The Cost-of-Living Crisis Impact on European Households: the Role of Inflation and the Policy Response

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Introduction

- ► The 2022 inflationary shock affected households through consumption, income and wealth.
- ► Moreover the inflationary shock was met with a strong monetary and fiscal policy response.

Our contribution:

1. Provide a comprehensive framework to assess various channels of infl shocks and policy response.
2. Quantify size of various channels across households groups for EA countries.

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Recent contributions

- ▶ Amores, Basso, Bischl, De Agostini, Poli, Dicarlo, Flevotomou, Freier, Maier, García-Miralles, et al., 2023
  - ▶ study the impact of inflation via income and consumption in the EA, and
  - ▶ analyse the cushioning effect of fiscal policy using EUROMOD

- ▶ Cardoso, Ferreira, Leiva, Nuño, Ortiz, Rodrigo, and Vazquez, 2022
  - ▶ study the impact of inflation in ES via consumption, income and wealth
  - ▶ use BBVA proprietary dataset (don't consider policy response).

- ▶ Pallotti, Paz-Pardo, Slacalek, Tristani, and Violante, 2023
  - ▶ study the impact of inflation via consumption, income and wealth
  - ▶ use HFCS data for DE, FR, IT and ES and account for fiscal policy.

- ▶ Many other Studies, mostly focusing on heterogeneous consumption
  - ▶ Battistini, Di Nino, Dossche, Kolndrekaj (2022), Menyhert (2022) etc

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The household budget constraint

$$\sum_k P_{k,t} c_{j,k,t} = P_t y_{j,t} + B_{j,t-1}^{(t)} + P_t b_{j,t-1}^{(t)} + \sum_{s \geq 1} Q_t^{(t+s)} \left(B_{j,t-1}^{(t+s)} - B_{j,t}^{(t+s)} \right)$$

$$+ \sum_{s \geq 1} q_t^{(t+s)} P_{t+s} \left(B_{j,t-1}^{(t+s)} - B_{j,t}^{(t+s)} \right) - P_t \tau \left(y_{j,t} \; ; \; \{c_{j,k,t}\}_k \right) (1)$$

where:

- $B_{j,t}^{(t+s)}$ are zero-coupon nominal bonds maturing in $t+s$

- $b_{j,t}^{(t+s)}$ are zero-coupon real assets maturing in $t+s$

- $\tau \left(y_{j,t} \; ; \; \{c_{j,k,t}\}_k \right)$ are taxes, benefits and subsidy.

- $c_{j,k,t}$ is consumption of good k by household j

- $y_{j,t}$ is net income

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Main assumption

Following Auclert (2019), we analyse the impact of an unexpected temporary increase in inflation at time t:

A1: The shock is unexpected and one-period. In all others, inflation is as expected and normalised to $\overline{\pi}$:

$$\pi_{\tilde{t}} = \begin{cases} \overline{\pi} & \text{at } \tilde{t} \neq t \\ \overline{\pi} + d\pi & \text{at } \tilde{t} = t \end{cases}$$

and $E_t \pi_{t+1} = \overline{\pi}$ for all t.

A2: The monetary authority responds to the inflationary shock by increasing interest rates at time t by dR moving all bond prices $dQ/Q = -dR/R$.

A3: Nominal incomes are indexed to inflation by a share, λ.

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The impact of inflation

The first-order impact of inflation will then read:

$$da_{j,t}^{(\pi)} = - \left[\underbrace{NNP_{j,t}}_{\text{Fisher effect}} + \underbrace{(1 - \lambda_{j,t})y_{j,t-1}^{(t)}}_{\text{Nominal income}} + \underbrace{\left(\frac{d\pi_j}{d\pi} - 1\right)c_{j,t}}_{\text{Relative consumption}} \right] d\pi \qquad (2)$$

where:

Fisher effect is the devaluation of nominal assets and liabilities.

