

Distributional impacts of a CO₂ fuel tax on different household income quintiles in Austria

Mathias Kirchner (WIFO)

Mark Sommer (WIFO)

Kurt Kratena (CESAR, WIFO)

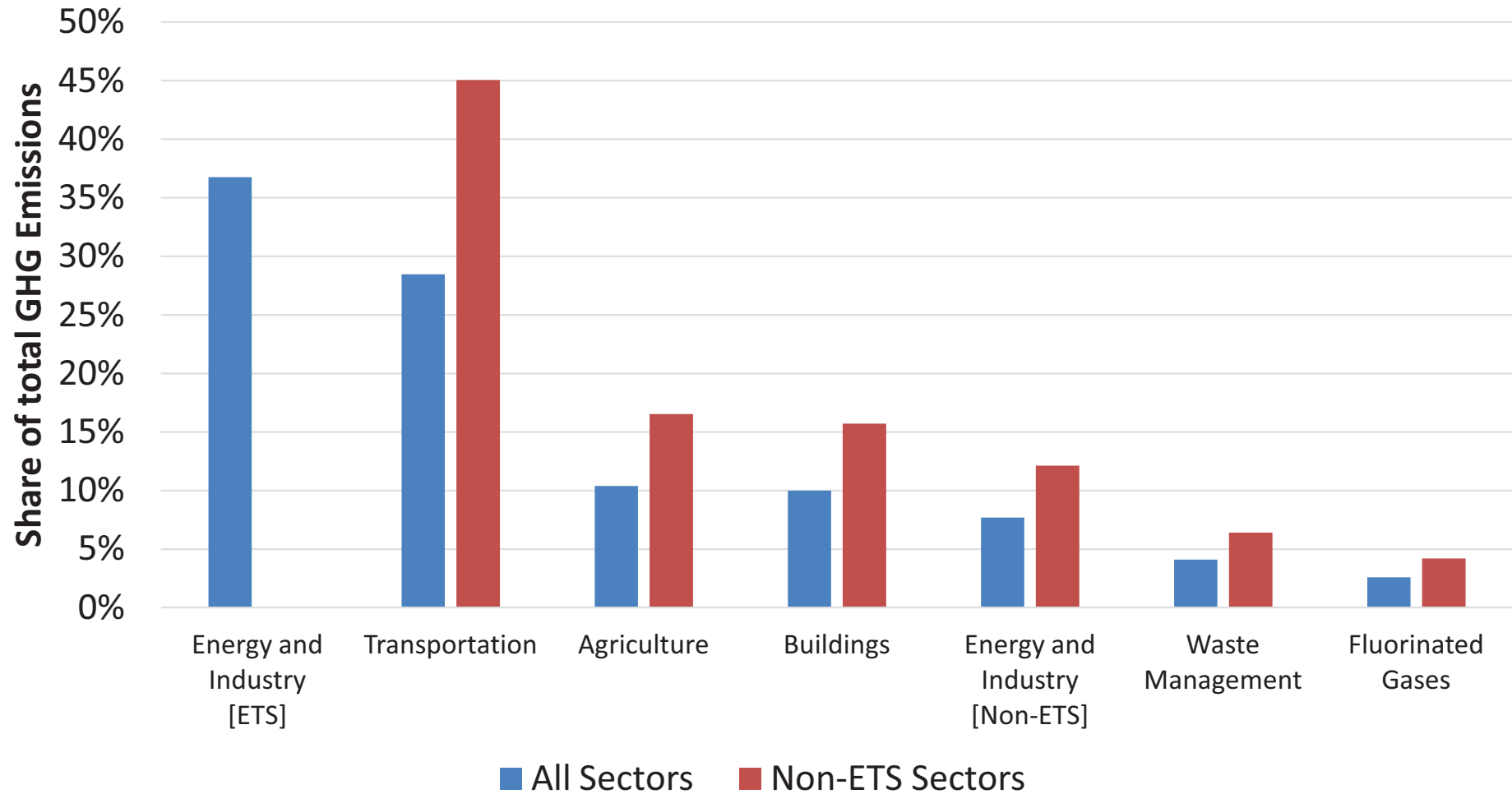


AIM & MOTIVATION

- How do reduce emissions in non-ETS sectors (transport, service sector, private heating & mobility)?
- Effort Sharing in Austria :
 - -16% until 2020 (vs. 2005)
 - -36% until 2030 (vs. 2005)
- CO2 taxes
 - How **effective** is the incentive?
 - What are the **macroeconomic** impacts?
 - What about **regressive** tax impacts on households?

