

Carbon Tax and Equity

The Importance of Policy Design

Emmanuel Combet

Frédéric Gherzi

Jean Charles Hourcade

Daniel Théry

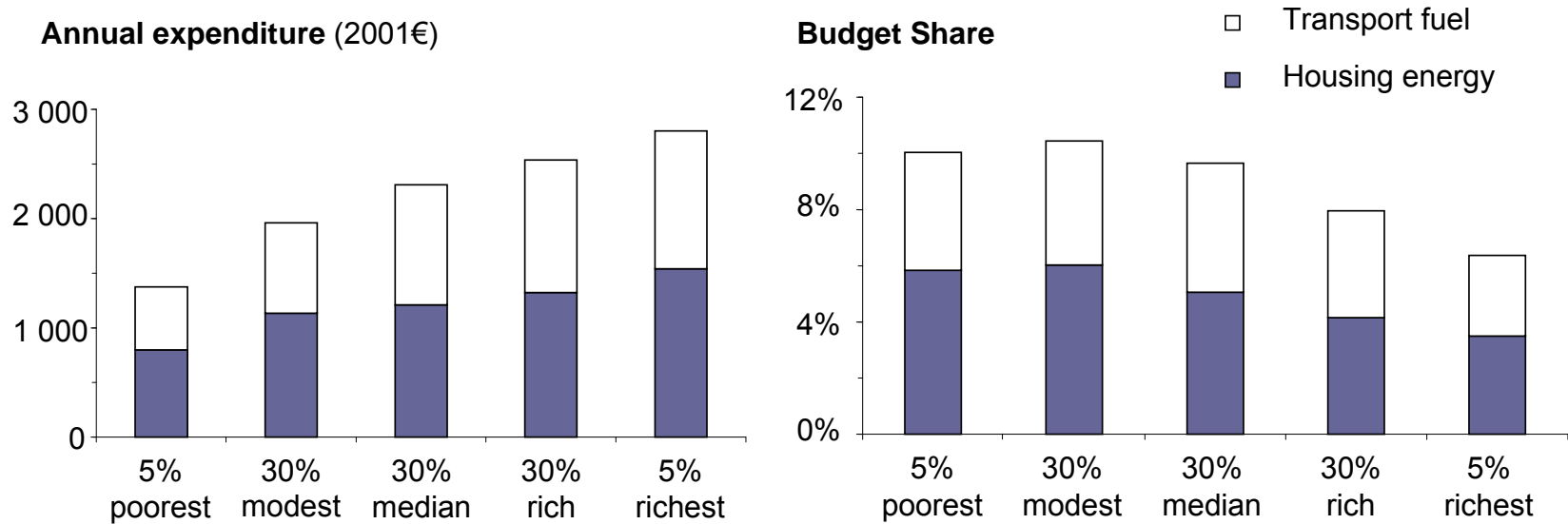
Problematic: Equity at the heart of acceptability

- Large theoretical consensus among economists
carbon tax= the most efficient instrument in the policymaker's "tool box"
- Why so many attempts have failed?
 - A similar "refusal front" based on 2 major arguments
 - Competitiveness distortion
 - Negative impact on income distribution
- *Is a carbon tax reform mechanically regressive?
To what extent does policy design matter?*
 - Empirical *ex ante* evaluation of the French carbon tax reform

Outline

1. Perceived impact: evidence for “regressivity”
2. Perceived vs. real impact: reasons for the gap
3. Comparison of two revenue-recycling schemes
4. Decomposition of the ultimate distributive impact
5. Summing up the main results

Perceived impact: evidence for “regressivity”



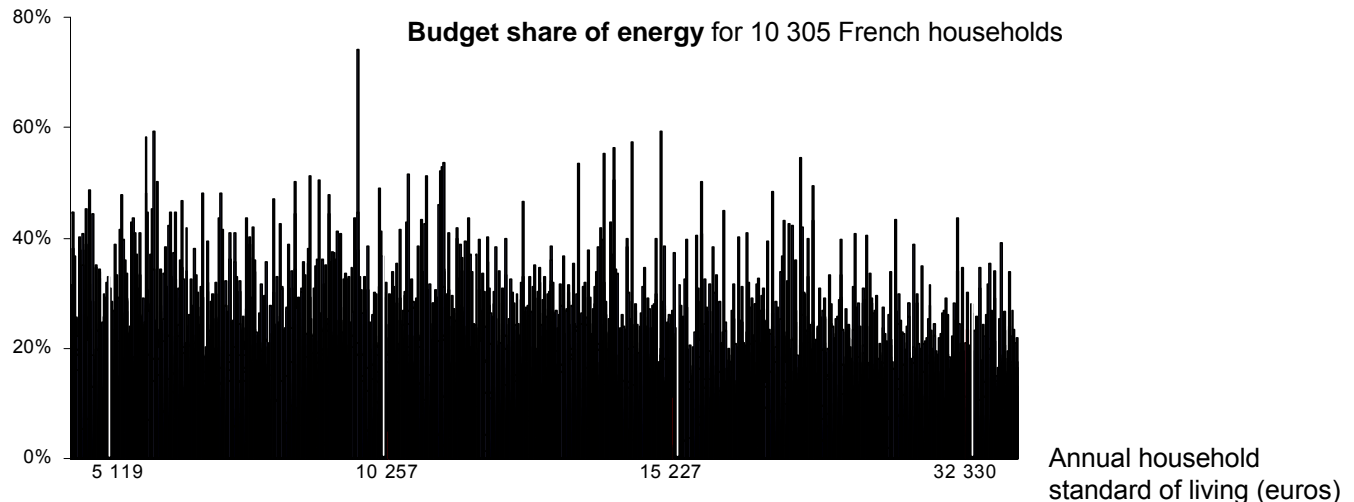
Households ranked by level of standard of living (Current annual income / consumption unit - OECD)

