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Box E:

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## The impact of pandemic spending patterns on HICP weights and inflation in Ireland

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The new expenditure weights in the Harmonised Consumer Price Index for 2021 reflect the effects of the pandemic on average consumption patterns. This box reviews the changes and discusses the implications for measured inflation rates and inflation forecasts. Weight changes between years 2020 and 2021 were very large in comparison to previous weight updates, taking place every January since 2012. In the first two months of this year, changes in the weights led to higher inflation rates.

Consumer price inflation is measured as a percentage change in the price index between two periods. The price index, such as the Harmonised Consumer Price Index (HICP), tracks prices of a broad range of consumer goods and services (consumer basket) over time.<sup>1</sup> In order to calculate the overall consumer price index, different goods and services are assigned weights based on their share in the total household expenditure on goods and services covered by the index. Thus, the weights reflect the average expenditure by households on various categories of goods and services.<sup>2</sup>

In the context of the Irish HICP, the weights used to construct the price index in the current year (t) should be representative of the expenditure shares in the previous year (t-1) and are fixed within a calendar year.<sup>3</sup> In order to keep the price index representative of consumers' spending patterns, the weights are updated annually at the beginning of the year, using the previous year's expenditure

<sup>1</sup> There are around 600 items in the Irish HICP that are representative of goods and services in the average consumer's basket and around 51,000 prices are collected each month for this basket. These items are updated every five years using data from the Household Budget Survey.

<sup>2</sup> The HICP is a chain-linked Laspeyres-type price index, i.e. a 13-month series of Laspeyres-type indices for each year (December to December) are aligned into a single index in each December month (link month). More details are in the [HICP methodological manual](#) Chapter 8.

<sup>3</sup> In practice, these expenditure weights are based on full-year national accounts data for t-2 year due to lags in data availability and then price updated to the previous year.



patterns. In normal times, these expenditure shares do not change much over short periods of time and minor intra-year fluctuations in expenditure shares do not bias the measurement of consumer price inflation.

The coronavirus pandemic has generated significant challenges to the measurement of consumer price inflation. We witnessed large changes in household expenditure last year due to various restrictions imposed on the economy to contain the spread of the virus as well as changes in consumers' preferences for goods and services. For example, restaurant spending has declined while grocery spending has increased. People staying home led to reduced expenditure on transport and increased spending on home heating.<sup>4</sup> The fixed-within-calendar-year weights of items in the consumer price basket mean that the price index for 2020 had become less representative of actual consumption habits. This implies a bias in measured inflation.

**Table 1: Harmonised Consumer Price Index weight changes (% of total)**

HICP Item	2020	2021	Change
Goods	45.3	52.1	6.8
Services	54.7	47.9	-6.8
Restaurants and hotels	21.7	13.9	-7.8
Food and non-alcoholic beverages	10.8	14.9	4.1
Housing, water, electricity, gas and other fuels	11.5	13.5	2
Alcoholic beverages, tobacco	4.9	6.6	1.7
Transport	14.4	12.8	-1.6
Communications	2.8	3.9	1.1
Recreation and culture	8	7.1	-1
Furnishing, household equipment and routine house maintenance	5.3	6.2	0.9
Health	6.3	6.8	0.5
Miscellaneous goods and services	7.7	8.1	0.4
Clothing and footwear	4.8	4.5	-0.3
Education	1.9	1.9	0