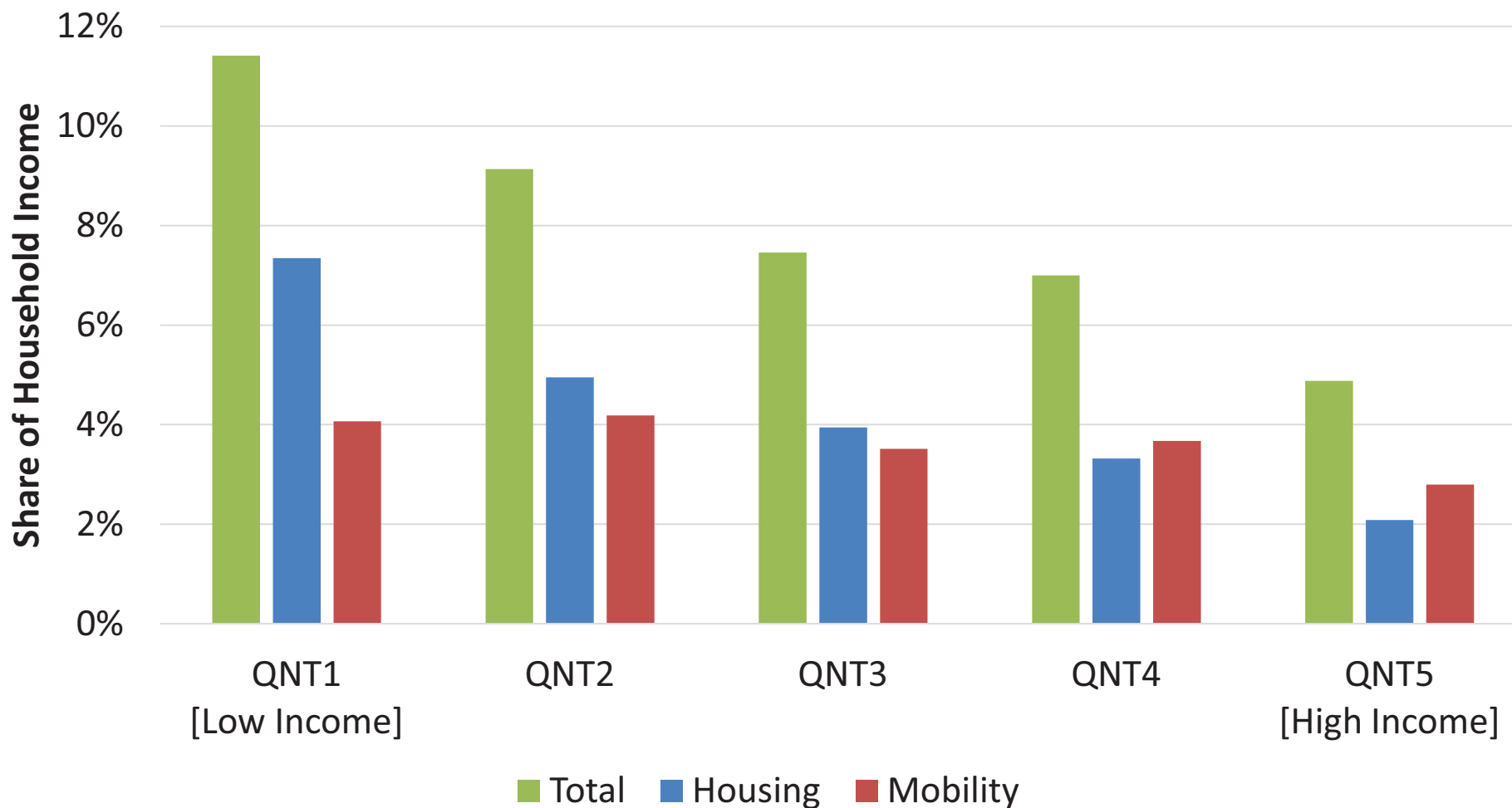
GHG Emissions Austria 2014

Sectoral Shares



Household Income Quintiles

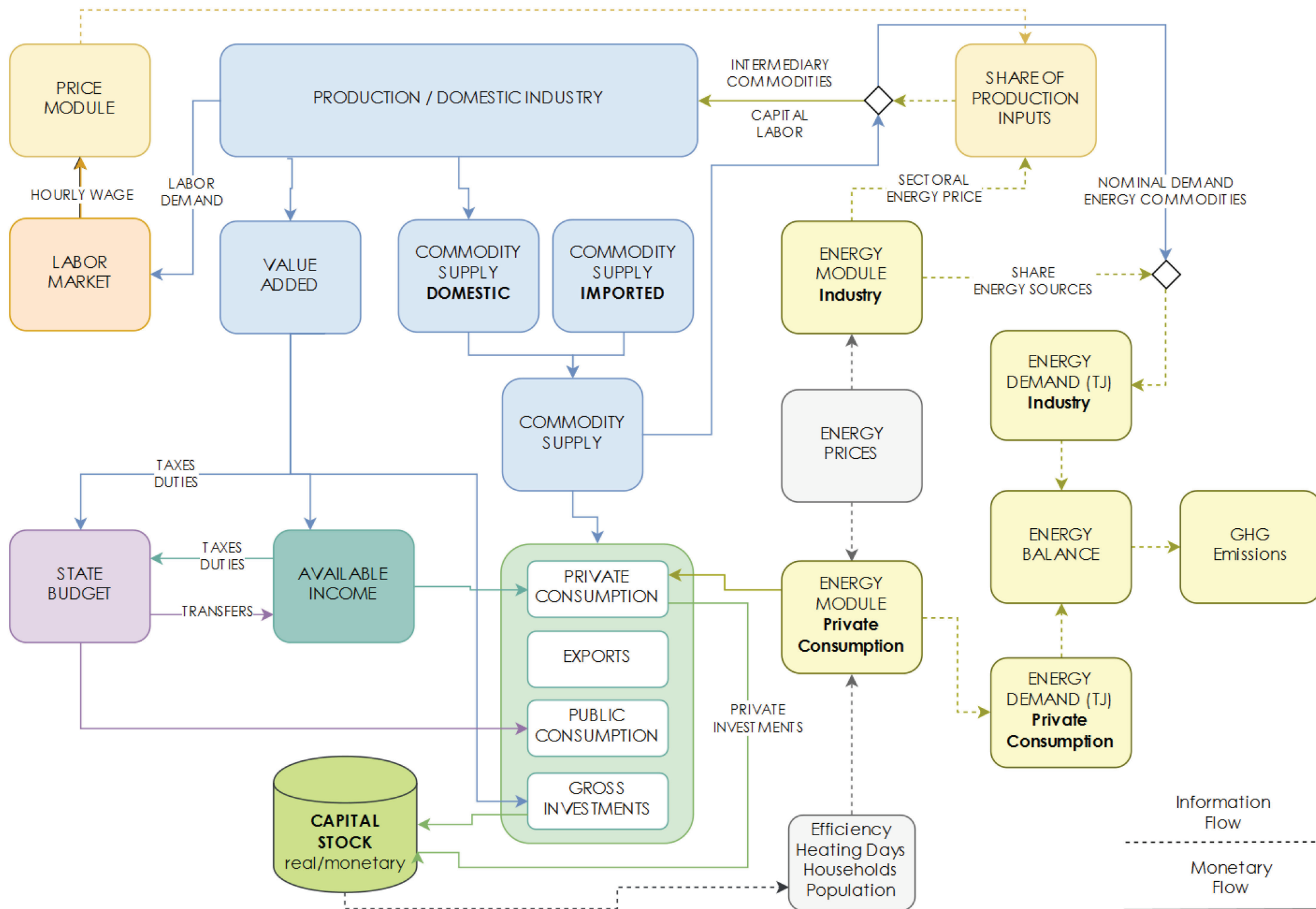
Energy Consumption Expenditure

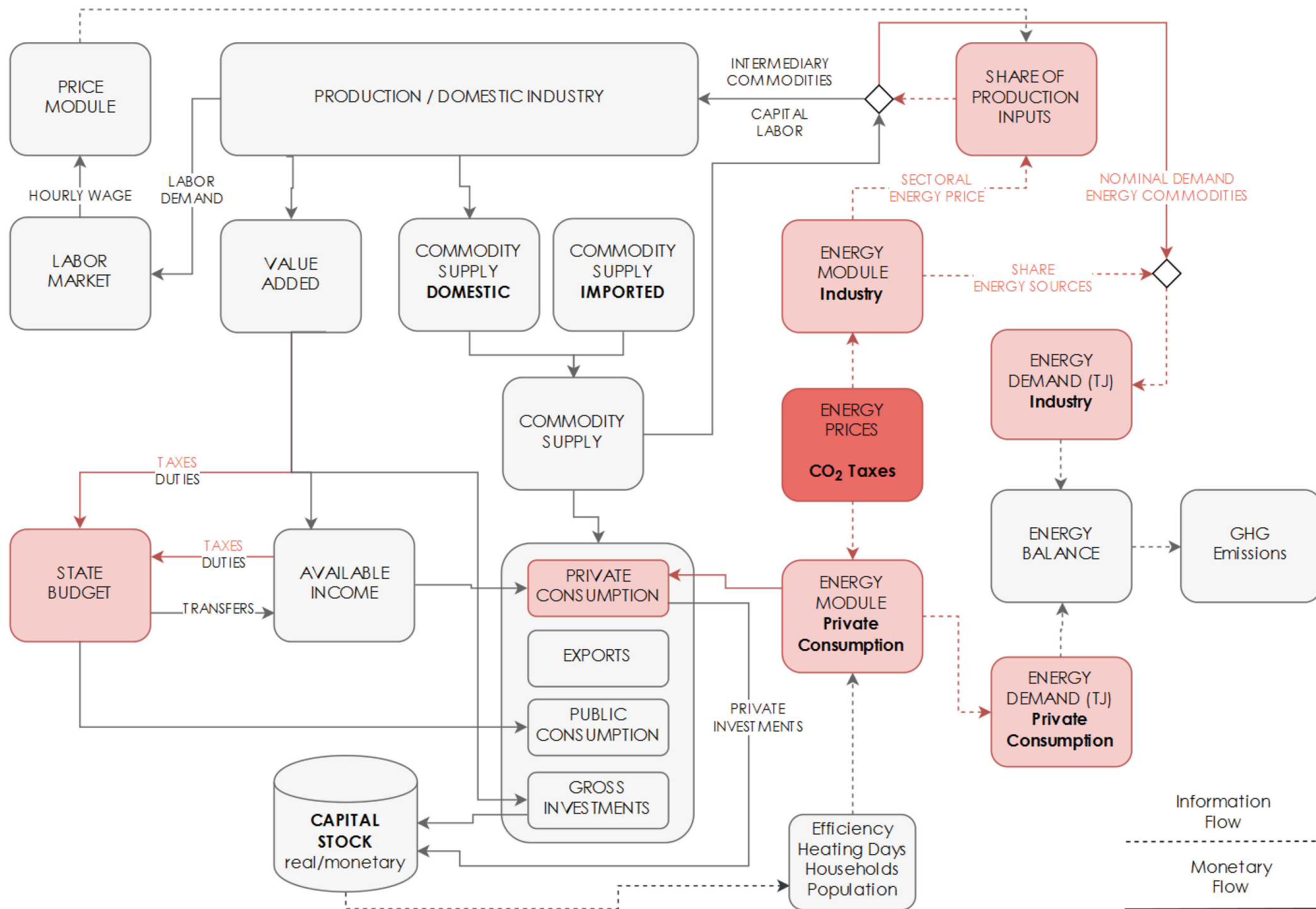


SCENARIOS & METHODOLOGY

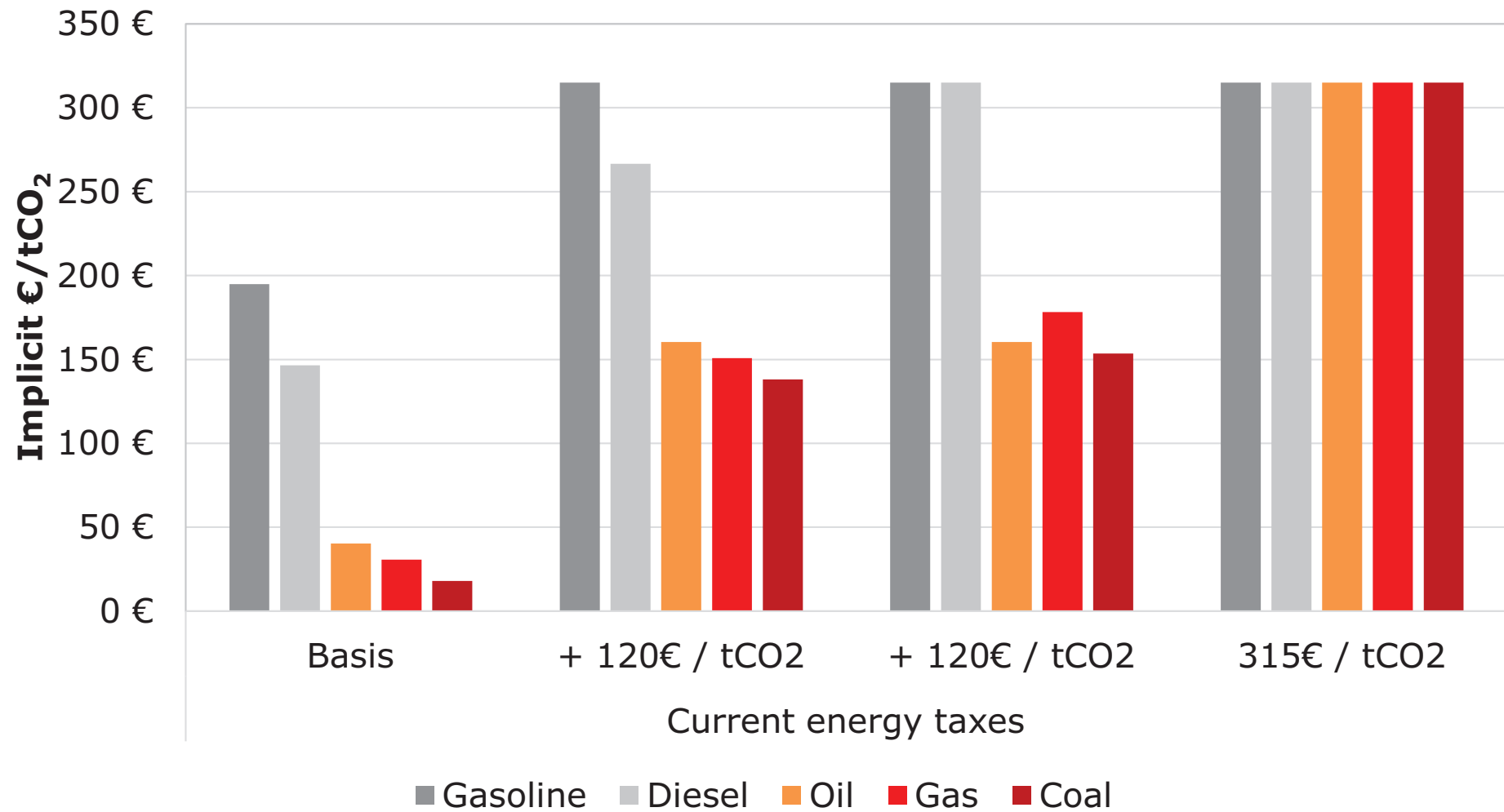
A dynamic econometric IO model

- Input-Output (IO) → macro-economic interlinkages
- Econometric → behavioral functions
 - Production (Input of capital, labor, non-energy & energy goods)
 - Private consumption (Durable-, non-durable and energy goods)
 - Wage curves
- Specific consideration of:
 - **Energy**
 - as input in the production process of commodities
 - during consumption (mobility, heating, household appliances)
 - **Household income quintiles**





- CO₂-tax on energy carriers in **non-ETS sectors**
- Tax price variants
 - +60 bzw. 120 €/t CO₂ on top of existing energy taxes
 - +60 bzw. 120 €/t CO₂ on top of energy-equivalised energy taxes
 - 225 € or 315 €/t CO₂ and no energy taxes
- Recycling of taxes
 - Lump-Sum transfers to households
 - Reduction of social contribution for non-ETS industry
- Comparative analysis for the year 2012