Nominal income is the devaluation of nominal income.

Relative consumption is the relative inflation rate.

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The impact of fiscal and monetary policy

The first-order impact of fiscal policy via income and price measures:

$$da_{j,t}^{(\tau)} = - \left[\underbrace{d\tau_y\left(y_{j,t}\right)}_{\text{Income-side measures}} + \underbrace{d\tau_c\left(\{c_{j,k,t}\}_k\right)}_{\text{Price-side measures}} \right] \qquad (3)$$

and the impact of monetary policy via the interest rate increase:

$$da_{j,t}^{(R)} = URE_{j,t}\, dR \qquad (4)$$

where $URE_{j,t} = \frac{B_{t-1}^{(t)}}{P_t} + b_{t-1}^{(t)} + y_{j,t} - \tau\left(y_{j,t}\,;\,\{c_{j,k,t}\}_k\right) - \sum_k \frac{P_{k,t}}{P_t} c_{j,k,t}$ is the difference between maturing assets and maturing liabilities.

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Empirical strategy

We combine data from different sources:

- ► Data on household (gross) income and consumption, wealth and its composition are obtained from the third wave of HFCS.

- ► Info on households consumption baskets is obtained from the 2015 HBS.

- ► Fiscal effects are from Amores, Basso, Bischl, De Agostini, Poli, Dicarlo, Flevotomou, Freier, Maier, García-Miralles, et al., 2023 estimates based on EUROMOD and its Indirect Tax Tool (ITT) extension.

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Impact of inflation across EA income groups

in % of disposable income

Legend: Fisher effect | Nom. income channel | Rel. consumption channel | Inflationary impact

X-axis: Income Decile (1–10)

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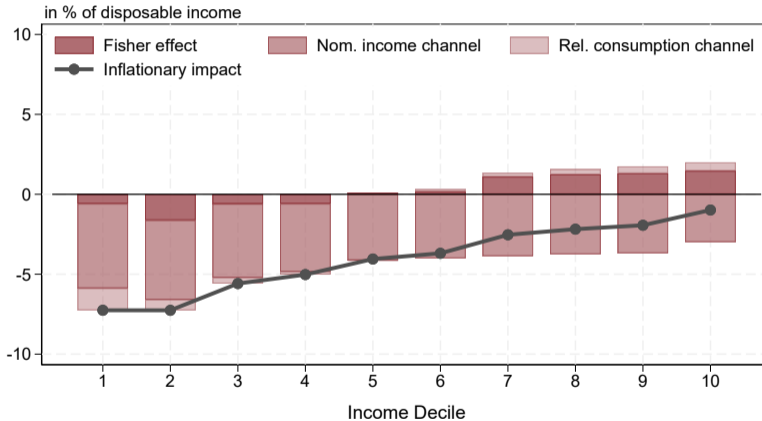
Impact of monetary policy response

in % of disposable income

By country .

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Impact of fiscal policy response

in % of disposable income

Chart legend: Income-side measures, Price-side measures

X-axis: Income Decile (1–10)

