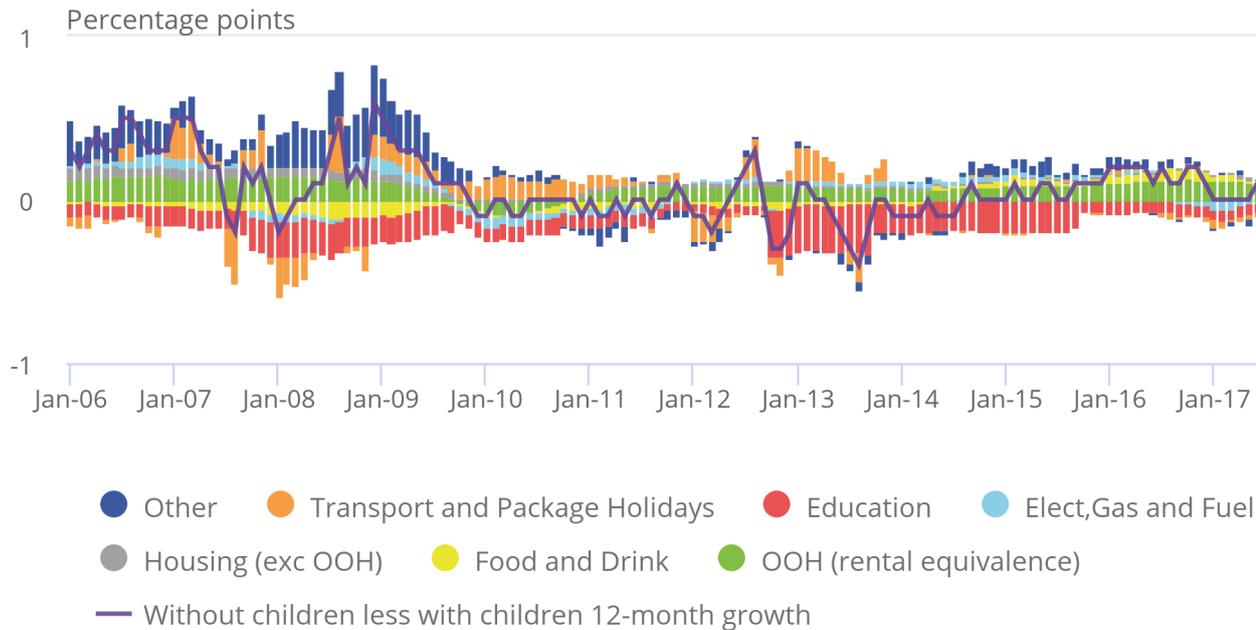
1. Stacked bars reflect the percentage point contributions of each of the 87 class-level items to the difference in 12-month growth rates. The contribution of each of the 87 class-level items is estimated separately, before being aggregated to 7 distinct categories.
2. "Food & Drink" is composed of food, non-alcoholic and alcoholic beverages and tobacco. "Housing (exc. OOH)" is composed of actual rents and products and services for the repair of dwellings. Owner occupiers' housing costs is a separate category, measured using the payments approach. "Elect., gas and fuel" is composed of electricity, gas and other household fuels as well as fuels and lubricants for motor vehicles. "Transport and package holidays" includes passenger transport by road, rail, air and sea, as well as package holidays. "Education" reflects the division-level contribution. The "other" category reflects the combined contributions of the remaining class-level items, bringing the sum of contributions to the inflation rate.
3. A reduction in the contribution of series to the annual rate of change need not imply falling prices, but could also reflect a lower rate of increase than the previous year.
4. Contributions may not sum due to rounding.

