

Combining micro and macro simulations to assess the distributional impacts of energy transitions. **Evidences from the French National Low Carbon Strategy.**

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Motivation for the research

Our paper's research objective is precisely to investigate what socio-economic features drive the short to mid-term distributive impacts of the French government's National Low-Carbon Strategy (Stratégie Nationale Bas Carbone, SNBC). To that end, we develop an original methodology to produce economic outlooks both consistent at the economy-wide level and disaggregated across several thousand household types characterised by several hundred socio-economic characteristics.

Heterogeneity of income and consumption for each household

Energy Efficiency Technologies : **Thermal efficiency and Electric** Vehicles

Tax recycling and compensation

How could we distribute the revenue of

Who bears the burden of the carbon tax ?

Are technologies efficient enough to erase the inequality of the tax ?

the carbon taxe to the most vulnerable?

Model

Our model combines a micro-simulation and computable general equilibrium (CGE) techniques to produce economic outlooks both consistent at the economy-wide level and disaggregated across several thousand household types characterised by several hundred socio-economic characteristics.

Macroeconomic model

 \Rightarrow Economic trend of prices and wages

Microeconomic simulation

 \Rightarrow Follow consumer Behavior



 \Rightarrow Technology adoption : cost and money saving



(Preliminary Results) **Key Findings**

Targeting the most energy-intensive households (Optimist) is the best way to **reduce gas consumption** (replaced by electricity)

Recycling the carbon tax towards the poorest households ensures that the tax is **fair**

Fuel Poverty in rural areas is reduced by recycling the tax **towards the poorest**





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