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Household characteristics, Irish inflation and the cost of living

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Lower income, older and rural households experienced relatively larger cost of living increases from higher inflation in recent months. This is because energy-related spending – both home heating/energy and transport – is a higher share of overall expenditure for these households, and higher energy prices are currently the main driver of inflation. Taking a longer-term perspective on inflation developments from 1998 to the present, I find little historic evidence of systematic differences in inflation experienced by lower and higher income households.

In a recent *Economic Letter*, [Byrne and Zekaite \(2021\)](#) showed that current high levels of aggregate inflation – as measured by the HICP – are mostly driven by energy inflation. The first [Central Bank Quarterly Bulletin](#) of 2022 also highlighted the combined effects of energy price rises, increased demand and pandemic-related supply issues on inflation. Our current projections are for inflation of 4.5% in 2022 (on average), before falling back to 2.4%/2.1% in 2023/24.

Headline inflation is an average for all households, and thus is unlikely to be representative of a specific household's inflation rate. This is because individual households do not spend their weekly budget in the same way, either due to different living circumstances or preferences. In the case of energy-related products, for example, households that drive more or spend proportionately more on home energy and heating than the 'average' household will be feeling the impact of recent energy price rises more acutely.

To better understand how price changes are affecting different households, this *Economic Letter* presents a methodology for estimating inflation rates by household characteristics. This information can help to inform government policies aimed at easing the cost of living increase, and also shed light on the likely impact of higher prices on aggregate consumption.

Is aggregate inflation always representative?

The CSO's [online documentation](#) explains how aggregate or headline inflation is constructed, by combining monthly data on prices of various goods and services with expenditure weights. Benchmark weights are taken from the five-yearly [Household Budget Survey \(HBS\)](#) and are updated annually using National Accounts and other data sources.¹

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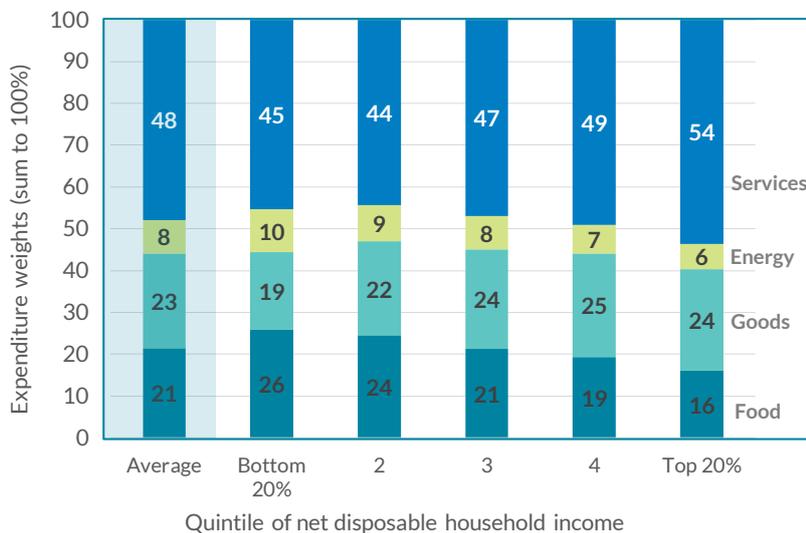
¹ Weights tend to change little from year-to-year, 2021 being the exception, when the Services expenditure weight fell from 54.7 to 47.9% and Food rose from 15.6 to 21.5%, both reflecting unusual pandemic-related spending patterns during 2020.

Aggregate inflation uses expenditure weights that are designed to represent the average Irish household. To estimate an inflation rate for a given household type, I calculate expenditure weights from the Household Budget Survey micro data for different groups; that is, by income, age, urban/rural, personal transport fuel usage, housing tenure and number of children. A technical appendix outlines the top-down methodology. The estimates should be viewed as being *broadly indicative* of differences across household types, and do not capture every individual's cost of living experience. Furthermore, the approach does not allow for changes in household spending choices in response to relative price changes, which could impact the cost of living.

Chart 1 shows the expenditure weights for the average household in 2021 and by quintile of net household disposable income (i.e. where all households are divided equally across five income buckets). Relative to higher income households, a greater share of spending by lower income households is on energy and food, and less on goods and services. The differential weights matter: you need large price changes in relatively low-weight categories – such as energy currently – to have a significant overall impact, but relatively smaller changes in some other categories – such as services – to have also have a large overall impact.

