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Box E:

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Changes in real income across the distribution of Irish households

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Inflation can affect Irish households differently depending on the spending patterns observed across the income distribution. Previous analysis highlighted that lower-income households experienced relatively larger cost of living increases in 2021 and 2022. This is because energy and food account for a larger share of the overall expenditure of these households compared to higher-income households and these items experienced the largest increases in prices ([Lydon, 2022](#); [Boyd et al., 2022](#)). Just as households' experiences of inflation differ across the income distribution, there can be considerable variation in the growth rate of household income at different points on the distribution. For example, lower-income households typically rely on transfers as their main source of income, while wage earnings account for the bulk of income for households higher in the distribution. As a result, real disposable income growth can vary across the income distribution.

This Box explores price and nominal income developments by combining price and nominal income data since 2002 in order to generate real income profiles. Realised data at the household level are available for incomes, annually to 2021; and for prices, every 5 years to 2015. Data are simulated for periods without observed household level data using a combination of National Accounts, Eurostat and Quarterly Bulletin forecast data. The results show that over the period 2002 to 2021, for which realised data at the household level are available, real income growth was progressive, with lower-income households experiencing larger percentage gains than the highest income households. Preliminary analysis using data



simulated at the household level for 2022 and 2023 indicates that the position may have reversed in the last two years with a regressive pattern evident in real income changes.

Estimating Price Changes across the Distribution

To calculate price changes experienced by households at different points of the income distribution, we use Household Budget Survey (HBS) microdata to calculate expenditure weights across four main spending categories: food, goods, energy and services. These weights reflect the share of spending by households across the four categories and are calculated for five quintiles of annual household income. As the HBS is collected every five years, we extrapolate between HBS waves by applying changes in annual spending weights from Eurostat.¹ For example, with the most recent HBS data being for 2015, we extrapolate these 2015 expenditure weights forward to 2023 using Eurostat spending weights from 2015-2023.² We repeat this for each income quintile. Finally, we merge these income quintile-expenditure category weights with the equivalent sub-component of the HICP to calculate the price changes experienced by households across the quintiles of the income distribution. The results highlight that households in the first quintile experienced an annual HICP inflation rate of 5.1 per cent in September 2023 compared to 5 per cent at the aggregate level (Figure 1). For higher-income households in the fifth quintile, a comparatively lower inflation rate of 4.7 per cent is estimated. Changes in expenditure shares and price developments over time can lead to heterogeneous inflation rates across the distribution. Between 2002 and 2023, households in the first quintile experienced 2.7 percentage point higher growth in the price level they face compared to aggregate HICP, the highest amongst the five quintiles (Figure 2).³

¹Eurostat annual spending weights are calculated using HBS data and derive annual changes based on expenditure data from the National Accounts. See [Eurostat reference metadata](#) Section 18 for further details. This approach is consistent with that used by [Lydon \(2022\)](#) and [CSO inflation analysis by characteristic \(CSO, 2022 and 2023\)](#). It assumes a uniform growth in expenditure weights across all households and does not allow for changes in household spending behaviour.

² HBS data is available for 2000, 2005, 2010, 2015, see CSO, [HBS](#).

³ Between 2002 and 2019, households in the lowest quintile experienced 2.2 percentage point higher growth in the price level to aggregate HICP. Between 2019 and 2023, this was 1.2 percentage points.



Lower income households have experienced higher rates of inflation, especially since 2021, primarily due to energy and food price developments

Figure 1: Relative HICP inflation rate across household income distribution, 2002-2023

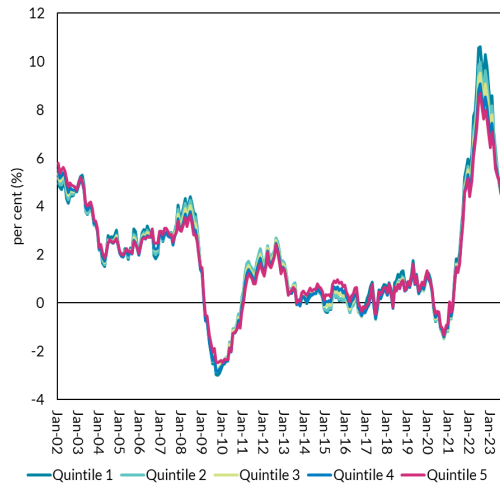
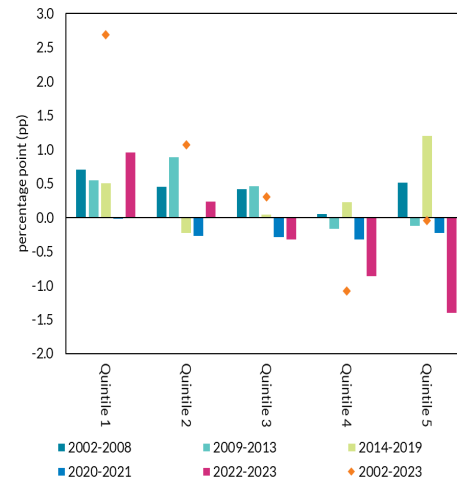


