Box 2
THE IMPACT OF INFLATION AND HIGHER INTEREST RATES ON HOUSEHOLDS' FINANCIAL SITUATION BY INCOME LEVEL

High inflation and monetary policy tightening in the euro area are having an adverse impact on households' financial situation in recent quarters. Although households' nominal gross disposable income (GDI) in 2022 was 6.8% higher than in 2020, their purchasing power in that period fell by 4.5% as a result of inflation. This has restricted Spanish households' ability to spend and save. Inflation has also eroded the real value of more liquid financial assets, limiting households' ability to use their savings to cover their expenses. Moreover, although inflation also reduces the real value of households' debts, higher interest rates have driven up the interest burden for households with variable-rate loans, which has also reduced their ability to spend.

The effects of rising inflation and higher interest rates on households' financial situation and consumption are uneven across households, as they depend on the composition of their spending, their ability to save, their level of indebtedness and type of debt and their financial asset holdings. All these factors tend to vary by income level.

This box draws on information from the *Encuesta Financiera de las Familias* (Spanish Survey of Household Finances), specifically EFF 2020 which is the latest wave available, to identify the different impact that higher inflation and interest rates could have according to households' income level.[1]

Lower income households are more vulnerable to rising inflation owing to the composition of their consumption basket and their lower ability to save. The consumption of households in the bottom quintile of the income distribution absorbs almost all their disposable income and is more concentrated on staple goods and services. Specifically, 55% of their income is spent on staple goods such as food and basic utilities (water, electricity, telephone, etc.), compared with 30% for those in the median quintile (see Chart 1). If rental of the main residence and debt servicing (interest plus principal payments)[2] are included, in 2020 essential expenditure amounted to 79% of income of households in the bottom income quintile, compared with 44% for those in the median quintile. Moreover, inflation has had a considerable impact on staple goods and services, which has meant that lower income households have borne higher rates of inflation than the economy overall.[3] According to García-Miralles (2023),[4] between August 2021 and September 2022 the inflation borne by the bottom 30% of households by income was around 11.3%, compared with 9.7% for the top 30%.

To assess the impact of higher inflation and interest rates by income level, the following exercise is conducted. First, the impact of inflation is assessed for each income quintile in the EFF 2020. This is done by applying, to each component of essential consumption expenditure, the cumulative inflation in 2021 and 2022 according to the corresponding heading of the Harmonised Index of Consumer Prices (HICP).[5] The simulation is made under the assumption that nominal household income increases by 6.8%, equivalent to the increase in households' GDI in the National Accounts between

1 The income variable in the EFF refers to total gross income before tax, that is, the sum of all income received by all household members including, inter alia, employment income, capital income and income from public transfers.

2 All debts are included: main residence and other real estate debts, credit card debts and others.

3 For an analysis of the distributional effects of inflation in Spain between 2006 and 2021, see Henrique Basso, Ourania Dimakou and Myroslav Pidkuyko. (2023). "How inflation varies across Spanish households". Documentos Ocasionales – Banco de España, 2307.

4 García-Miralles, Esteban. (2023). "Support measures in the face of the energy crisis and the rise in inflation: an analysis of the cost and distributional effects of some of the measures rolled out based on their degree of targeting". *Economic Bulletin – Banco de España,* 2023/Q1, 15.

5 The information on main residence rental expenditure is drawn from the Ministry of Transport, Mobility and Urban Agenda. There are no data available for 2022 so the HICP figure is used.

Box 2

THE IMPACT OF INFLATION AND HIGHER INTEREST RATES ON HOUSEHOLDS' FINANCIAL SITUATION BY INCOME LEVEL (cont'd)

Chart 1
Distribution of household expenditure in 2020

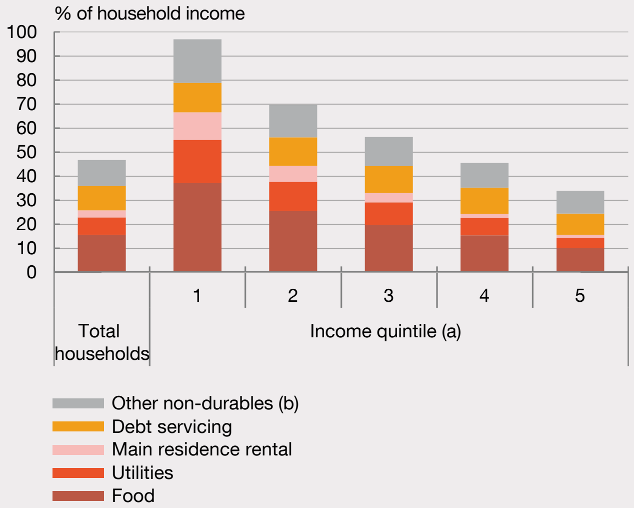


Chart 2
Financial situation in the face of higher inflation and interest rates. Total households (c) (d)