Given my focus on inflation differences, I present the expenditure weights. However, expenditure as a proportion of *income* is also relevant, as noted in our recent [Central Bank Quarterly Bulletin](#). This is especially the case for energy spending, which was 14% of disposable income for low income households, compared to 5.5% for high-income households. Clearly, absent changes in income, large swings in (energy) prices impact lower income households more, a point I return to in the conclusion.²

Chart 1 | HICP expenditure weights for main sub-components, by income



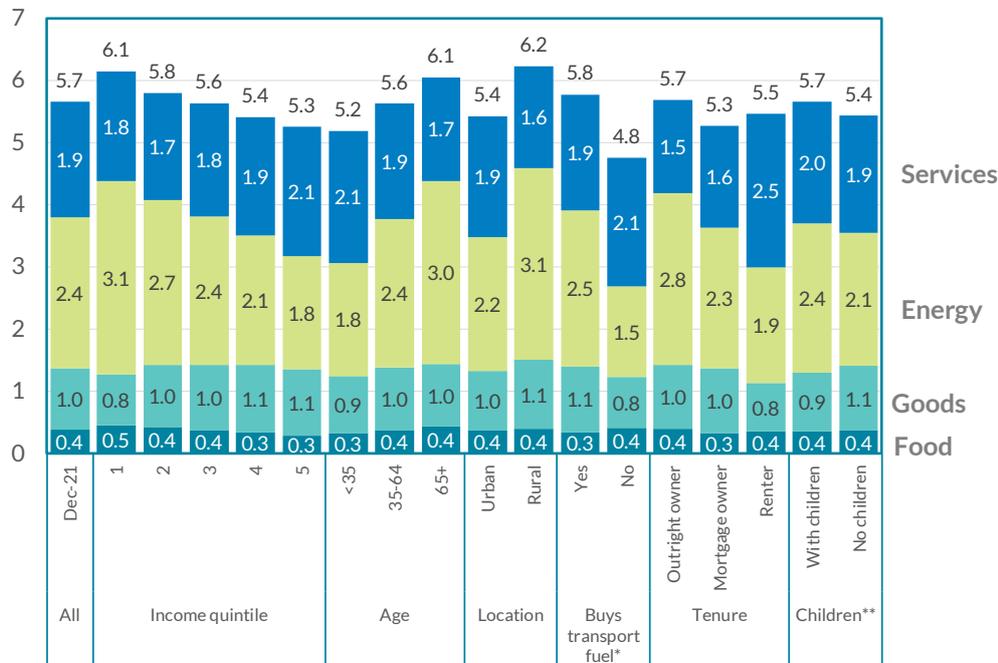
Source: Own calculations based on CSO 2021 HICP weights and 2015/16 HBS. Income is *not* equivalised, i.e. *not* adjusted for household size. The quintile cut-offs to the nearest thousand, based on SILC 2020, are: Q1: less than €19,000; Q2: €19-€33,000; Q3: €33-€47,000; Q4: €47-€67,000; Q5: €67,000+.

² More generally, there are many 'differential' or 'inequality' impacts of inflation not covered here, including on debtors versus savers (the erosion of nominal savings), the labour share and firms with high fixed (capital) costs. [Brunnermeier \(2022\)](#) touches on this in a recent lecture.

Chart 2 shows inflation in December 2021 for different household types, built up from sub-components.³ Headline inflation was 5.7% for the average household, and was highest for rural (6.2%), lower income and older households (6.1%). Larger increases in energy prices are the main driver of differences between household types: 3.1% of the 6.2% estimated inflation for rural households is for energy (home energy/heating and personal transport), compared to 2.2% out of a total of 5.4% for urban households. Goods and food inflation tends to be broadly similar across different household types, whilst the lower impact of energy price increases for some households is partially offset by higher services price increase for the same households. Unsurprisingly, non- or low-driving households have the lowest estimated inflation in December 2021, at 4.8%.⁴

Note that the groups are not mutually exclusive, and conditioning on more characteristics highlights some larger differences. For example: urban, non-/low-driving, high-income (quintile 5) households without children have an estimated inflation rate of 4.3% in December 2021; compared with 6.5% for rural, driving, low-income (quintile 1) households with children.

Chart 2 | Estimated inflation by household characteristic in December 2021



Source: Own calculations based on CSO 2021 HICP weights, December 2021 headline HICP and 2015/16 HBS. (*) For purchases of transport fuel, 'No' ('Yes') means working age households who report a zero (positive) euro value for purchases of petrol or diesel in the HBS two-week spending diary, thus capturing both non- and infrequent-drivers (27% of households), and possibly workers where the employer pays for fuel. (**) Working age households with/without children. Rental prices are excluded for services inflation for outright and mortgage homeowners, but included for renters.

³ The 'flash' estimate for HICP inflation in January 2022 was 5.0% (5.1%) for Ireland (euro area). January sub-components were not available from Eurostat at the time of writing, so I use the December 2021 release (5.7%) here.