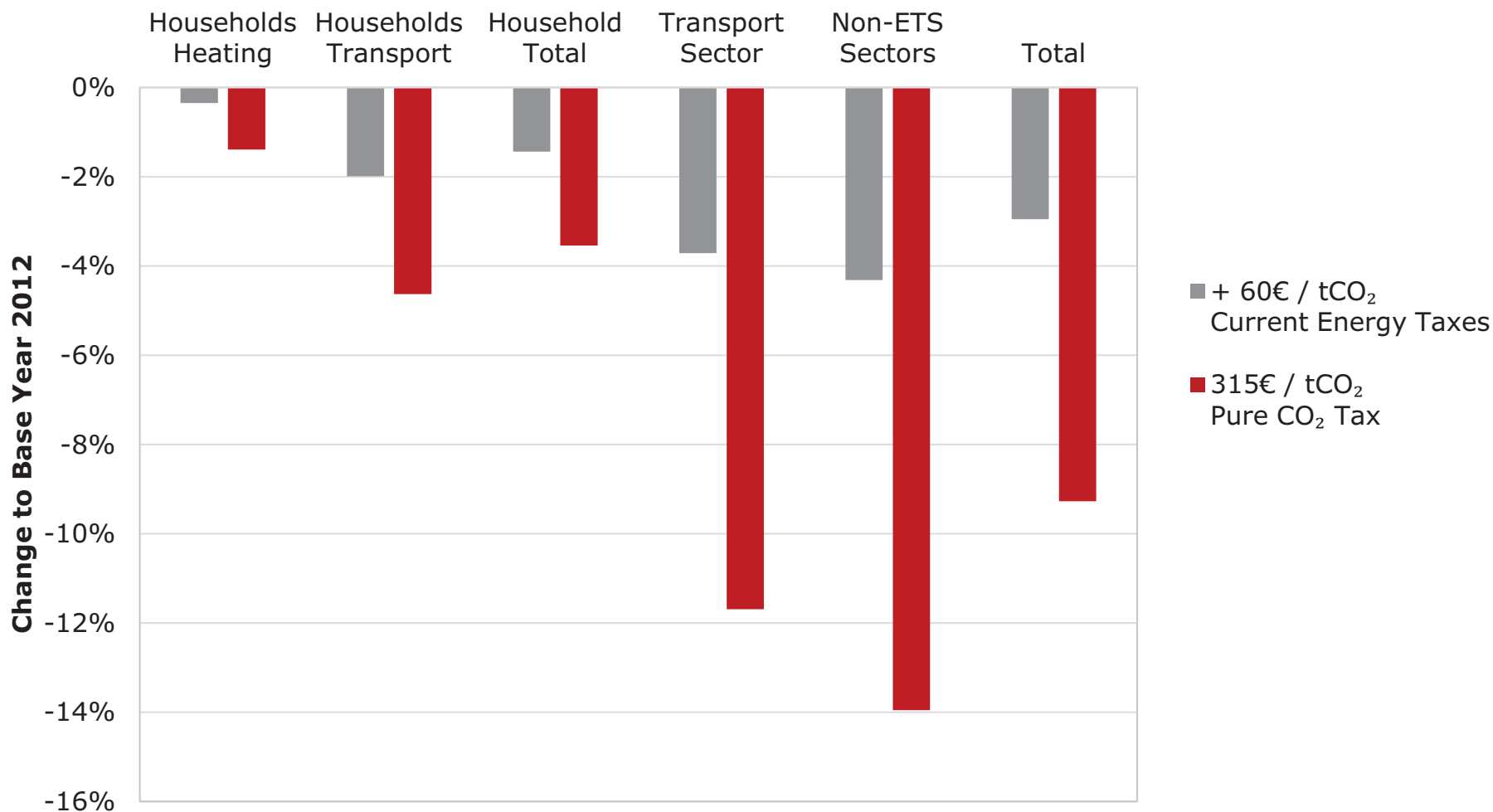


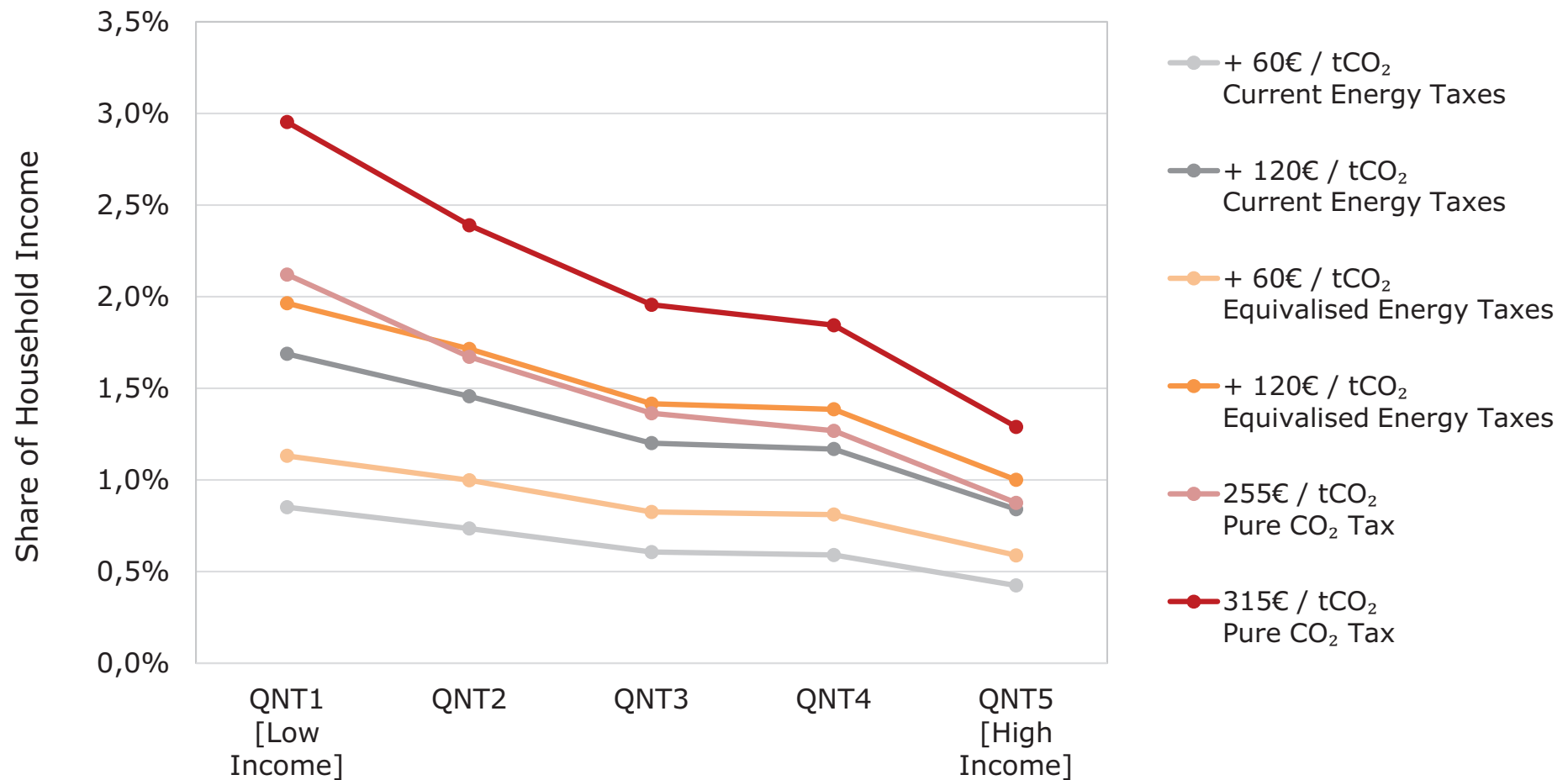


RESULTS

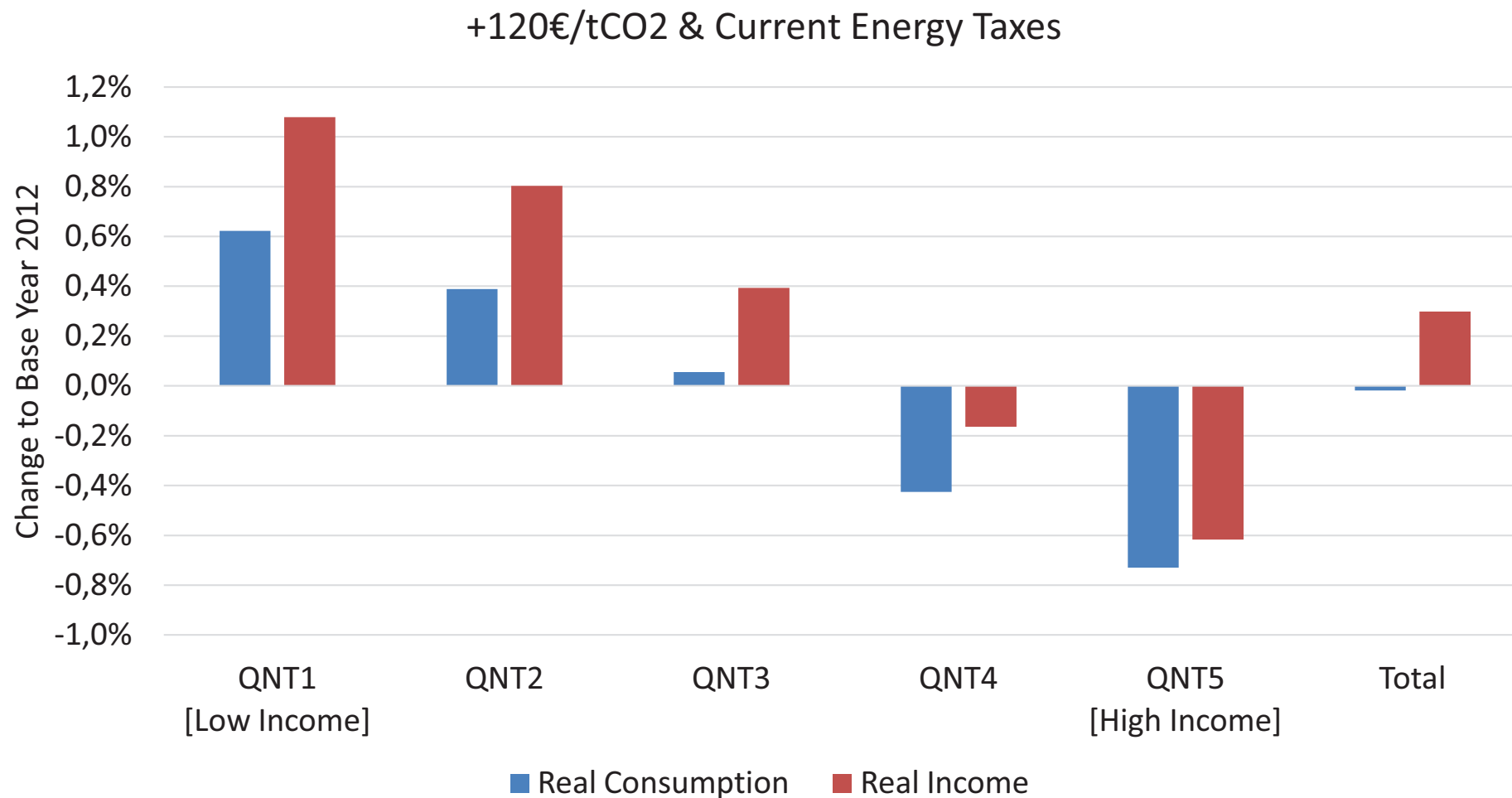
GHG Emissions

Short-Term Effects of CO₂ taxes

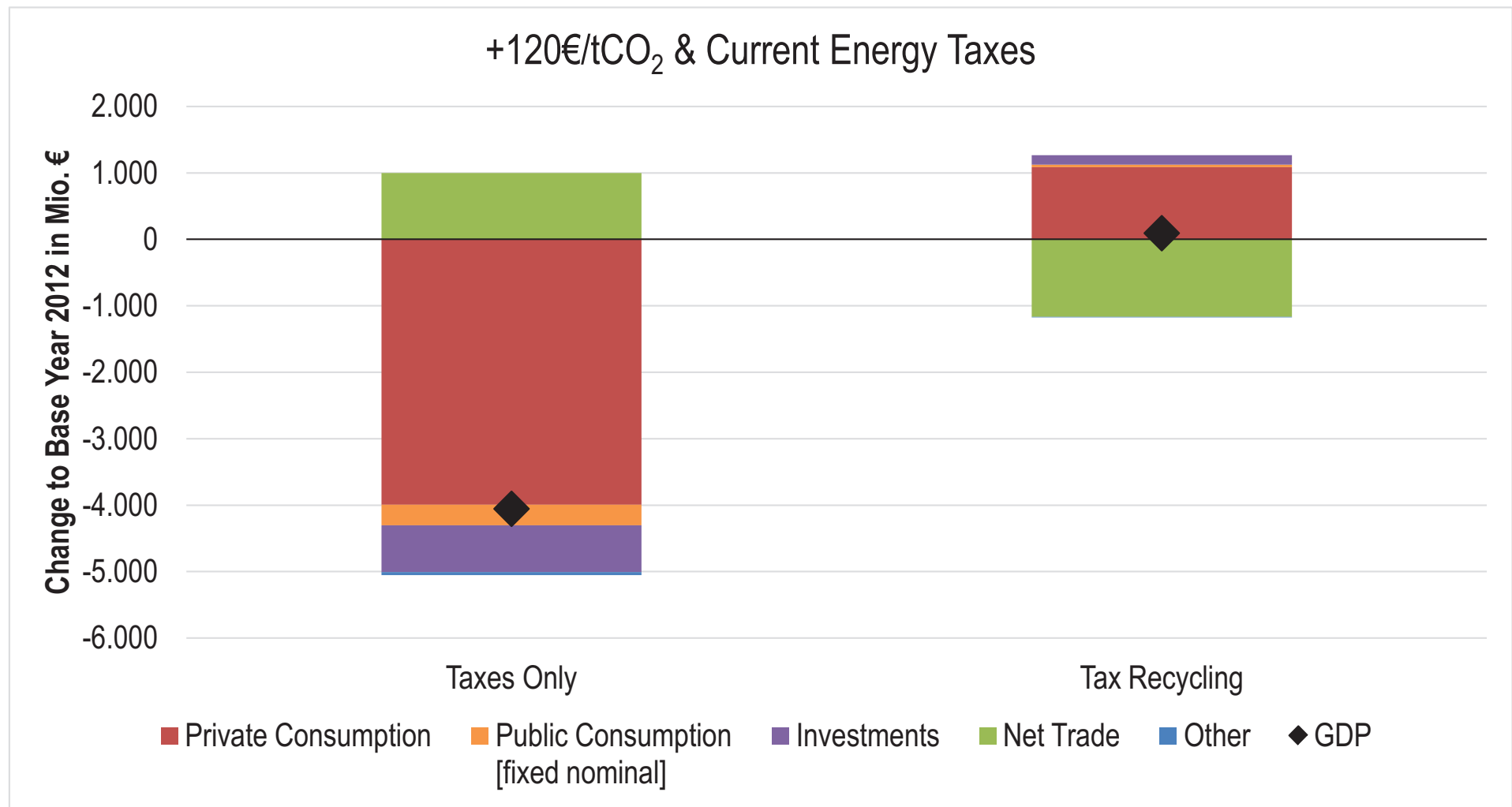




Total Burden with Lump Sum Transfers







CONCLUSIONS & OUTLOOK

- A CO₂ tax can contribute to a reduction in CO₂ emissions in non-ETS sectors already in the short term
- Macroeconomic effects are small and may be positive with adequate tax recycling
- Tax recycling can mitigate regressive impacts on households and competitive issues for industries

- Long-Term Simulations (2020/2030)
- Higher CO₂ taxes on automobile purchases
- Floor tax for all industries (also ETS)