



Mercator Research Institute on
Global Commons and Climate Change gGmbH

The impact of EU carbon pricing on households - analysis of distributional consequences between and within countries

Simon Feindt (MCC Berlin & TU Berlin)

NAVIGATE-CHIPS STAKEHOLDER WORKSHOP

Based on S. Feindt, U. Kornek, J. Labeaga, T. Sterner & H. Ward, Understanding Regressivity: Challenges and Opportunities of European Carbon Pricing, Energy Economics, 103 (2021).



This article has received funding from the NAVIGATE project of the European Union's Horizon 2020 research and innovation program under grant agreement 821124.

Motivation

- Ambitious reduction targets for 2030¹
 - “Effective carbon pricing” as one of the main instruments
 - Possible sectoral expansion of the EU ETS + ETS II
 - Border carbon adjustments
 - ETS price increase
- Just Transition Fund²
 - Making sure that no one is left behind
 - Explicit consideration of the initial burden on households

1) <https://www.consilium.europa.eu/en/policies/green-deal/fit-for-55-the-eu-plan-for-a-green-transition/> & https://ec.europa.eu/info/sites/info/files/european-green-deal-communication_en.pdf

2) https://ec.europa.eu/commission/presscorner/detail/en/qanda_20_66

Model

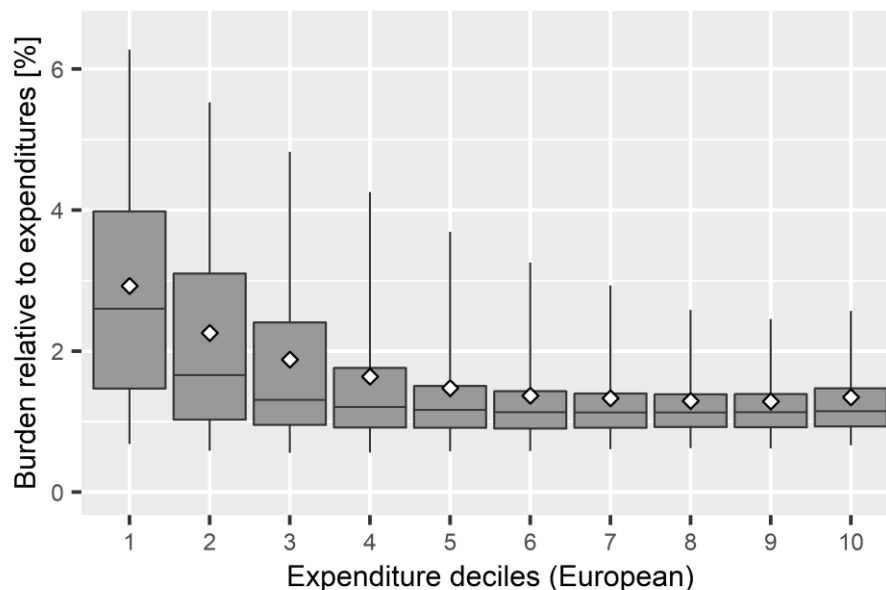
- Environmentally-extended Input-Output Model
 - direct carbon emissions from the use of fossil fuels
 - indirect carbon emissions embedded in the production process
 - Carbon price on all sectors + carbon border adjustments
- Eurostat's Household Budget Survey for 23 countries
- Calculation of the additional burden to maintain the same welfare level as before the carbon price (increase)

European results

- Decile 1-4: regressive
- Decile 5-10: proportional
- High variation within deciles (horizontal dimension)
- Most affected households: mainly in the lowest expenditure deciles

Distribution of HH costs in Europe (w/o UK)