Figure 39: Contributions to the difference in the 12-month growth rate: households without and with children, CPIH-consistent methodology

UK, January 2006 to June 2017

Figure 39: Contributions to the difference in the 12-month growth rate: households without and with children, CPIH-consistent methodology

UK, January 2006 to June 2017



Source: Office for National Statistics

Notes:

1. Stacked bars reflect the percentage point contributions of each of the 87 class-level items to the difference in 12-month growth rates. The contribution of each of the 87 class-level items is estimated separately, before being aggregated to 7 distinct categories.
2. "Food & Drink" is composed of food, non-alcoholic and alcoholic beverages and tobacco. "Housing (exc. OOH)" is composed of actual rents and products and services for the repair of dwellings. Owner occupiers' housing costs is a separate category, measured using the rental equivalence approach. "Elect., gas and fuel" is composed of electricity, gas and other household fuels as well as fuels and lubricants for motor vehicles. "Transport and package holidays" includes passenger transport by road, rail, air and sea, as well as package holidays. "Education" reflects the division-level contribution. The "other" category reflects the combined contributions of the remaining class-level items, bringing the sum of contributions to the inflation rate.
3. A reduction in the contribution of series to the annual rate of change need not imply falling prices, but could also reflect a lower rate of increase than the previous year.
4. Contributions may not sum due to rounding.

Using the data presented in Figure 38 and Figure 39, Figure 40 shows the main categories that cause larger differences between households with and without children in the HCIs compared with the differences observed between households with and without children using CPIH-consistent data.

In essence, it shows the difference between the contributions to the 12-month growth rate for households without children less households with children in the HCIs (Figure 38), less the difference between the contributions to

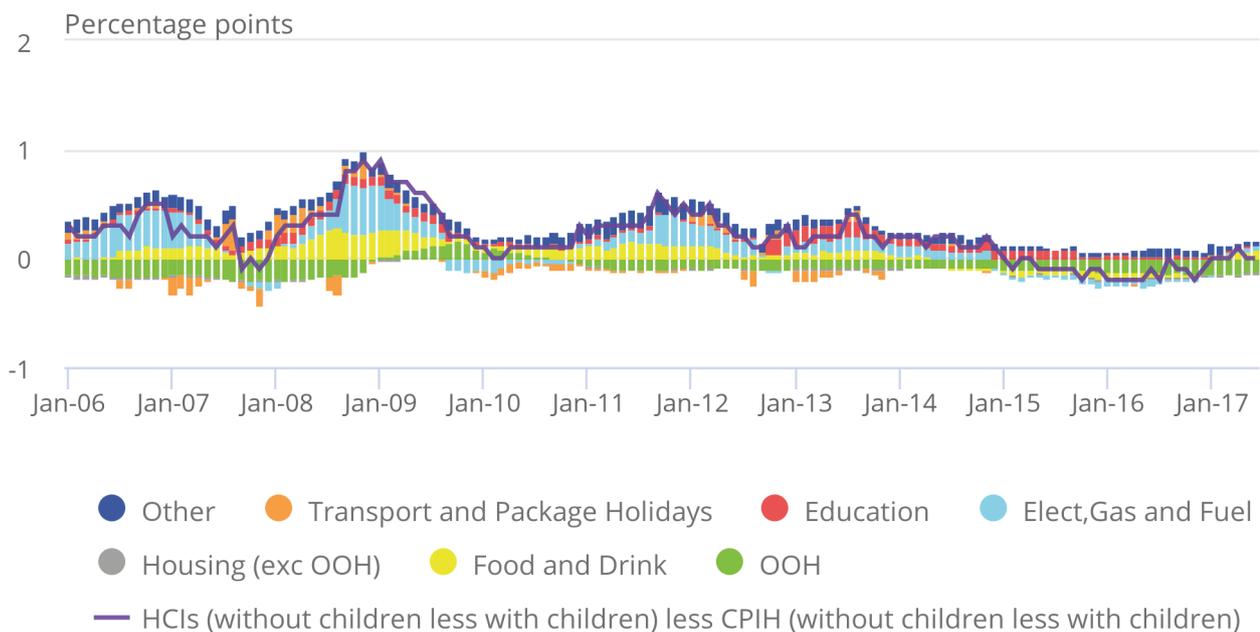
the 12-month growth rate for households without children less households with children based on CPIH-consistent data (Figure 39). Therefore where the line and contributions lie above zero this reflects a greater difference between household groups in the HCIs and where the line and contributions lie below zero this reflects a greater difference between household groups when using CPIH-consistent measures.