⁴ According to the [CSO in 2019](#), 17% of adults were very infrequent or non-car users. For under-35 year olds, the figure was 29%.

Do inflation differences persist?

Given volatile energy and commodity prices, do these inflation differences persist? Chart 3 – which repeats the previous exercise for the years 1998 to 2021 for bottom and top income quintiles for brevity – suggests not. There are periods when inflation is higher for lower income households – and the current period matches previous highs in this ‘gap’ in late 2000 – but they have been short-lived in the past. There are also periods when inflation is relatively lower for low-income households, such as late-2009 or 2013-16, when energy prices were also falling.

Chart 3 | Estimated inflation for households by income quintile

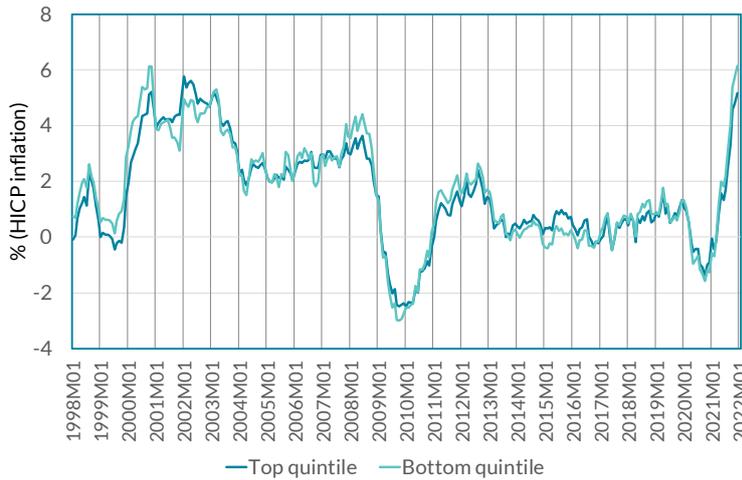


Chart 4 plots the difference between bottom- and top-quintile inflation rates, alongside energy price changes. The two series track each other closely, with a correlation coefficient of +0.71. The average of the bottom-/top-quintile difference is +0.09% (standard error of 0.028). After energy, food prices also play a role in determining the estimated inflation differential by income (correlation coefficient of +0.31). Increases in non-energy industrial goods and services prices – both of which account for a greater share of higher income household spending – reduce the inflation differential between low- and high-income households (negative correlation coefficients of -0.29 and -0.18, respectively).

Chart 4 | Difference between estimated inflation for the top and bottom quintiles of income (LHS), and energy prices (RHS)



Sources: See notes to Charts 1 & 2.

Cumulatively since 2004, prices have increased by 18.0% (bottom income quintile) and 16.9% (top).⁵ Although, as (nominal) income growth has far outpaced these changes – growing by 57.3% (bottom) and 35.4% (top) – in *purchasing power* terms (i.e. real income), both groups are better off.

Considerations for policy

The results of the analysis are relevant for both monetary and government policy.

Monetary policy impacts *aggregate* demand, and is generally not a tool to deal with supply side drivers, including energy price increases. Nor can it effectively address distributional effects of inflation. Whilst high inflation driven by large energy price increases affects certain groups more than others, including lower-income households, monetary policy actions – such as raising interest rates – would not only do little to ease the impact in the short-run, but could also do more damage. This is because lower income households are generally much more vulnerable to increases in unemployment, as highlighted in [Dossche et al., 2021](#), not to mention that many mortgage holders would also face higher repayments. None of this means ignoring energy prices. Central banks pay close attention to the impact of energy on other prices, the potential for second-round effects on wages, as well as the potential for high inflation to reduce consumption and slow growth. It is these concerns that support a ‘gradual’ approach to monetary policy in the current climate, as recently stated by [President Lagarde](#).

Governments looking to alleviate recent cost of living increases should focus on the main driver of these increases, namely energy related spending and consumption. Linking supports to existing social transfers, such as recent changes to the winter fuel allowance, or assisting lower-income groups in other ways, will target the groups most affected by recent price increases and can help to minimise the risk of the overall fiscal policy stance adding to demand and inflationary pressures in the economy. Whilst energy price *rises* are currently expected to ease during 2022, therefore putting downward pressure on inflation, energy price *levels* could remain elevated for some time to come, as outlined in our recent [Quarterly Bulletin](#). Therefore, policies that will help insulate more households – both literally and figuratively – alongside increased investment in non-fossil fuels, should be a medium-term priority for public policy.