Figure 2: Deviation from headline HICP across household income distribution, 2002-2023



Source: CSO, Eurostat and author's calculations
Note: Last observation is September 2023

Estimating Income Changes across the Distribution

To estimate nominal income changes at different points of the distribution, we use microdata from the Survey of Income and Living Conditions (SILC). It includes data on market income, taxes, and transfers, which is particularly beneficial as not only do lower-income households receive a higher share of their net disposable income as transfers, the pandemic and subsequent impact on economic sectors saw households across the distribution avail of pandemic income-support measures.⁴ The most recent SILC relates to income received by households in 2021. In order to assess how changes in incomes across households may have evolved during the period of high inflation in 2022 and 2023, we extrapolate the data forward. In the case of 2022, we use the observed changes in market income, transfers and taxes in aggregate from the National Accounts while for 2023, we use Quarterly Bulletin forecasts.⁵ This is a relatively crude approach as it applies the same aggregate growth rates for these components to all income quintiles. At the same time, the approach generates

⁴ The impact of the pandemic on measures of income and earnings is discussed in detail by [Boyd et al \(2023\) in Box A.](#)

⁵ For full year 2023 the extrapolations are consistent with the macroeconomic forecast in the *Quarterly Bulletin*. Comparative distribution analysis with other datasets such as CSO EAADS and LFS+ shows complementary income trends across the household distribution in since 2021.



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heterogeneity across the net disposable income distribution as transfers are a larger share of income for lower-income households.⁶ The resulting nominal income profiles are presented in Figure 3.

Estimated Real Income Changes across the Distribution

Combining our price indices and nominal income profiles, we generate real household disposable income profiles for each quintile of the income distribution. Figure 4 shows that over the 2002-2021 period (for which realised data are available) both real and nominal income growth has been strongly progressive, with the first quintile experiencing an average 2.6 per cent real income growth each year, compared to an average of 1.4 per cent in the fifth quintile. This progressive pattern is typically strongest during economic expansions (namely 2002-2007 and 2013-2019), whereas real income changes were regressive during the financial crisis and the immediate aftermath (2008-2013).⁷ The progressive role of taxes and transfers was particularly beneficial to lower income quintiles. Over the 2002-2021 period, taxes and transfers contributed 2.1 percentage points to the 2.6 per cent annual real income growth experienced by these households. This compares to a contribution of 0.1 percentage point to the 1.5 per cent real income growth observed at the aggregate level.

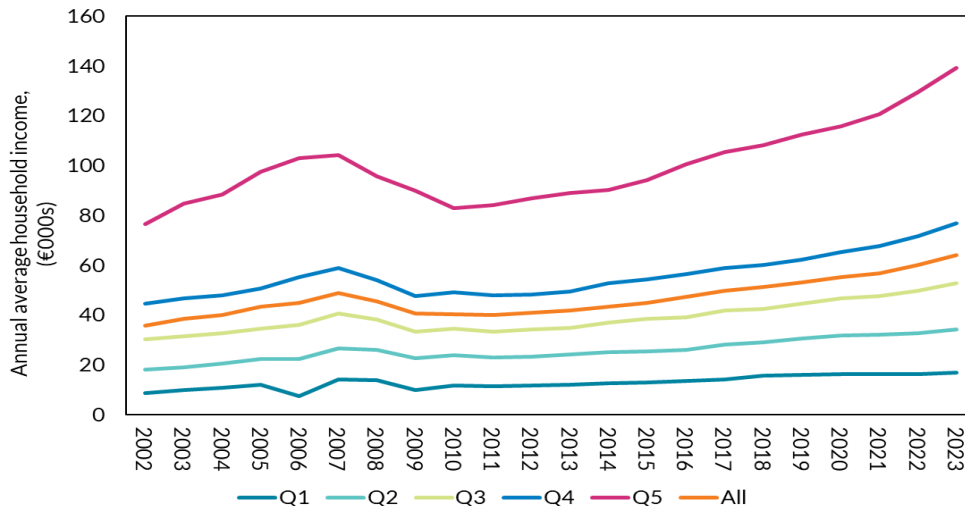
⁶ The share of transfers (market) in net household disposable income is 84.6 (18.3) per cent and 13.8 (131.7) per cent on average over 2002-2019 for Q1 and Q5 households, respectively.