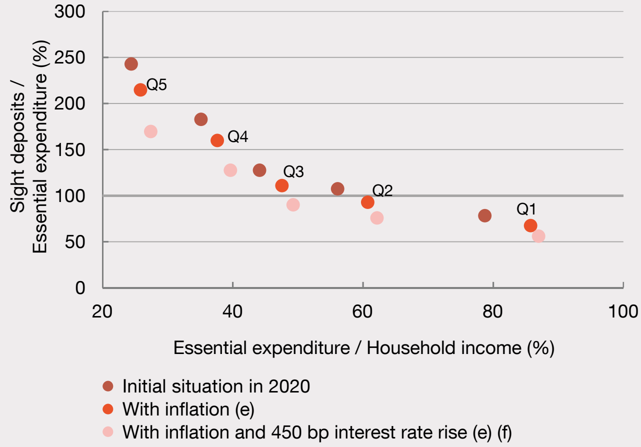


Chart 3
Percentage of households that cannot meet their essential expenses with either their income or their sight deposits (c)

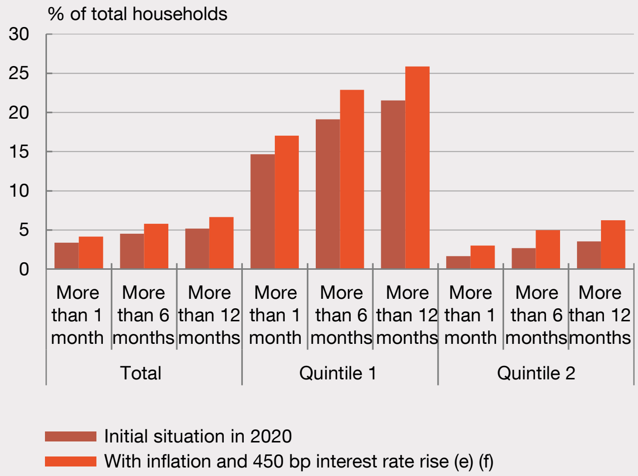
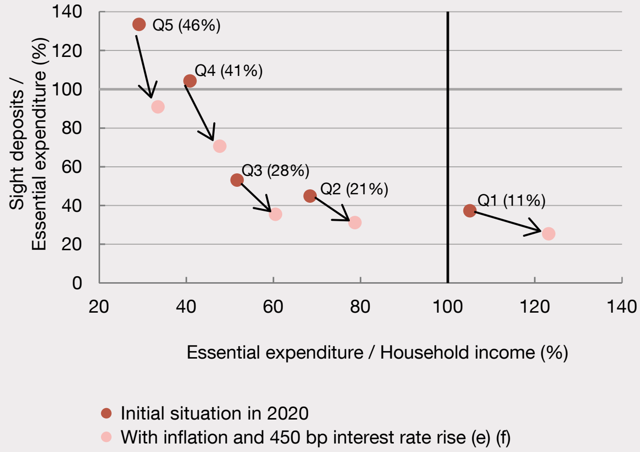


Chart 4
Financial situation in the face of higher inflation and interest rates. Households with variable-rate debt (c) (d) (g)



SOURCES: Banco de España, EFF 2020 and INE.

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a The income quintiles are defined for the sample of all households.
b Expenditure not included in food or utilities, such as leisure, education, travel, etc., excluding expenditure on durable goods.
c Essential expenses are defined as the sum of the expenditure on food, utilities, rental of main residence and debt servicing.
d Mean ratios calculated as the sum of the numerator of the households in each quintile divided by the sum of the denominators of the households in each quintile.
e The impact of inflation is obtained by multiplying each component of essential consumption expenditure by the cumulative inflation in 2021 and 2022. Household income is updated in line with nominal GDI growth.
f It is assumed that interest rate rises are passed through fully to the cost of variable-rate loans and that sight deposits decline owing to the shift to time deposits. Specifically it is understood that sight deposits decrease in terms of the historical relationship between their share of total deposits and the interest rate differential between the two deposit types.
g The figures in brackets denote the percentage of households with variable-rate loans in the quintile.

Box 2

THE IMPACT OF INFLATION AND HIGHER INTEREST RATES ON HOUSEHOLDS' FINANCIAL SITUATION BY INCOME LEVEL (cont'd)

2020 and 2022, and that this increase applies equally to all households. This is a simplifying assumption, owing to the lack of more granular data, which fails to take into account changes in the income distribution that could affect some of the simulations made here.[6]

Second, the additional impact is considered of an interest rate rise of 450 basis points (bp), in line with the increase observed in the 12-month EURIBOR from December 2021 to the cut-off date for this report. Under the simulation assumptions, this interest rate rise is passed through fully to the cost of variable-rate borrowing, and partially to deposit interest rates.[7] The increase in interest rates also affects the composition of deposits. Specifically, it is assumed that there is a shift from sight deposits to time deposits, with sight deposits decreasing in terms of the historical relationship between their share of total deposits and the interest rate differential between the two types of deposits.

