

The effect of energy inflation on energy expenditure and energy poverty: evidence from microsimulations in ECOP model

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- Energy Consumption and Poverty Model (ECOP): non-behavioral microsimulation model
- The aim is to assess:
 - the impact of energy price changes on household expenditure and energy poverty;
 - the distributional impacts of mitigation policies to compensate the increase in energy spending;
 - The effectiveness of targeted vs non-targeted policies in the context of Italy's transition to a free-market energy regime.
- New Dataset: Integrated income, expenditure and policies (IIEP) dataset that matches:
 - VATIC 2024 dataset: energy prices and data on social protection and social security; exact and statistical matching (SILC, HBS, TAX Register data); SILC HHs with associated data on expenditure from HBS survey
 - Matching between VATIC 2024 dataset with the data on ISEE-INPS (TAXBEN-DF model) and data on energy prices (ARERA and NIC-ISTAT)

- Application:

- Baseline scenario: 2024 – transition from regulated to liberalized energy market
- Baseline+ social energy allowances
- Several simulated scenarios (increased cost of energy component by 5%, 10%, 15%, 20%)
- Effect of mitigation policies like energy social allowance ('Bonus sociale')
- Impact of energy price increase on energy poverty (modified LI-HC index)
- Distributional impacts on HHs expenditure and EP by soci-demographic characteristics and energy expenditure

- Results:

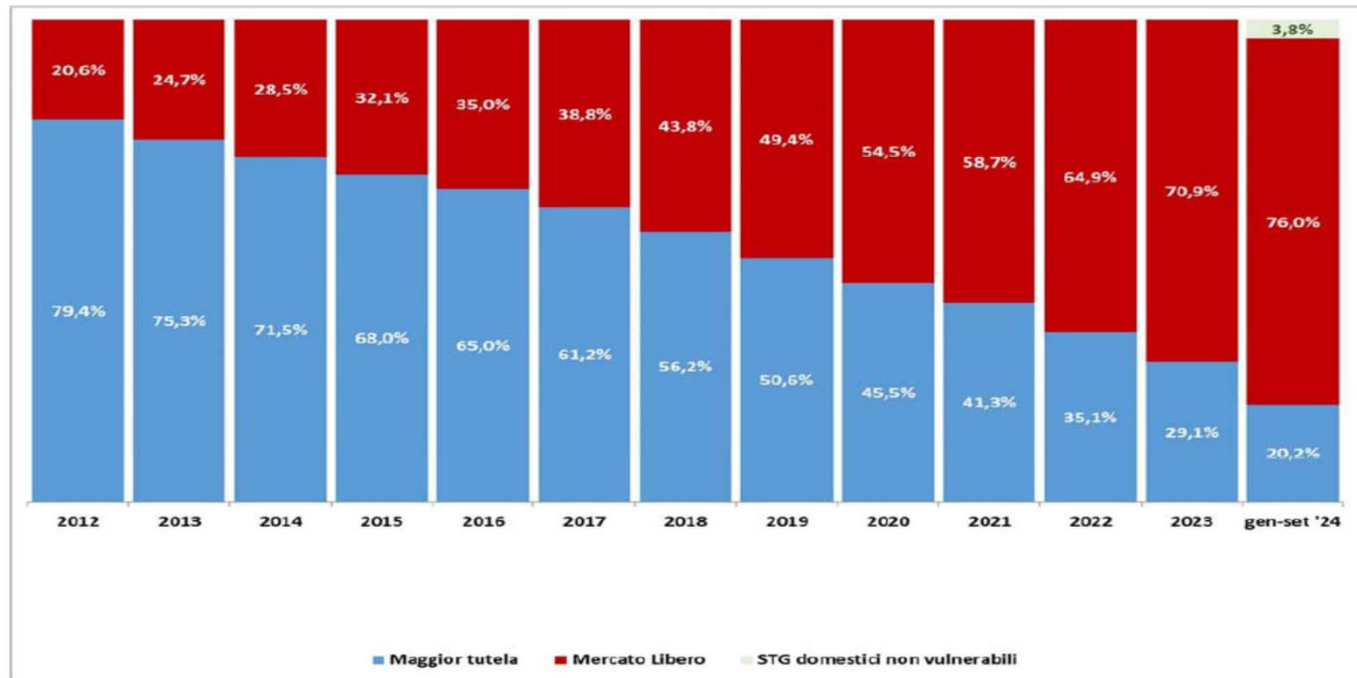
- Baseline: EP 8.73%, mainly for two-member HHs with no children
- Energy benefit schemes have been effective in reducing EP among all HHs types
- A 20% increase of energy price component increases EP to 9.20% and average energy expenditure by 177 € (117 € for energy poor HHs)
- Non-linear relationship between EP and HHs wealth (ISEE): increasing probability to fall into EP beyond a certain threshold

