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Relative vs General price changes - estimating the common component of inflation for Ireland

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Understanding the drivers of the increase in inflation in 2021 and the extent to which these reflect temporary factors in specific parts of the consumption basket or more persistent and more generalised factors is currently an important issue facing central banks in the euro area and elsewhere. This Box estimates a measure of underlying inflation for Ireland known as the common component of inflation.[2] The common component of inflation allows us to distinguish between broad-based changes in the general price level from idiosyncratic temporary relative price changes, and can be used as a data-driven tool to monitor risks to the inflation outlook. [3] This is particularly important during the current period of high levels of uncertainty around the inflation outlook.[4]

The basic idea behind the common component of inflation is to filter out temporary idiosyncratic shocks to headline inflation and to help identify structural, or underlying, inflationary pressures. Core inflation represents a similar idea by excluding the volatile series of food and energy prices, but includes temporary idiosyncratic changes to the other components of the HICP. In contrast, the common component excludes the temporary

[1] Irish Economic Analysis Division.
[2] In this box, inflation refers to HICP inflation. The common component is estimated up to November 2021.
[3] The methodology we use follows Nir, Haberkorn, and Cascaldi-Garcia (2021). https://www.federalreserve.gov/econres/notes/feds-notes/international-measures-of-common-inflation-20211105.htm
[4] https://www.centralbank.ie/news/article/speech-inflation-dynamics-in-a-pandemic-maintaining-vigilance-and-optionality-gabriel-makhlouf-23-november-2021

idiosyncratic component from each series in the HICP (see Table A). For example, a temporary tax cut for a specific good or a short-term supply disruption could change core inflation but not the common component. As such, core inflation is an imperfect measure of general changes in the price level in that temporary shocks in sectors other than food and energy may be misunderstood as economy-wide shocks. On the other hand, the common component seeks to present inflation driven by general increases in consumer prices, which could, for example, coincide with second round effects to wages.

Table A: Treatment of temporary shocks by different measures of inflation

Inflation measure	Temporary Shocks
Headline	Includes all
Core	Excludes food and energy only
Common	Excludes all

The methodology we use follows Nir, Haberkorn, and Cascaldi-Garcia (2021). The analysis allows for developments in each sub-index of the HICP to be decomposed into (1) a common trend across all sub-indices and (2) idiosyncratic movements. The common trend in each sub-index is then aggregated using the standard HICP weights to arrive at the estimate of overall common HICP inflation. The difference between headline HICP and the common component is the inflation arising from idiosyncratic shocks.

Figure A shows headline and core inflation along with the estimated common component of inflation for Ireland over the 2003-2021 period. The common component is shown to be less volatile than both headline and core inflation. For example, headline and core inflation experienced large inflationary and deflationary swings around the period of the 2008 economic crash, reaching up to 4 per cent in 2007 and falling below -3 per cent in 2009. This volatility is in contrast to the common component of inflation, which gradually moved from a steady pre-crisis average value of around 2 per cent to a relatively stable post-crisis average of 1.1 per cent. Despite these different dynamics, the traditional measures of inflation and the common component tend to converge over the medium-run.[5]

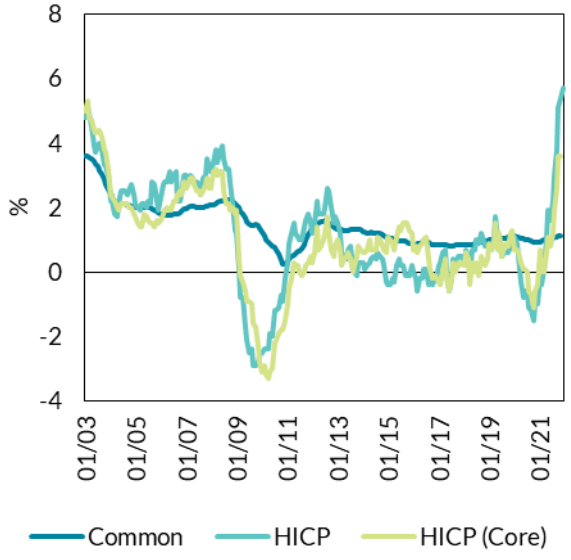
[5] Preliminary analysis of cross-correlations suggests that there is typically a lag of around 12 months between headline measure and the common measure, such that they are likely to converge at some point in between their current levels over the forecast horizon.