Under these assumptions, the essential spending of households in the first income quintile rises from 79% of their total gross income in 2020 to 86% in 2022 as a result of inflation, and to 87% adding in the impact of the higher interest rates (see Chart 2). These households also have fewer liquid financial assets available to meet their consumption needs. In 2020, the sight deposits of households in the bottom income quintile covered only 78% of their annual essential consumption. The impact of inflation and the interest rate rises reduce this figure to 56%. Moreover, for households in the first three income quintiles, the capacity of their sight deposits to cover their essential expenditure drops below 100%. This could be a more widespread restraint on consumption.

The rising cost of living and of debt servicing drives up the number of households whose income is not sufficient to meet their essential expenses. In 2020, 7% of households had insufficient total gross income to meet their essential expenses; in 2022, given the higher inflation and interest rates, this figure rises to 9%. The percentage of financially fragile households – defined as those who cannot meet more than one month's essential expenses with either their income or their sight deposits – rises from 3.4% to 4.1%[8] (see Chart 3). These figures are significantly higher in the first income quintile, where the percentage of financially fragile households rises from 14.6% in 2020 to 17%[9] in 2022.[10] The percentage of

6 The EFF 2020 does not reflect the poor performance of low incomes during 2020 as a result of the pandemic. The EFF income variable refers to the calendar year preceding the survey year, updated in line with the CPI. Accordingly, the vulnerability indicators calculated for the initial situation in 2020 may be relatively optimistic, especially for low income households. This situation was subsequently reversed as a result of the social protection measures implemented and employment growth, as seen in the *Encuesta de Condiciones de Vida* (Spanish Living Conditions Survey) with data up to 2021 where income growth is proportionally higher among the low income brackets. If the stronger recovery in low incomes since 2020 were taken into account, the vulnerability indicators simulated for 2022 would show less deterioration than that shown here.

7 Specifically, drawing on historical evidence, the elasticity assumed is 0.16 for sight deposits and 0.87 for time deposits. In any event, the evidence available since the rate hiking cycle began in early 2022 shows that, so far, the pass-through to time deposits is slower than in the past. See Banco de España. (2023). "Chapter 3. The current episode of price pressures in the euro area, the monetary policy response and its effects". In Banco de España, *Annual Report 2022,* pp. 140-180.

8 This percentage barely changes if other financial assets available to cover essential expenditure are considered.

9 If other financial assets available, such as time deposits, listed shares, investment funds and other debt securities, are considered, these percentages barely change. Specifically, given this broader definition of financial assets available to cover expenses, 14.6% of households are unable to cover more than one month's essential expenditure in 2020, and 16.3% in 2022, that is, just 0.7 pp less than under the assumption that only sight deposits are used to cover these expenses.

10 See also Banco de España. (2023). "Box 1.1 Impact of inflation and interest rate developments on households' financial fragility". *Financial Stability Report – Banco de España.* Spring 2023. The box sets out the percentages of fragile households, understood as indebted households whose monthly income plus the available balance on their bank accounts are not sufficient to cover their main monthly expenses. The percentages of households deemed financially fragile differ from those shown in Chart 3 essentially because different expenditure aggregates are used, and because from a financial stability standpoint the focus is on indebted households.

Box 2
THE IMPACT OF INFLATION AND HIGHER INTEREST RATES ON HOUSEHOLDS' FINANCIAL SITUATION BY INCOME LEVEL (cont'd)

households with deposits that are not sufficient to meet the essential expenses not covered by income for more than six months increases from 4.5% to 5.8%. For the first income quintile it rises from 19.1% in 2020 to 22.9% in 2022.

Given that higher interest rates have a direct impact on households with variable-rate loans, the results of the simulation shown in Chart 2 are repeated in Chart 4 exclusively for households with variable-rate loans. It shows that these households are more vulnerable, irrespective of their income levels. Not only because they devote a larger proportion of their income to meeting their essential expenses (which, as explained earlier, include debt servicing), but also because their liquid assets cover a smaller proportion of those expenses. Moreover, these households are more severely affected by inflation and higher interest rates. For instance, for the median income quintile, when the full sample is considered the percentage of income devoted to essential expenditure increases from 44% to 49%, whereas for the households with variable-rate loans it rises from 52% to 60%. Vulnerability is concentrated, once again, in the first two income quintiles, where financial fragility is higher and is increasing. However, the percentage of indebted households in these groups is quite low: 11% in the first income quintile and 21% in the second, compared with over 40% in the top two quintiles.

The results obtained show that lower income households are more vulnerable to inflation and rising interest rates. This could advise the introduction of economic policy measures to support these households. In this respect it is important to note that these simulation exercises do not consider other key aspects that have affected households' financial situation in recent quarters. Specifically, among other measures, the income transfers to low income households, the one-off increase in non-contributory pensions, the introduction of the minimum income scheme and the reform of the Code of Good Practice[11] can be expected to have helped mitigate some of the effects described here.

11 See Banco de España. (2023). "Special Feature. Codes of good practice for principal residence mortgages and supplementary measures". *Financial Stability Report – Banco de España*. Spring 2023. https://www.bde.es/f/webbde/Secciones/Publicaciones/InformesBoletinesRevistas/InformesEstabilidadFinancera/23/FSR_2023_1_SF.pdf

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