⁷ Similar findings are described by [Roantree and Doorley \(2023\)](#) whereby the bottom quintile experienced 5.1 per cent real disposable income growth between 2012 and 2021 relative to 2.7 per cent growth for the top quintile.



Higher-income households have experienced faster growth in nominal disposable income, particularly since 2019, due to their larger share of market income

Figure 3: Household nominal disposable income across the household income distribution



Source: SILC and author's calculations

Note: Data from 2001 to 2021 are observed data in published SILC releases. Data for 2022 and 2023 are extrapolated using aggregate changes in wage earnings, taxes and transfers from the National Accounts

Using the extrapolated data for 2022 and 2023, our estimates suggest that households in the upper-end of the income distribution experienced the strongest real income growth (Figure 5). This finding is consistent with earnings data trends showing larger growth rates in the higher-earning economic sectors during the pandemic recovery, after accounting for distortionary issues in measured employment levels (Boyd, Keenan, McIndoe-Calder (2023)). Social transfers remain the largest contributor to income growth for the lowest quintile in 2022-2023, contributing 4.7 percentage points to growth, though this is strongly outweighed by the relative inflation rate resulting in -3.7 per cent decline in real incomes. While market income growth is lower the further down the distribution, targeted social transfers can be highly beneficial in addressing regressive income trends. Furthermore, indications that the distribution of income growth is likely to have been regressive over 2021-2023 is consistent with previous periods during which the economy has experienced negative shocks. For example, from 2009-2013, household income declined across the distribution but households in the top quintile experienced a smaller decline (-1.4 per cent per year) than households in the first (-2.1 per cent per year). Doorley and Roantree (2023) find similar results for Ireland focussing on real equivalised household income over the 1987-2021 period.

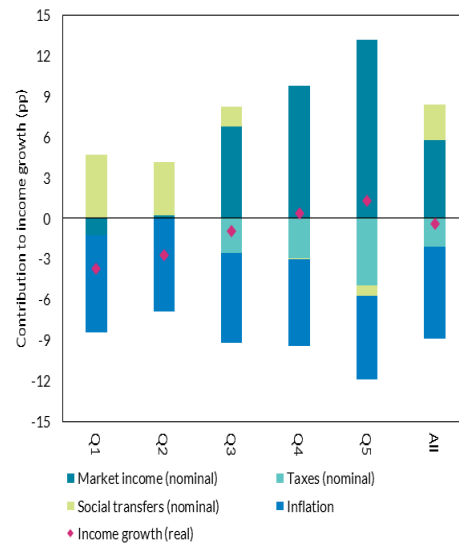


Over 2002-2021, disposable income growth was progressive with higher growth for lower-income households; however, the purchasing power of lower-income households is likely to have been most adversely impacted by the recent inflationary period

Figure 4: Disposable income components' contribution to real income growth across the household income distribution, 2002-2021 (%)



Figure 5: Disposable income components' contribution to real income growth across the household income distribution, 2022-2023 (%)



Source: SILC, HBS and authors' calculations

Comparing the real income profiles across years, the results suggest that the real disposable income of households in the first quintile in 2023 is similar to 2017 levels. The situation improves along the distribution. For instance, under our simulation analysis, households in the third quintile show a real income profile in 2023 that sits between its 2019 and 2020 profiles, while households in the top quintile have higher real incomes than in all previous years. This analysis highlights the heterogeneous impact of the recent period of high inflation on households at different points in the income distribution.

In conclusion, this *Box* combines the different developments in income and inflation experienced by households across the income distribution. Over the period 2002-2023, real income growth has been broadly progressive. However, the simulation exercise suggests the pattern reversed somewhat during the period of high inflation since 2021. Looking ahead, projections in this *QB* indicate that aggregate real gross disposable income growth will increase by an average of 4 per cent over the forecast horizon following observed lower



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growth (1.2 per cent) in the 2021-2023 period. Improved targeting of fiscal measures would enhance the progressivity of income growth and restore real incomes of lower income households to pre-pandemic levels more quickly.