Figure B focuses on the recent pandemic period (2020-2021) and shows headline and core inflation, and the common component of inflation for Ireland. In January 2020, headline, core, and common inflation stood at 1.1, 0.7, and 1.1, respectively. In 2020, headline and core inflation took a deflationary swing falling below -1 per cent reflecting the initial negative impact of the pandemic on demand. In 2021, this deflationary trend ended abruptly with the rates of both headline and core inflation surging, to their highest levels since June 2001. The latest data for November 2021 show headline and core inflation at 5.4 and 3.6 per cent, respectively.

In contrast to these volatile swings in headline and core inflation measures, the common component of inflation has been relatively more stable. The common component fell to a low of 0.9 per cent during the pandemic and over recent months has returned to its pre-pandemic level of 1.1 per cent. Figure B decomposes overall headline inflation into the contribution from the common component and the idiosyncratic component. The idiosyncratic component is the part of inflation explained by short-run shocks or changes in relative prices. As shown in Figure B, the upsurge in inflation in 2021 is largely explained by an increase in the contribution of the idiosyncratic component rather than a rise in the common component.

Figure A: Common inflation is less volatile than headline and core

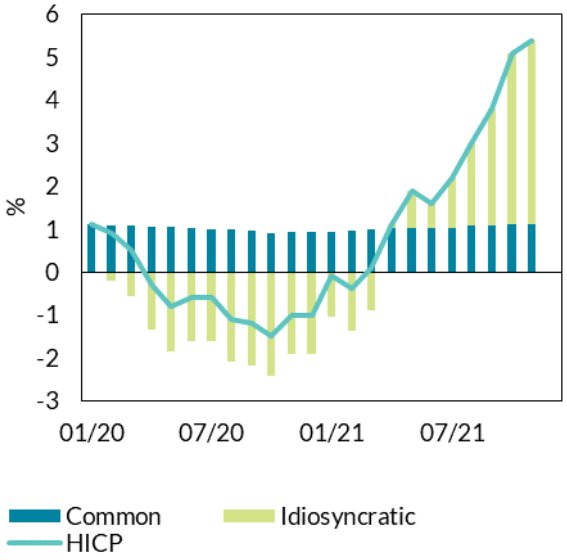
Chart: Measures of Inflation



Source: author's calculations.

Figure B: Recent inflation surge is largely explained by the idiosyncratic component

Chart B: Decomposition of HICP

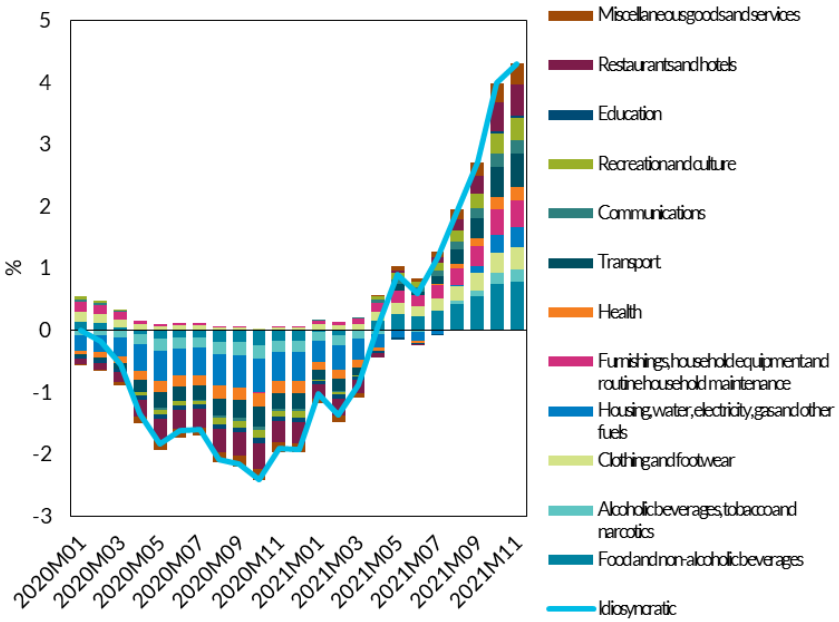


Source: author's calculations.