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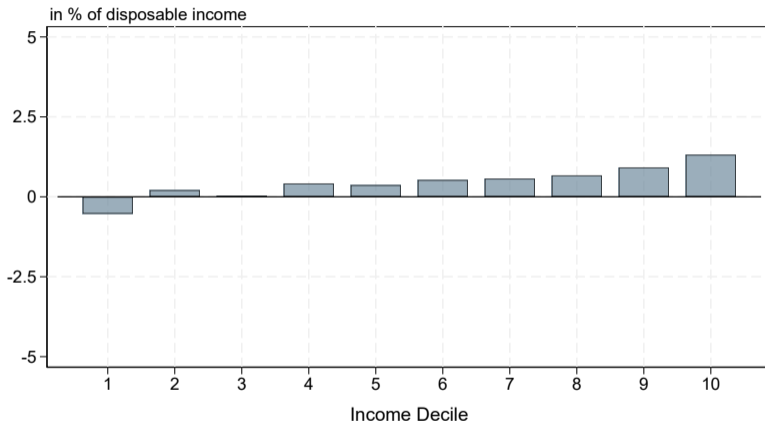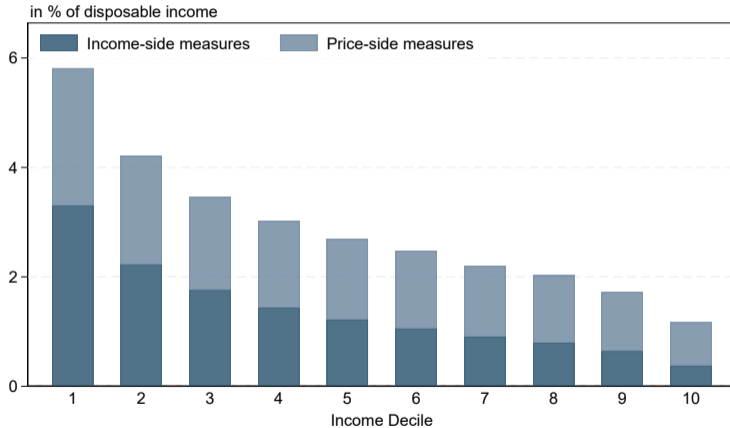
Total impact: inflation and policy response

in % of disposable income

Legend: Fisher effect, Nom. income channel, Rel. consumption channel, Fiscal measures, Monetary measures, Total effect

Income Decile

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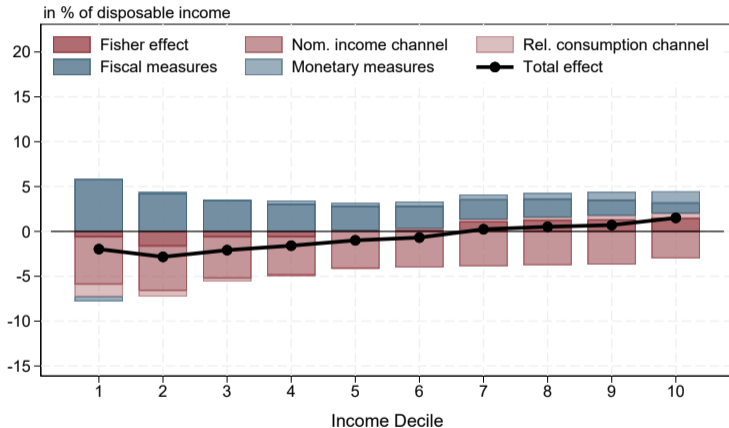
Mortgagees win, pensioners loose..
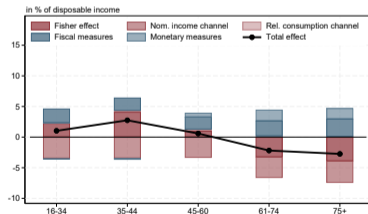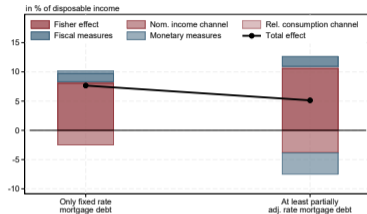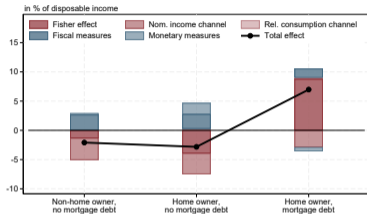
Conclusions

► We propose a simple framework, based on publicly available household balance sheet data, to study the heterogeneous impact of a shock and the policy response to it.

► Applied to the 2022 inflation shock, we find a pronounced regressive pattern with lower income households more negatively affected.

► Households with mortgage debt, in particular with fixed interest rates, are among the winners of the inflation surge, while older individuals with large nominal net savings positions have lost most.

