



Banc Ceannais na hÉireann
Central Bank of Ireland

Eurosystem



Box E:

QB 4 – October 2021

This Box content is extracted from the Quarterly Bulletin – Q4 2021

Drivers of Recent Inflation

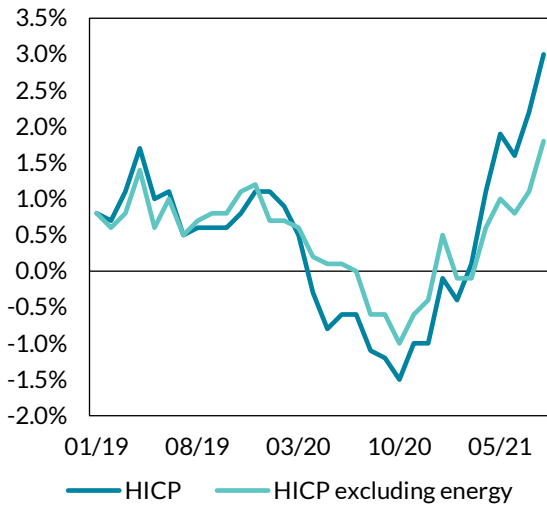
By Stephen Byrne, John Scally, and Zivile Zekaite

The pace of annual consumer price inflation has increased substantially in recent months, both in Ireland and across the euro area, US and UK. There are three distinct, but related, factors driving recent price increases. Firstly, wholesale prices for energy commodities have increased sharply in recent months. In particular, the prices of oil and liquid natural gas have more than doubled over the past six months. Second, there are presently shortages of several important inputs to the manufacturing and delivery processes of many consumer goods. Lastly, there has been a surge in demand domestically for goods and services, which had been unavailable or closed during the pandemic. These developments all reflect the more sluggish response of supply to rapid changes in demand. These factors are temporary, but may take time to dissipate.



Consumer price inflation has ticked up in recent months as the economy recovers

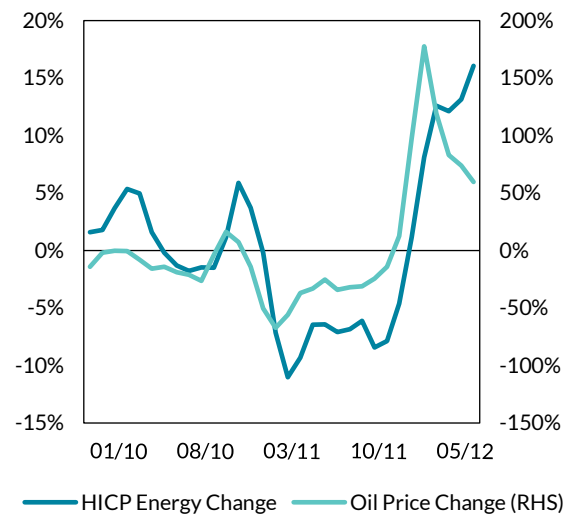
Figure 1: Harmonised Index of Consumer Prices



Source: Eurostat

Energy prices have been a major factor, global oil prices are a leading indicator

Figure 2: HICP Energy and Oil Price



Source: Eurostat

Visualising the sources of aggregate price increases

Using two analytical tools helps to give a broad picture as to what is happening with consumer price movements over time. The heat map in Figure 3 presents a useful visual analysis of the components of HICP. The areas in red represent strong relative price pressures in the annual rate of change, while blue areas point to lower relative price pressures. In recent months, it is apparent that housing, water, electricity, gas and other fuel prices are running hot and other areas such as health, transport and hotels and restaurants are heating up. It is clear also that not all categories are experiencing relatively high rates of inflation more recently.

Hot or Cold? – The heatmap shows that energy (electricity, gas and transport) are seeing the strongest price increases in recent months

Figure 3: HICP Heatmap

- Food and non-alcoholic beverages
- Alcoholic beverages, tobacco and narcotics
- Clothing and footwear
- Housing, water, electricity, gas and other fuels
- Furnishings, household equipment and routine household maintenance
- Health
- Transport
- Communications
- Recreation and culture
- Education
- Restaurants and hotels
- Miscellaneous goods and services