Finally, to fully gauge the impact of inflation on households’ economic well-being, it will be important to also analyse how (real) incomes and savings are changing, once this data is available. A comparison of the ‘*At risk of poverty measures*’ in the forthcoming 2021 EU-SILC – which relate to the intersection of real incomes, saving and expenditure – would be informative, especially when we consider that low-income households are [dis-savers on average](#) (that is, they tend to spend more than their disposable income). In this sense, it is as important to track both the *level* of inflation by income, as it is to track the inflation gap.

⁵ 2004 is the base year here as it allows comparisons with income growth from EU-SILC. Since 1997, the cumulative level increase for low and high-income households is 46.7% and 43.6%, respectively.

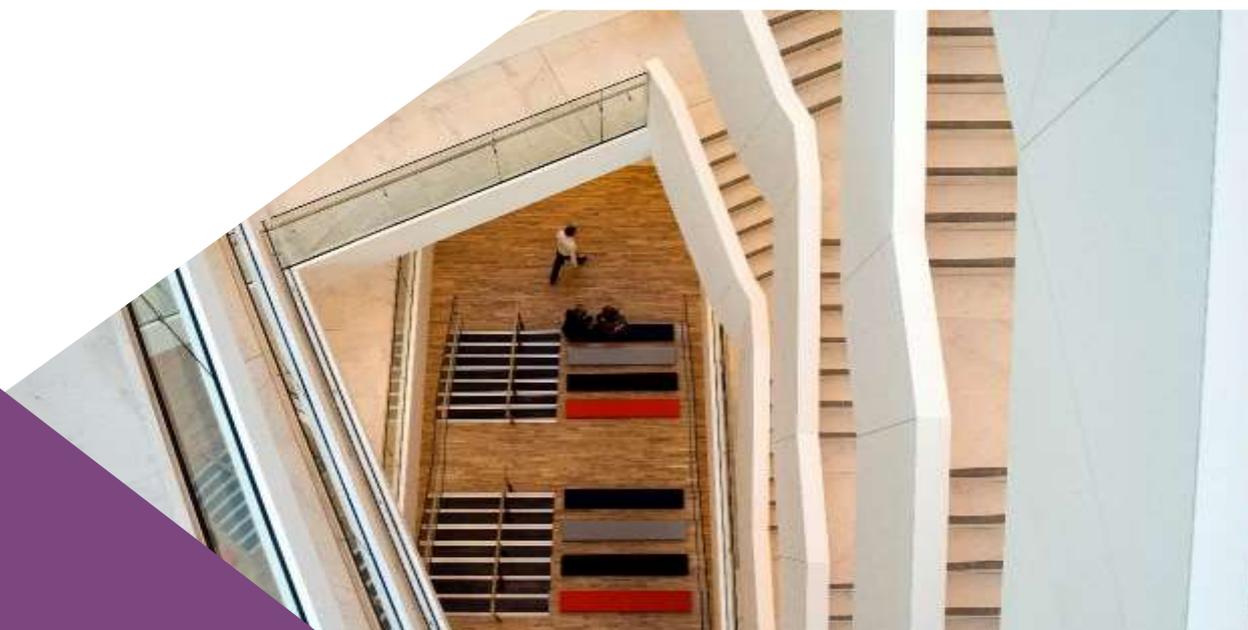
Appendix – methodology

Using the HBS micro data, I construct expenditure weights by household type for the four main HICP sub-components: Food, Energy, Non-energy Industrial Goods (e.g. clothing and footwear, household durables and non-durables) and Services. I multiply the expenditure weight for each sub-aggregate by the price changes published by the CSO to get an estimate of HICP inflation by household type. Eurostat's [Personal Inflation Calculator](#) does something similar, albeit by expenditure item and not household type.

There are two caveats to this approach.

First, the HBS is not an annual survey. Therefore, between five-year waves, I rescale weights within sub-component groups, but for different household types, using the changes to the weights for the average household, as provided in [annual updates from the CSO](#). For most years, when weights change by small amounts, this is unproblematic. However, as the 2020 HBS was delayed by the pandemic – now expected in 2022 – I retain the HBS 2015/16 expenditure weights by household type through to 2021, albeit scaled-up (or down) for the annual CSO published weights. Given the highly unusual nature of spending changes during the pandemic, this approach, whilst the only one available, might be more questionable during 2021 (see [Byrne, Hopkins, McIndoe-Calder & Sherman \(2021\)](#) and [Lydon & McIndoe-Calder \(2021\)](#) for a summary of spending patterns during the pandemic).

Second, even if more regular updates of expenditure weights were available by household type, this *static* approach does not allow for changes in household spending choices in response to relative price changes. This is an important element of household behaviour that could impact how price changes affect the cost of living.



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