- Integrated income, expenditure and policies (IIEP) dataset :
 - Highly rich and detailed information on HHs both on the expenditure and the income side plus wealth (ISEE)
 - Exact vs statistical matching
 - HBS as reference database for energy expenditure instead of SILC
- *Ad hoc* procedure to retrieve quantities of energy consumed
- HHs with positive expenditure and expenditure with energy social allowances (zero consumption HHs)

- Assessing the effect of energy inflation: the evolution of energy market in Italy

SETTORE ELETTRICO

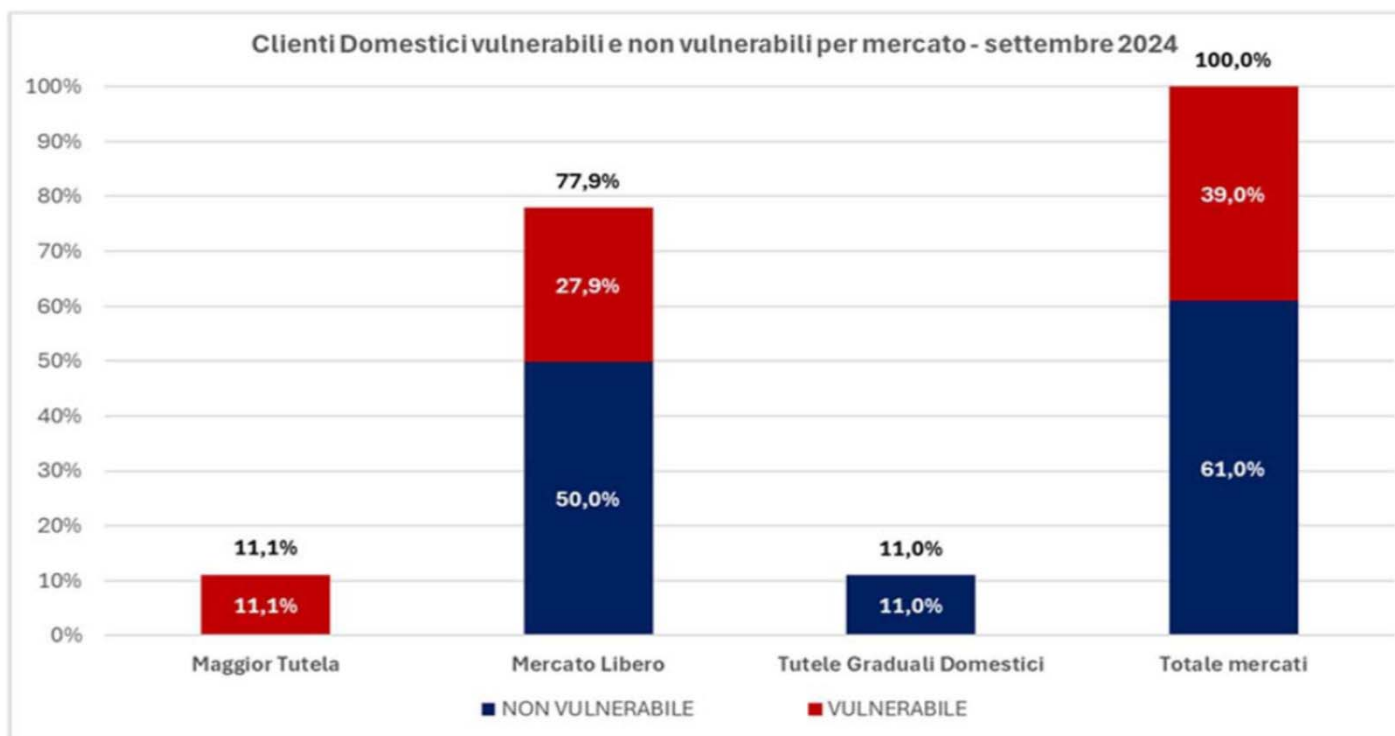
Grafico 1. Consistenza dei mercati dei punti di prelievo Domestici - evoluzione temporale