below average above average

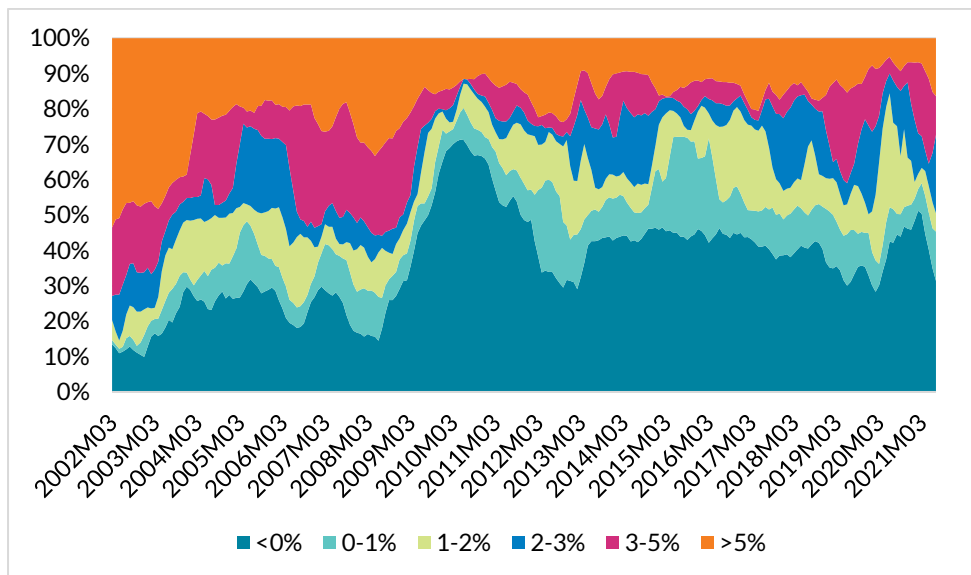
Source: CSO and Central Bank of Ireland



Figure 2 presents a weighted distribution of price changes across sub-indices of the HICP at a more disaggregated level over time. Each area in the figure denotes a percentage share of the consumer basket with year-over-year inflation rates falling in the specified intervals. Prior to 2009, the share of sub-aggregates with inflation rates above 2 per cent is on average 59 per cent. During the financial crisis, low inflation rates clearly dominated. The share of low inflation rates declined afterwards but on average remained higher than before the crisis, at 68 per cent. In the latest months, however, we can see a shift towards the higher rates of inflation, with rates over 2 per cent representing 50 per cent of the consumer basket on average. Nevertheless, the share of sub-aggregates with very large price increases, i.e. above 5 per cent, is 18 per cent, lower than the average of 29 per cent prior to the global financial crisis.

The proportion of the overall consumption basket seeing price rises greater than 2 per cent has increased to 50 per cent in recent months

Figure 4: Proportion of the HICP basket by inflation pace



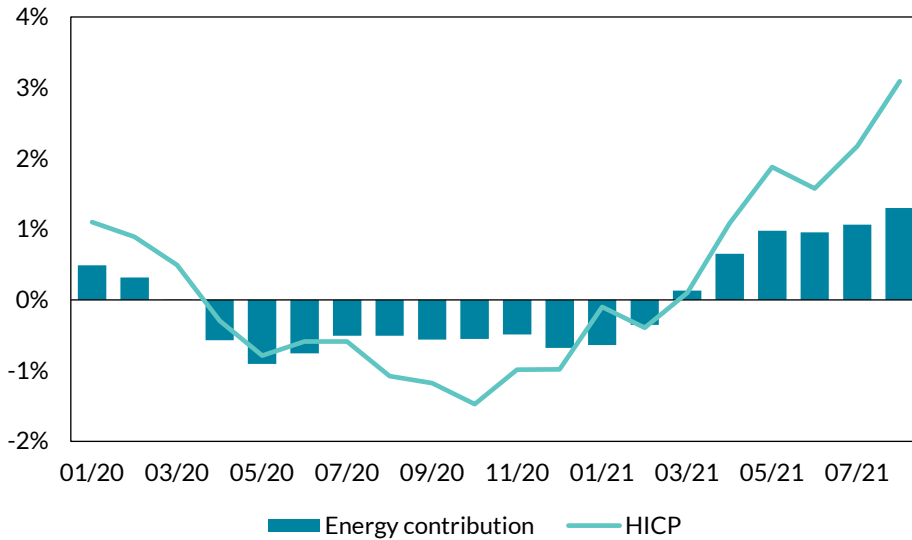
Source: CSO and Central Bank of Ireland calculations

Note: Last observation August 2021



Energy prices have contributed strongly to HICP inflation this year

Figure 5: Energy Contribution to overall HICP



Source: CSO and Central Bank of Ireland
Last Observation: August 2021

Impact of Energy Prices on HICP

Recent increases in wholesale energy costs have resulted in substantial increases in the prices consumers pay for electricity and home heating. Figure 4 show the increasing contribution of energy prices to HICP inflation; energy prices accounted for 1.3 percentage points of the 3 per cent increase in the HICP in August 2021. As a country largely dependent on imported energy, international oil and gas prices are an important determinant of energy prices in Ireland and Figure 5 shows the high correlation between energy prices and oil prices¹.

