Compendium

Executive summary

Estimates of the inflation rates experienced by different types of of household in the UK.

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1 . Introduction

This is a summary of ONS analysis of the inflation rates experienced by different types of households in the UK, 2003-2014.

2 . Executive summary

The Consumer Prices Index (CPI) is of central importance in macroeconomic management. Calculated each month using more than 180,000 price quotes, it is designed to capture the average price movement of the goods and services purchased by the household sector. However, because the consumption baskets of specific households differ and because prices do not all change at the same rate, the price experience of individual households may differ from the average shown in official statistics. In a similar manner to the average of any variable, some households will experience higher rates of inflation, while others will observe a lower rate of price increase. This paper presents ONS analysis of the inflation rates experienced by different types of households in the UK between 2003 and 2014.

In order to carry out this analysis, this paper uses micro-level data from the Living Costs and Food Survey (LCF) to understand how consumption patterns vary across households. It combines these data with information from the CPI which charts changes in the price of different products across the UK. In so doing, it addresses a range of complex methodological issues to estimate aggregate price indices and inflation rates for households in each decile of the income and expenditure distributions, for households with and without children, and for retired and non-retired households.

Our analysis draws a number of conclusions. First, the rate of inflation experienced by different types of household has varied markedly since 2003. These differences are most apparent when comparing households who spend relatively little with those who spend the most [1]. The price of products purchased by households in the lowest expenditure decile increased on average by 3.7% per year over this period, compared with just 2.3% for the highest-expenditure decile. Comparing the 2nd and 9th expenditure deciles – our preferred measure [2] – this difference remains substantial: prices for the former group have risen on average by 3.3% each year over this period, while for the latter they have risen by just 2.3%. The CPI over this period – which is designed to capture price movement for the household sector as a whole – has risen by 2.6% each year on average.

These differences have been quite persistent over the 2003-2014 period. The products purchased by households in the 2nd expenditure decile have increased more in price than the products purchased by the 9th expenditure decile in all but 13 of the 142 months between January 2003 and October 2014. As a consequence, prices for the former group have risen by 45.5% over this period, while prices for the latter group have risen by just 31.2%. Much of this difference – as has been widely reported – is due to the greater exposure of lower-expenditure households to changes in the price of fuels, food and energy. The CPI has risen by 34.7% over the same period.

While the extent of inflation differentials is largest among households with different levels of expenditure, this analysis also indicates that there are inflation rate differentials for other sub-groups in the population. In particular, prices have risen faster on average for households in lower income groups. The products purchased by households in the bottom 10% of the disposable income distribution increased by 2.9% on average over the 2003-2013 period, while those around two-thirds of the way up the income distribution experienced price growth of just 2.4% over the same period. As a consequence, prices for the lowest-income decile have risen by 39.2% over this period, compared with 31.4% for the 7th income decile.

Households without children and retired households have also experienced a faster rate of price increase than households with children and non-retired households respectively – although both these differences are an order of magnitude smaller than the differences between households with different levels of expenditure. Supporting analysis suggests that housing costs have also played an important role: groups with a greater incidence of mortgaged owner-occupiers have enjoyed lower rates of price increase over this period as a consequence of lower mortgage interest payments. These results are summarised in Table E.1 below:

Table E.1: Average annual inflation rates for selected groups, %, 2003-2013

				%
Group	Inflation			
Decile of	1	2	9	10
Disposable Income	2.9	2.7	2.5	2.6
Expenditure	3.7	3.3	2.3	2.3
Households with Children	2.4			
Households without Children	2.7			
Retired Households	2.8			
Non-Retired Households	2.5			
'Democratically-weighted'	2.9			
CPI	2.6			

Source: ONS Calculations

Notes:

1. Deciles of disposable income and expenditure are calculated on an equivalised basis, adjusting for the composition of the household. See Section 3 for more details.

2. Equivalised income deciles (1 = lowest-income households, 10 = highest-income households)

3. Equivalised expenditure deciles (1 = lowest-expenditure households, 10 = highest-expenditure households)

4. Differences may not sum due to rounding.

While the movements in some prices have influenced all groups, their importance as drivers of inflation has differed substantially. This paper provides evidence that retired households were particularly exposed to the movements of energy and food prices over this period, but were much less affected by the increasing price of education (led by higher university tuition fees) and package holidays. Households with children, by contrast, were more exposed to price changes for education, and less exposed to movements in energy and transport costs. Comparing high and low expenditure groups, changes in the costs of utilities, food and drink account for most of the differences in inflation rates.

This paper also documents the degree of variation in rates of price increase within sub-groups. In particular, it concludes that the range of inflation outcomes for retired households is far broader than the range of inflation outcomes for non-retired households. Some retired households experienced broadly similar rates of price increase to the rest of the population, while a minority of retired households experienced much faster rates of price increase, rising to more than 7% in 2008. This result for retired households suggests that the expenditure patterns of this group are diverse relative to that of non-retired households.

This paper also examines how closely the CPI corresponds to the price experience of different sub-groups. Comparing the CPI with the inflation outturns for different groups, this paper concludes that the CPI is broadly representative of the price experience of households around two-thirds of the way up the expenditure distribution. An equivalent, 'democratic' price index – which weights the inflation experience of households equally, rather than drawing on household sector expenditure weights[3] – is around 0.3 percentage points higher on average than the plutocratic measure over this period.

Our findings have several implications, of which two are particularly clear. First, it is apparent that while the CPI captures movements in prices for the household sector as a whole, the degree of variation in the price experience of different households is relatively broad. Rates of price increase vary systematically across household types and composition, to differing degrees in different periods. That degree of variation needs consideration alongside movements in the headline rate of CPI inflation. A first step towards greater understanding and appreciation of these differences could be for a distributional analysis of inflation trends to be published on a regular basis. In line with our findings, this could incorporate estimates of within-group inflation differentials, as well as between group differences. This would allow these differentials to be monitored through time, to see whether the trends observed during this period are sustained as the economy continues to recover.

Secondly, the degree of variation presented here has broader implications for economic policy. In particular, it suggests that some sub-groups of the UK population have faced relatively strong headwinds in recent years, eroding both their real incomes and their capacity to spend. The results also suggest that when inflation is relatively high, the dispersion of inflation outcomes is relatively broad. As a consequence, the strength of price growth during the recent economic downturn resulted in a broadening of inflation outcomes among different household types. Both effects suggest that distributional analysis of this nature can offer significant insights on current macroeconomic developments.

Finally, we present a range of avenues for further study, developing on the methods we have employed here. First, future research could seek to quantify the extent to which different households face different prices for the same product. In common with previous studies, this paper assumes that all households face the same prices and as a consequence, inflation differentials are driven by expenditure shares alone. If different households face different prices for the same products, and if these prices grow at different rates, then their experience of inflation may differ from the estimates presented here. Secondly, further work could be carried out to extend our findings from CPI to CPIH – allowing housing costs for all households to be included in the sub-group inflation estimates.

Notes for executive summary

1. Note that households are likely to move between expenditure and income deciles through time, as their economic circumstances change. As a result, the number of households who consistently feature in a single decile may vary.

2. This measure is less affected by unusually low- or high-expenditure households who appear in our underlying data. 1 = lowest spending decile, 10 = highest spending decile.

3. See Sections 2 and 7 for more detail.

3. Background notes

1. Details of the policy governing the release of new data are available by visiting www.statisticsauthority.gov.uk/assessment/code-of-practice/index.html or from the Media Relations Office email: media.relations@ons.gsi.gov.uk