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Thank you

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Appendix

HH characteristics along income distribution

Age groups

Income and Wealth Deciles

Home ownership + mortgages

Consumption basket
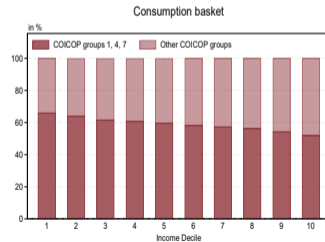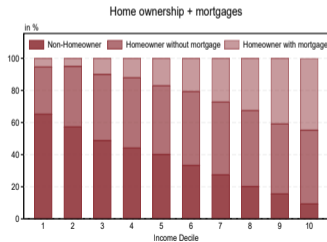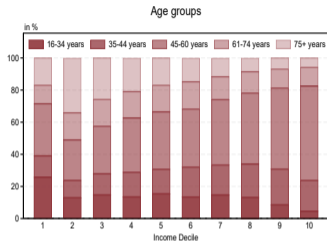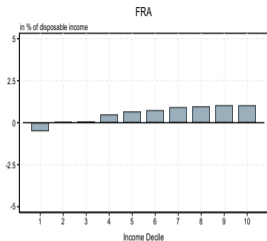
Impact of inflation across countries
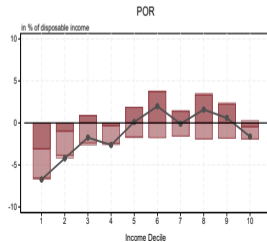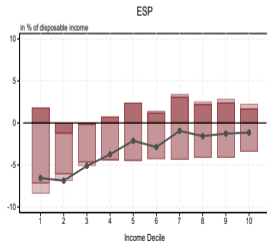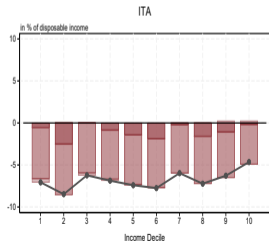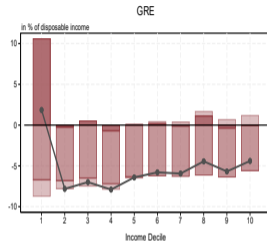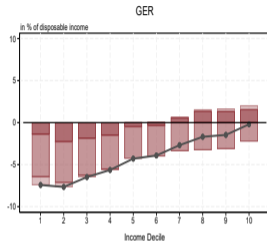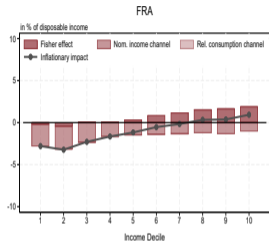
Impact of monetary policy across countries
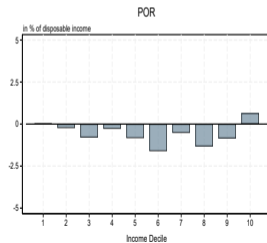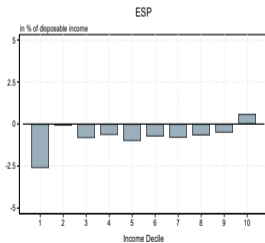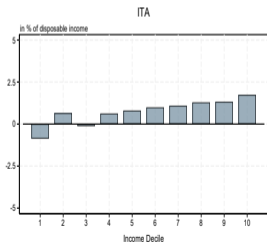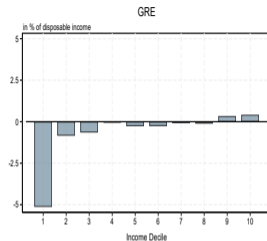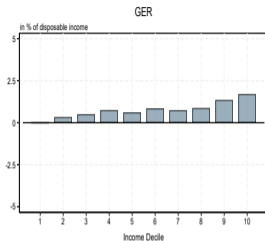
Total impact across countries