Seasonal and Base Effects

One of the factors affecting the inflation figures in 2021 is the base effect. This refers to the fact that the difference between the annual rates of inflation in two subsequent months is approximately the same as the difference between the monthly rate in the current month and the monthly rate one year earlier. Consequently, a temporary downturn in prices, as in the case of the onset of Covid-19, can result in large annual inflation rates in the following year that are unrelated to current price pressures. This effect has added approximately half a percentage point to the increase in the HICP since the beginning of 2021.

Another base effect arose this summer from the unusual seasonal pattern of sales during summer 2020. This relates to the reopening of the economy during summer 2020. Figure 3 shows the month-

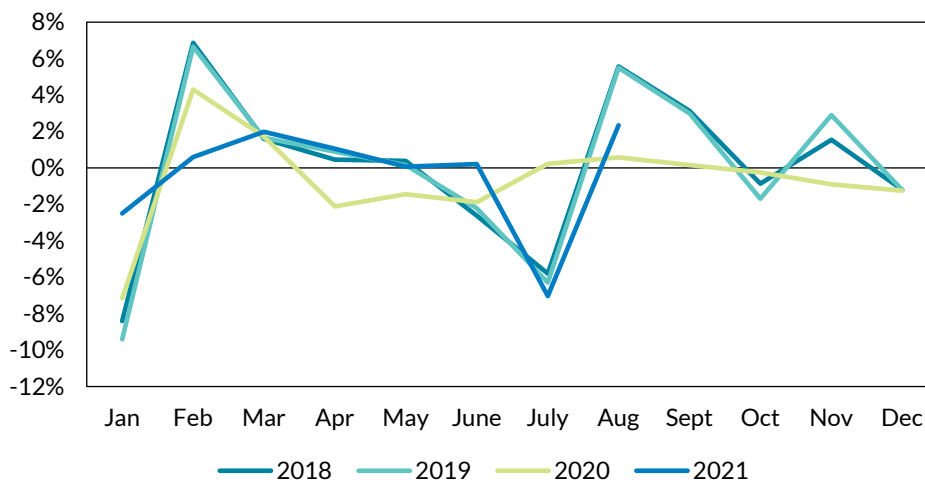
¹ Generally gas prices closely follow developments in oil prices.



on-month changes in the price of clothing and footwear. The normal seasonal sales in January and July are apparent in all years except 2020. When the shops reopened, the seasonal sales pattern returned with sales in July 2021. When calculating the year-on-year change in July 2021, i.e. since July 2020, the prices are compared to higher prices without sales leading to a much smaller annual rate of inflation.

The atypical sales/discounting pattern in 2020 is generating base effects in the annual inflation rates of clothing and footwear

Figure 6: Monthly inflation rate in clothing and footwear over the last four years



Source: CSO and Central Bank of Ireland

Shortages of Key Inputs

Shortages of key inputs in the production process of certain sectors have driven up input prices. Unusual movements in shipping containers led to substantial delays and increases in transportation costs. A global shortage in semiconductor microchips as demand for electronic devices surged during the pandemic was coupled with natural disasters, fires and adverse weather conditions in three major suppliers. Early indications from PMI's suggest that the problem is not likely to dissipate until mid-2022, with both input, output and delivery times increasing and lengthening. According to a European Commission survey, almost 40 per cent of euro area firms faced material and/or equipment shortages in July 2021.

Looking at a more granular level, HICP sub-indices that currently see annual price increases above 5 per cent are mostly reflecting the sectors that are either energy related or currently experiencing supply shortages. In the majority of these cases, monthly inflation rates have recently been falling or stabilising although still at high levels.



These factors are expected to be temporary, but may take time to dissipate

While these factors are expected to be temporary, there is a risk that second round effects may result in a more generalised increase in prices that would be more persistent. One of the channels through which could occur is the role of inflation expectations. In theory, inflation expectations can play a role in determining future inflation as higher prices are embedded as workers demand higher wages to compensate for the increased cost of living.

Energy price increases, while excluded from core inflation measure, can affect core inflation in the future. There are direct effects on producers in the form of higher production costs for firms that use energy inputs. Some studies have shown that the most important transmission mechanism of energy price changes is through a disruption to consumer spending due to lower levels of current and future income.² These demand side responses to an energy price shock can lower inflationary pressures and counteract the positive inflationary impulse on the supply side from higher production costs. Therefore, while increases in energy prices negatively affect consumer income particularly at lower levels, international evidence suggest that energy prices changes can have a relatively limited pass-through to core inflation.^{3 4}

² Kilian, L. (2008). The economic effects of energy price shocks. *Journal of Economic Literature*, 46(4), 871–909.

³ There is no consensus in the literature on the aggregate effect on inflation of energy price shocks, although there seems agreement that the impact of energy price shocks on inflation has declined over time.

⁴ Castro, C., Jiménez-Rodríguez, R., Poncela, P. *et al.* A new look at oil price pass-through into inflation: evidence from disaggregated European data. *Econ Polit* 34, 55–82 (2017).