Source: Eurostat

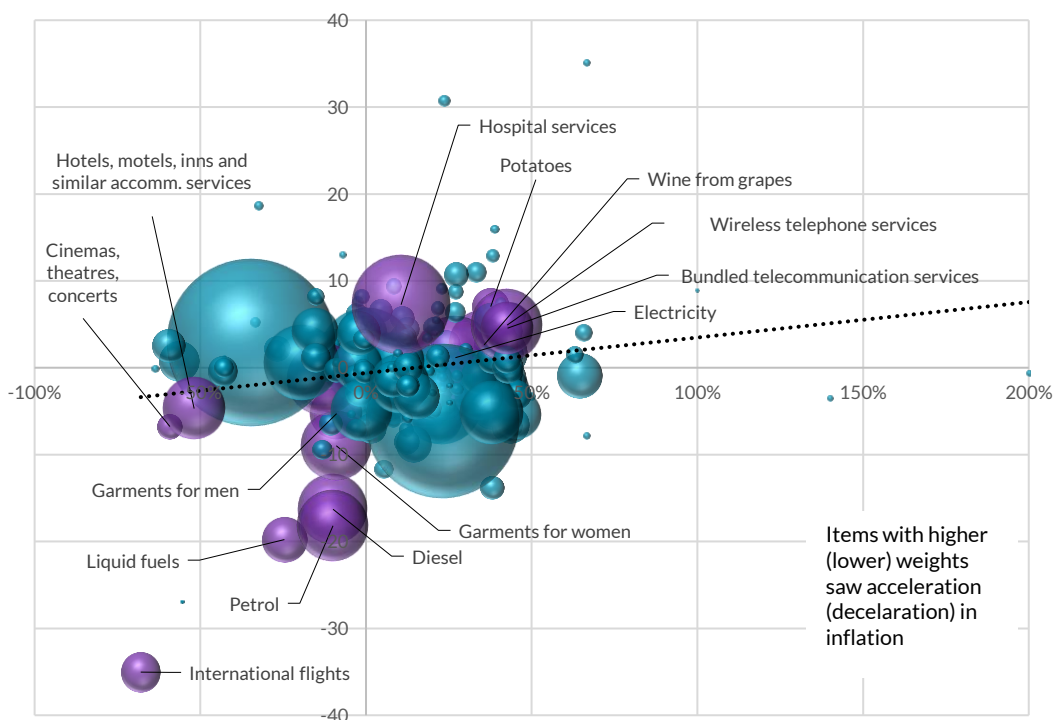
As of January 2021, these expenditure changes are now reflected in the HICP weights for 2021. Table 1 reports changes in weights for selected aggregate items. In general, the weight for Goods increased to 52.1% of the total consumer basket, while that of Services decreased to 47.9%. Looking at a more disaggregate level, the largest decline in the consumption basket's share is noted for Restaurants and

<sup>4</sup> As the expenditure shares are relative, even if euro spending on a specific good or a service did not change, the share of this expenditure in the overall spending may have changed due to higher or lower spending on other items.



Hotels, while Food and Non-alcoholic Beverages saw the largest increase in the weight. These changes are much greater than observed in the past.<sup>5</sup> Other notable changes in weights are observed for Housing, water, electricity, gas and others fuels and for Alcoholic beverages and tobacco, with higher shares in the basket for 2021. Also, the share of Transport in the basket declined by a relatively large amount. Similar patterns are also observed for the euro area HICP.<sup>6</sup>

**Figure 1: Consumers switched into some items with higher inflation and away from some items with lower inflation**



Source: Eurostat and authors' calculations. Note: The x axis shows percentage changes in the HICP weights (at 5-digit level) between 2021 and 2020 (%). Values on the y axis represent the difference (in percentage points) between average annual inflation for each item in January - February 2021 and January - February 2020. The size of the bubbles represent the item's current weight in the HICP basket. Hire of garages, parking spaces and personal transport equipment is not shown due to its scale (14.3%, 69.6, size: 0.8).

At the most disaggregate level for which data is publicly available<sup>7</sup>, there appears to be (on average) a positive relationship between the change in an item's weight for 2021 and change in its inflation rates. Figure 1 highlights several items that saw an increase (decrease) in the weight and higher (lower)

<sup>5</sup> Annual weight updating came into effect in 2012. The comparison is done with respect to 2012-2019 period.

<sup>6</sup> See the ECB Economic Bulletin, Issue 2, 2021, Box 6.

<sup>7</sup> COICOP-5 digit level.



inflation rates in January and February compared to the same months last year. The upward sloping trend line in Figure 1 signals that new weights contributed to measured inflation being higher in the first months of 2021.<sup>8</sup>

## Weight effects on inflation rates

A counterfactual exercise to calculate the HICP index assuming no change in the weights for 2021 can help to quantify the effect of weights on recent Irish inflation figures. This requires using the most detailed data on the HICP price sub-indices (Figure 1).<sup>9</sup> We then compare the counterfactual annual inflation rates for January and February in 2021 with actual figures of -0.1% and -0.4% for January and February, respectively. Without a change in the weights, HICP inflation would have been lower by approximately 0.4 (0.3) percentage points in January (February). This shows that new weights led to higher measured consumer price inflation.