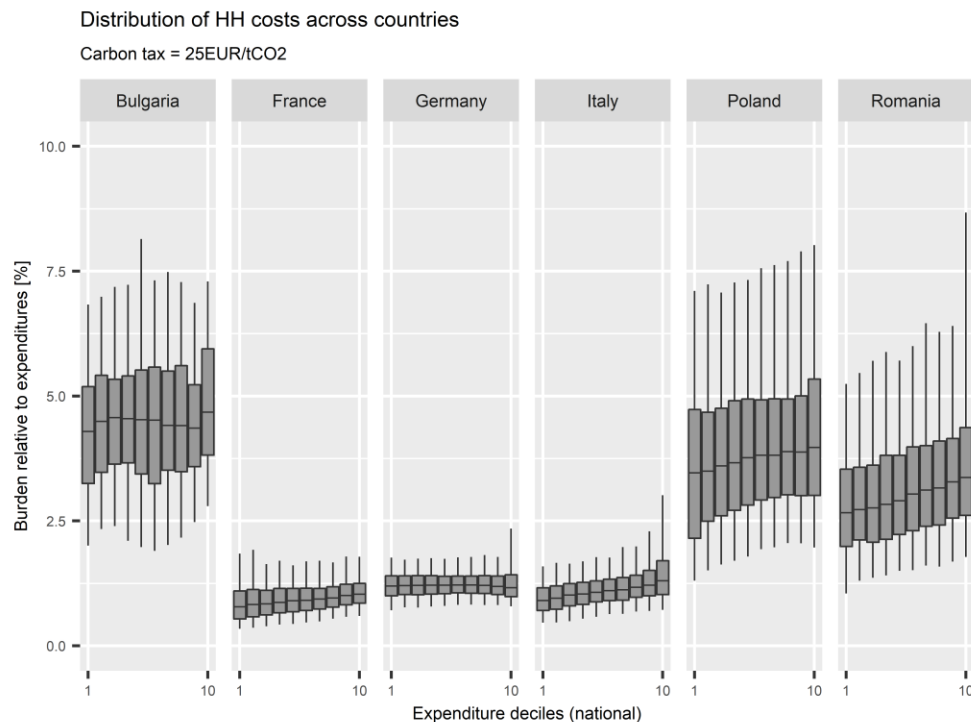
Carbon tax = 25EUR/tCO₂



S. Feindt, U. Kornek, J. Labeaga, T. Sterner & H. Ward, Understanding Regressivity: Challenges and Opportunities of European Carbon Pricing, Energy Economics, 103 (2021).

National results

- Now: national expenditure deciles
- Bulgaria, Hungary, Poland and Romania: higher average burden
- National incidences are mostly proportional or progressive
- Countries with high average burden dominate the poorest deciles
 - Richest deciles: France, Germany, Italy, Spain
- → Between-country differences dominate within-country differences



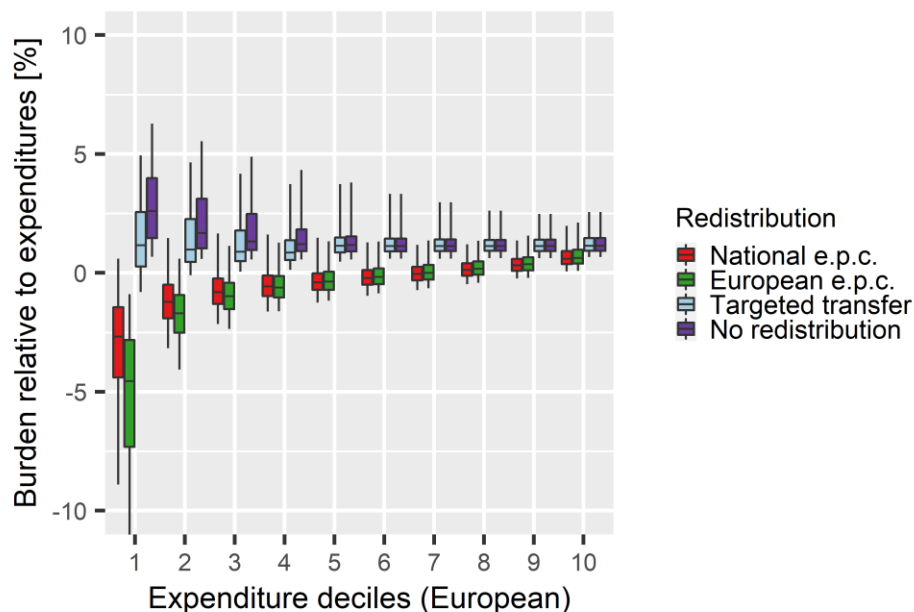
S. Feindt, U. Kornek, J. Labeaga, T. Sterner & H. Ward, Understanding Regressivity: Challenges and Opportunities of European Carbon Pricing, Energy Economics, 103 (2021).

How to offset European regressivity?

- We test 3 redistribution schemes:
 - National equal per capita
 - European equal per capita
 - Targeted transfers towards the lowest 4 deciles
 - Less than 7% of total revenues required
 - only alleviates the burden on the median for each decile
- Hardship cases: burden $>3.1\%$
 - Mostly from Poland, Romania, Bulgaria (~75%), mostly in the poorer deciles

Comparison of redistribution mechanisms

Carbon tax = 25EUR/tCO₂



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Summary

- European carbon tax is regressive
 - Main driver: inter-country differences
 - Variation within income groups is large (horizontal equity issues arise)
- Redistribution is effective in reducing the burden
 - European and national equal per capita transfers yield a progressive outcome
 - Targeted transfers
 - Renders the tax burden proportional
 - Share of hardship cases per country
 - Would allow to compensate the most affected households
- The results are robust under different scenarios
 - policy scenarios
 - demand side adjustment
 - using income instead of expenditures



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