To help understand the recent drivers of the common and idiosyncratic components of inflation, Figure C starts by showing the contributions to the idiosyncratic component – the main driver of recent overall inflation. The largest contributions in November were Food and non-alcoholic beverages (0.78), Transport (0.53), followed by Restaurants and hotels (0.50). These contributions reflect short-term shocks to these categories of inflation as well as base effects. Figure D shows the contributions to the common component. The largest contributions in November were Housing, water, electricity, gas and other fuels (0.40), Restaurants and hotels (0.24), and Transport (0.16). These contributions reflect the underlying inflationary pressures and are more specifically relate to higher rents, gas, electricity and fuel prices, which suggests that there have been some recent spillovers from energy prices (normally excluded from core inflation) into underlying inflation.

Figure C: Food and energy were the largest contributions to the idiosyncratic component in November

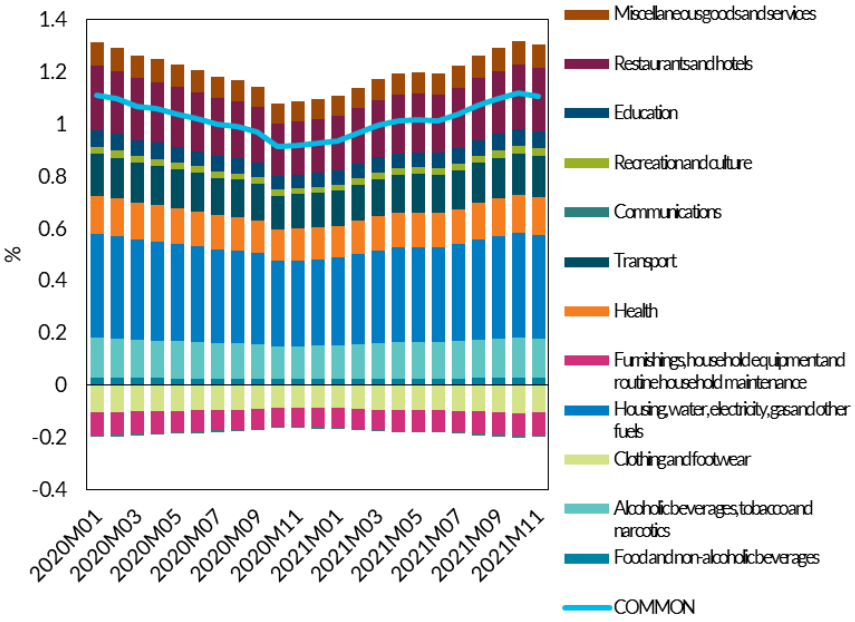
Chart: Contributions to the Idiosyncratic Component



Source: author's calculations.

Figure D: Rents and energy prices were the largest contributions to the common component in November

Chart: Contributions to the Common Component



Source: author's calculations.

This Box has shown that temporary, relative price shocks, primarily to food and energy prices, were the main factors driving up headline inflation in 2021. The common component of inflation – a measure of underlying broad-based inflationary pressures – has remained relatively stable but has picked up over recent months and is currently at its pre-Covid level of about 1 per cent (see Chart B and Chart D). This is considerably lower than headline inflation of 5.4 per cent. While temporary shocks are expected to dissipate over the forecast horizon, if these were to prove more long-lasting they could feed through to further increases in the common component of inflation and the general price level. This would pose a risk to the inflation outlook and will need to be monitored carefully to help identify evidence of broad-based inflationary pressures.