Figure 40: Contributions to the difference between households' with and without children 12-month growth rates between HCIs and CPIH estimates

UK, January 2006 to June 2017

Figure 40: Contributions to the difference between households with and without children 12-month growth rates between HCIs and CPIH estimates

UK, January 2006 to June 2017



Source: Office for National Statistics

Notes:

1. Stacked bars reflect the difference between the percentage point contributions of each of the 87 class-level items to the difference in the 12-month growth rates. The contribution of each of the 87 class-level items is estimated separately, before being aggregated to 7 distinct categories.
2. "Food & Drink" is composed of food, non-alcoholic and alcoholic beverages and tobacco. "Housing (exc. OOH)" is composed of actual rents and products and services for the repair of dwellings. OOH is owner occupiers' housing costs and is a separate category, measured using the payments approach in the HCIs and the rental equivalence approach in the CPIH. "Elect., gas and fuel" is composed of electricity, gas and other household fuels as well as fuels and lubricants for motor vehicles. "Transport and package holidays" includes passenger transport by road, rail, air and sea, as well as package holidays. "Education" reflects the division-level contribution. The "other" category reflects the combined contributions of the remaining class-level items, bringing the sum of contributions to the inflation rate.
3. A reduction in the contribution of series to the annual rate of change need not imply falling prices, but could also reflect a lower rate of increase than the previous year.
4. Contributions may not sum due to rounding.

The categories that typically lead to greater divergences between households with and without children in the HCIs than in the CPIH-consistent data are food and drink, and electricity, gas and fuel. The categories that cause

higher divergence in the HCIs are partially offset by OOH, where there is typically a greater divergence in the CPIH-consistent rates, except between 2009 and 2010, where the payments approach to OOH leads to a greater divergence in the HCIs between households with and without children.

Education also consistently leads to a greater difference in 12-month growth rates between households with and without children in the HCIs, reflecting the larger divergence in weight in this category when using HCIs methodology as opposed to CPIH-consistent methodology.

Figure 41 visualises the differences in weights using the HCIs and CPIH-consistent methodology between households with and without children. As the differences at the division level are minimal, to explore the trends further Figure 42 explores the differences in expenditure shares for the categories of spending provided in Figures 38 to 40. These are: food and drink; housing (excluding OOH); OOH; electricity, gas and fuels; transport and package holidays; education; and other.

Figure 41: Average expenditure shares for each category of spending, households with and without children, HCIs and CPIH-consistent rates