Source: ARERA (2025) Monitoraggio sull'evoluzione dei mercati di vendita al dettaglio dell'energia elettrica e del gas

- Assessing the effect of energy inflation: the evolution of energy market in Italy

Grafico 3. Distribuzione dei clienti vulnerabili e non vulnerabili per mercato, settore elettrico – settembre 2024.



Elaborazioni ARERA su dati estratti dal SII

Source: ARERA (2025) Monitoraggio sull'evoluzione dei mercati di vendita al dettaglio dell'energia elettrica e del gas

- Assessing the effect of energy inflation: the evolution of energy prices and energy market structure

FIG. 2.30 Inflazione generale e dell'energia elettrica a confronto nell'ultimo triennio

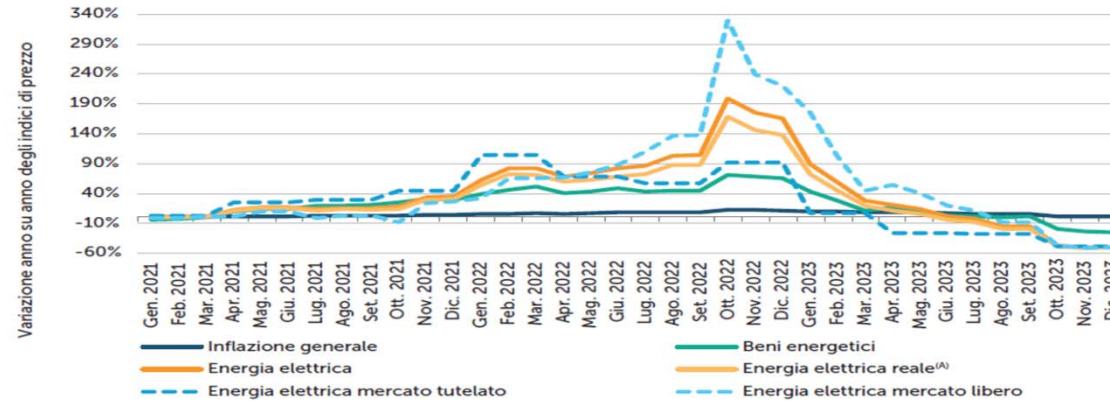
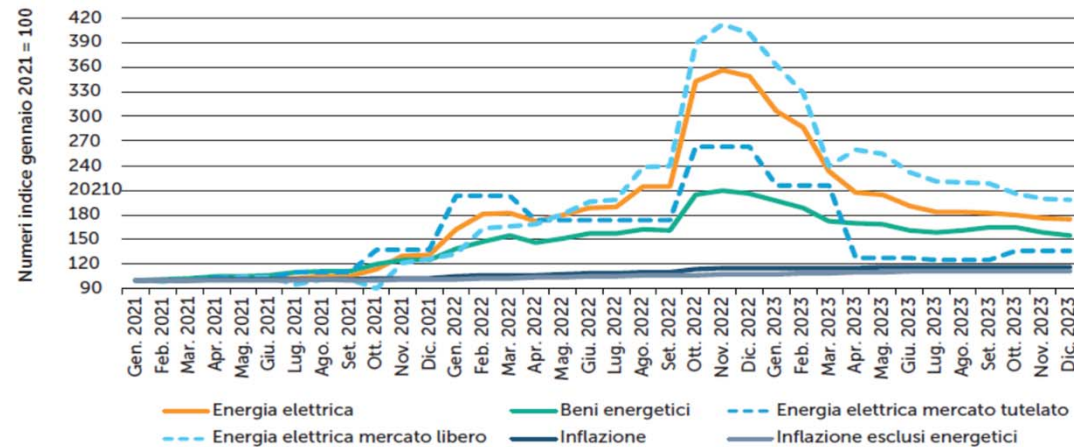