In more detail, services inflation is around 0.6 p.p. higher on average in the two months of this year due to the weights update. Across services, transport-related services inflation is affected the most and it is around 5.3 p.p. higher. For non-industrial goods excluding energy and food, this inflationary effect is smaller, while for energy inflation the effect is deflationary (approx. 0.5 p.p. on average). This is in line with the weight effects reported for the euro area HICP.<sup>10</sup>

## Future implications

The HICP weights for 2021 may become less representative of actual consumption expenditure shares later this year and next year. We are likely to return to spending habits closer to normal over the course of this year and even more likely so in 2022.<sup>11</sup> Prices and total amount spent might increase in sectors for which there will be pent-up demand (e.g. restaurants) but the weights of these goods and services will continue to reflect the pandemic patterns.

In addition, the weight changes introduce a degree of uncertainty into the Bank's HICP inflation forecasts since the forecasts assume fixed weights over the projection horizon. Importantly, the effects of changes in weights can be seen most precisely at the most disaggregate level. However, forecasting inflation occurs at a higher level of aggregation and therefore the impact of the weights on forecasts is somewhat uncertain. The ECB has run a counterfactual COICOP-5 level exercise for two

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<sup>8</sup> As the expenditure weights are updated every year, annual inflation rates calculated for a given month in a given year will also reflect changes in the weights between the two years.

<sup>9</sup> This exercise closely follows the analysis for the euro area provided in the ECB Economic Bulletin Issue 2, 2021, Box 6. For further details on the index aggregation, see also Chapter 8 of the [HICP methodological manual](#).

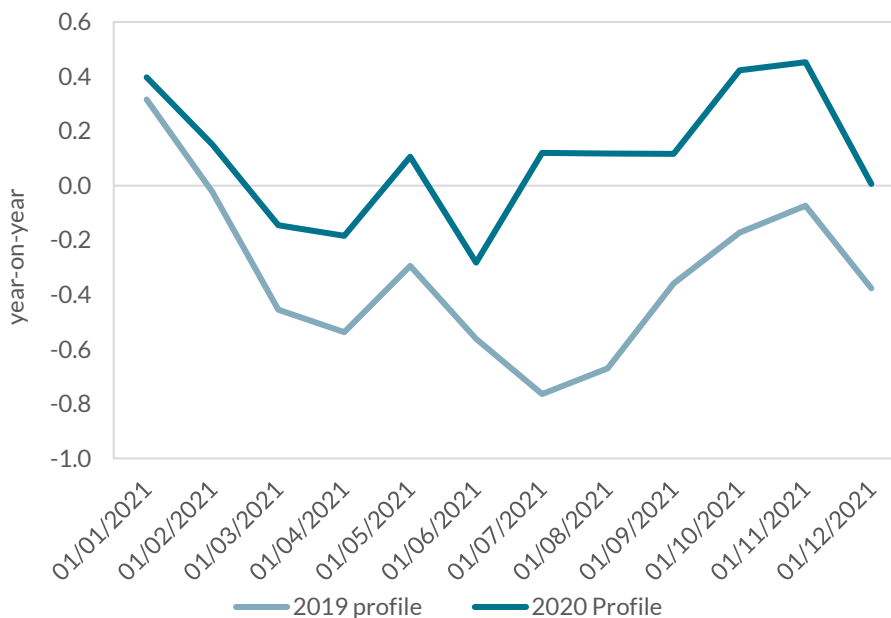
<sup>10</sup> See the ECB Economic Bulletin Issue 2, 2021, Box 6.

<sup>11</sup> According to the HICP methodological manual, the weights for 2022 should be representative of the consumption in the previous year, i.e. 2021. However, average actual consumption patterns in 2022 are likely to be quite different from those in 2021. Thus, some kind of adjustment in weights may be required.



hypothetical sets of forecasts and has shown that the effects of the weight changes depends crucially on the path of assumed future month-on-month changes.<sup>12</sup> The impact of the weight changes for Ireland was greater and more negative when a “normal” year-on-year profile was assumed. When the path for month-on-month inflation was assumed to take a similar path in 2021 as it did in 2020, the impact of the weight change was less negative. These results highlight the problematic nature of the shifts in consumption patterns given the current methodology in determining both current and future inflation. For available data this year, the expenditure weight change has resulted in higher measured inflation than in a no-change situation. This upward bias may change, however, if the inflation profile returns to a more normal profile in the latter stages of 2021.

**Figure 2: Impact of weight changes on 2021 inflation forecast simulation consumers**



Source: ECB calculations

<sup>12</sup> Using the old 2020 and new 2021 weights, as well as the assumed m-o-m paths for inflation, two implied paths for annual inflation in 2021 are calculated.