UK 2005 to 2017

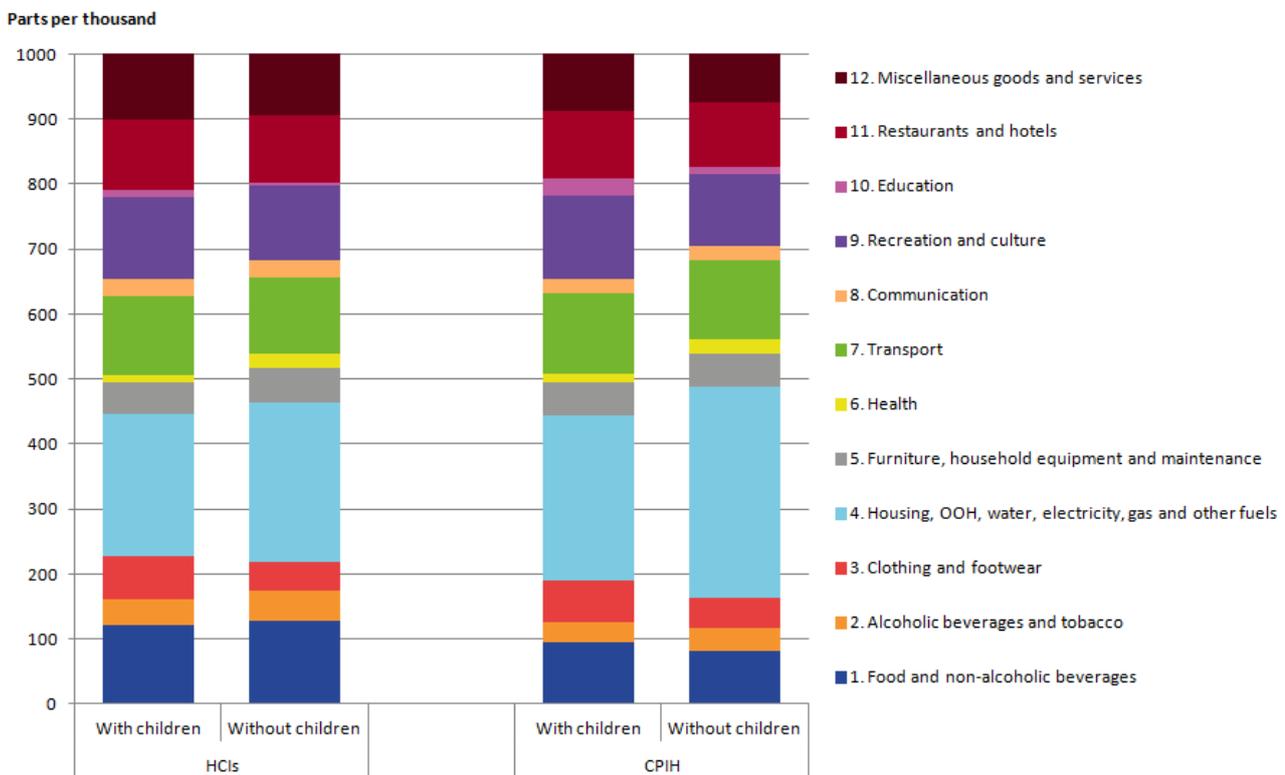
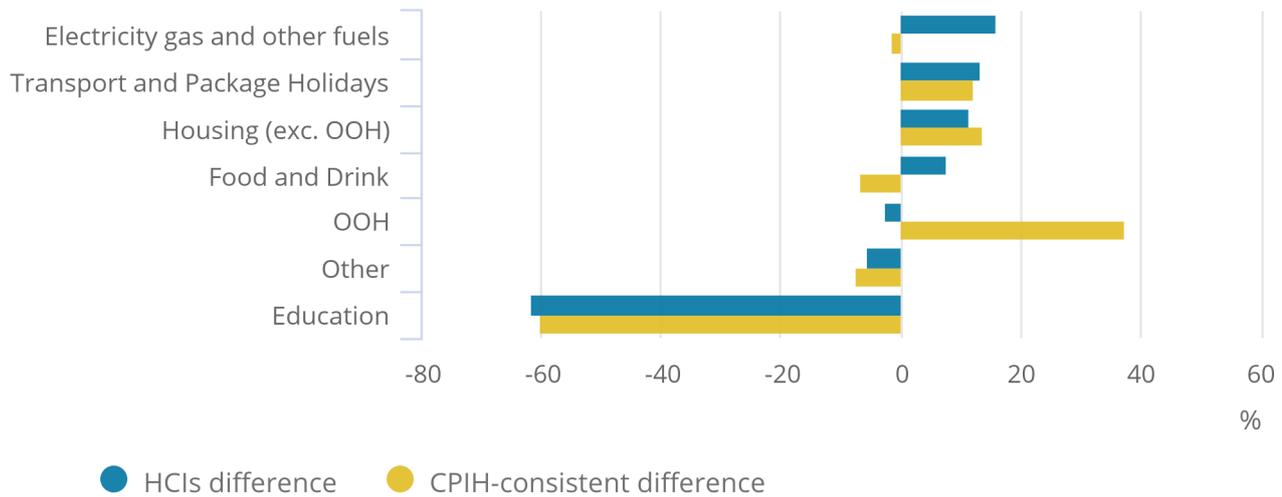


Figure 42: Percentage difference in average expenditure shares for each category of spending, households with and without children, HCIs and CPIH-consistent rates

UK 2005 to 2017

Figure 42: Percentage difference in average expenditure shares for each category of spending, households with and without children, HCIs and CPIH-consistent rates

UK 2005 to 2017



Source: Office for National Statistics

As with the other subgroups considered within this article, the greater divergence in the HCIs is driven by the categories food and drink, and electricity, gas and fuels. This is driven by a greater divergence in the weights using HCIs methodology as opposed to using CPIH-consistent methodology. The HCIs also show a slightly greater divergence in the weights for education and, coupled with the large price movements within this category of spending, this also contributes to a greater divergence between the HCIs than the CPIH-consistent rates.

The differences that lead to greater divergence in the HCIs are somewhat offset by OOH, where there is a greater divergence in the weights for the CPIH-consistent households with and without children than there is for the HCIs households with and without children.