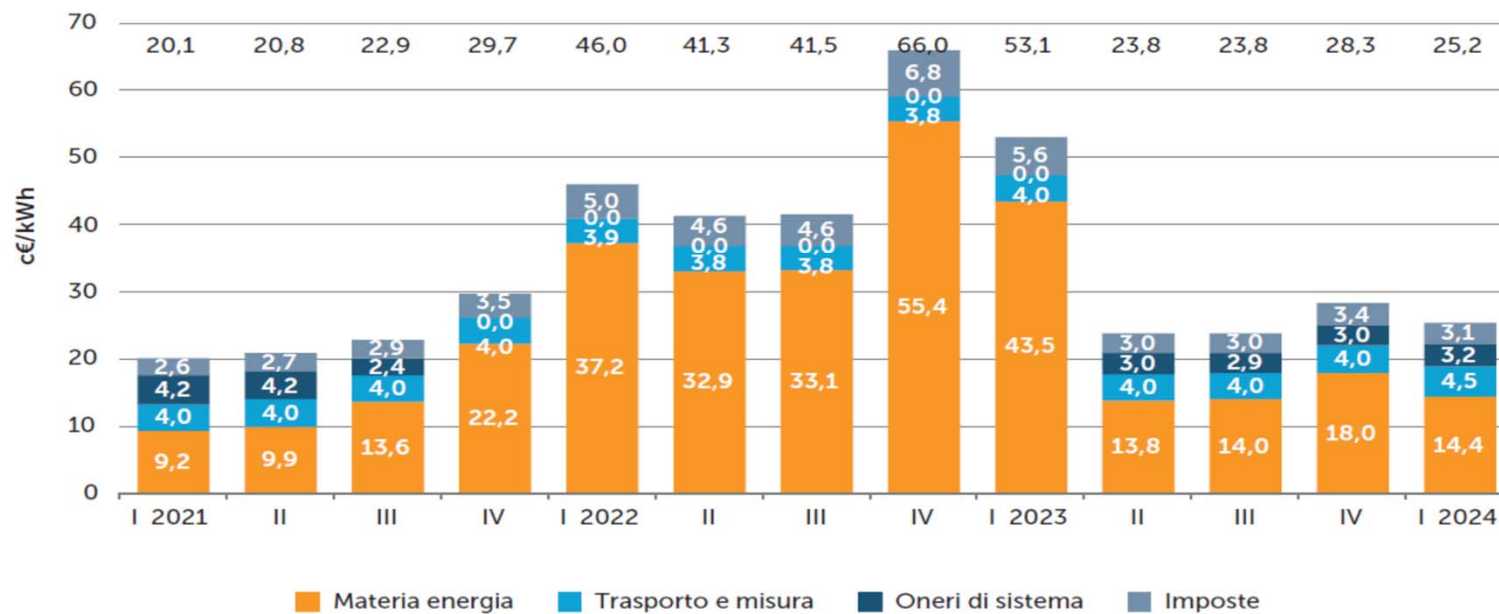
FIG. 2.31 Livello dei prezzi dell'energia elettrica nell'ultimo triennio



Source: ARERA (2024) Rapporto Annuale 2024

- Assessing the effect of energy inflation: the evolution of energy bill components

FIG. 2.33 Condizioni economiche di maggior tutela per il consumatore domestico tipo, con consumi annui pari a 2.700 kWh e potenza pari a 3 kW



Source: ARERA (2024) Rapporto Annuale 2024

- Effectiveness of targeted policies and energy efficiency
- Eligibility criteria of the social bonus and energy expenditure
- Mitigation policy mix with targeted measures based on means-testing and components of energy bill
- Energy poverty index based on relative poverty threshold and the effect of energy inflation
- Non-linear relationship between energy poverty and household income/wealth