Data: *Budget des familles*, INSEE, Income and expenditure survey

The “rich” will pay more...
... But the budget of the “poor” will be more affected

Perceived vs. real impacts: reasons for the gap

- A very short-sighted, incomplete and over-simplified picture
 - no behavioural adaptation response (energy mix and quantities consumed)
 - no effects on and feedbacks with the rest of the economy
 - no recycling scheme of the tax proceeds (implicitly reduce public dept)
 - no other important dimensions of vulnerability:



What is needed to fill the gap?

- A behavioural model to represent
 - substitution possibilities (non-constrained energy consumption)
 - price-elasticities (sensitivity of consumption to price)

- A general equilibrium model to trace out
 - the macroeconomic impacts on the whole economy
 - production side, cost-propagation effect, competitiveness, ...
 - the distributional effects among households' classes
 - disposable income, employment, ...
 - the consequences of alternative use of the tax proceeds
 - direct compensations to household
 - reducing pre-existing distortive tax
 - cutting public deficit

No separability between equity and efficiency in the real world

Key features of the model

- CIREED's computable general equilibrium model **IMACLIM-S**
 - France 2004, open economy
 - Circulation of consistent **monetary** and **physical** flows
 - **4 categories of economic agents**
 - Corporate firms, public administrations, 20 income classes, and the rest of the world
 - **3 energy sectors** (1 primary, 2 transformed energies) + composite good
 - Factor substitution possibilities and price formation in production sectors
 - **A second-best world**
 - Pre-existing distortions of the French tax system
 - Constraint levels on production factors and final goods consumptions
 - Structural situation of unemployment and limited wage flexibility
- **Simulation of counterfactual 2004 France (20 years after implementation)**

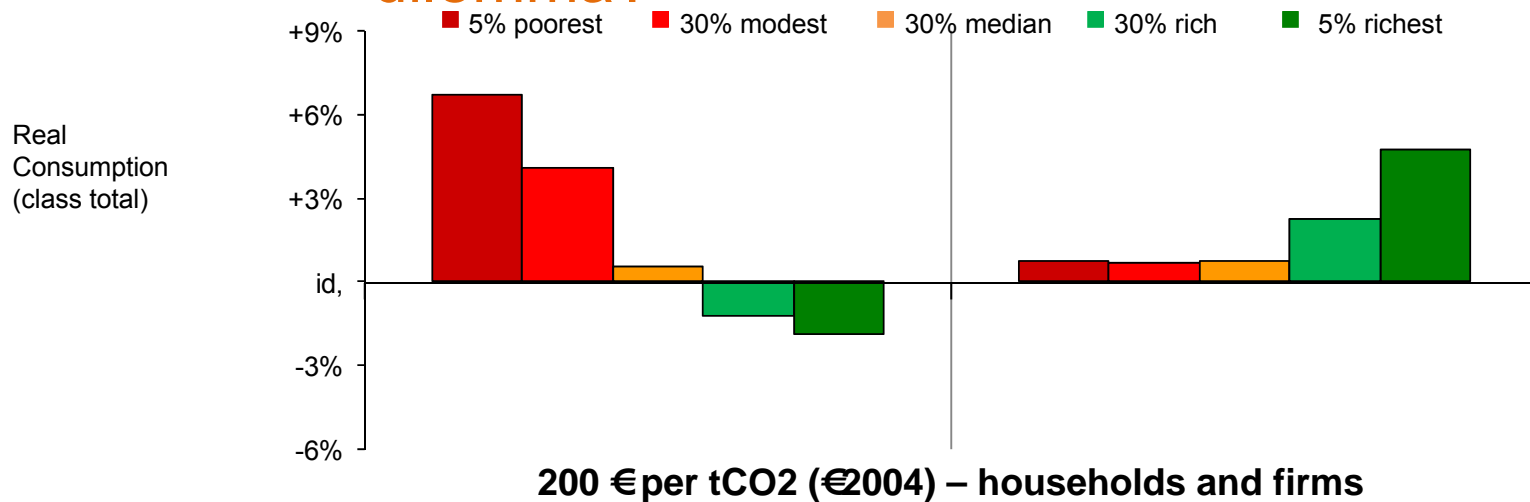
Comparison of two revenue-recycling schemes

1) Direct Compensation (Identical lump sum transfert per CU)

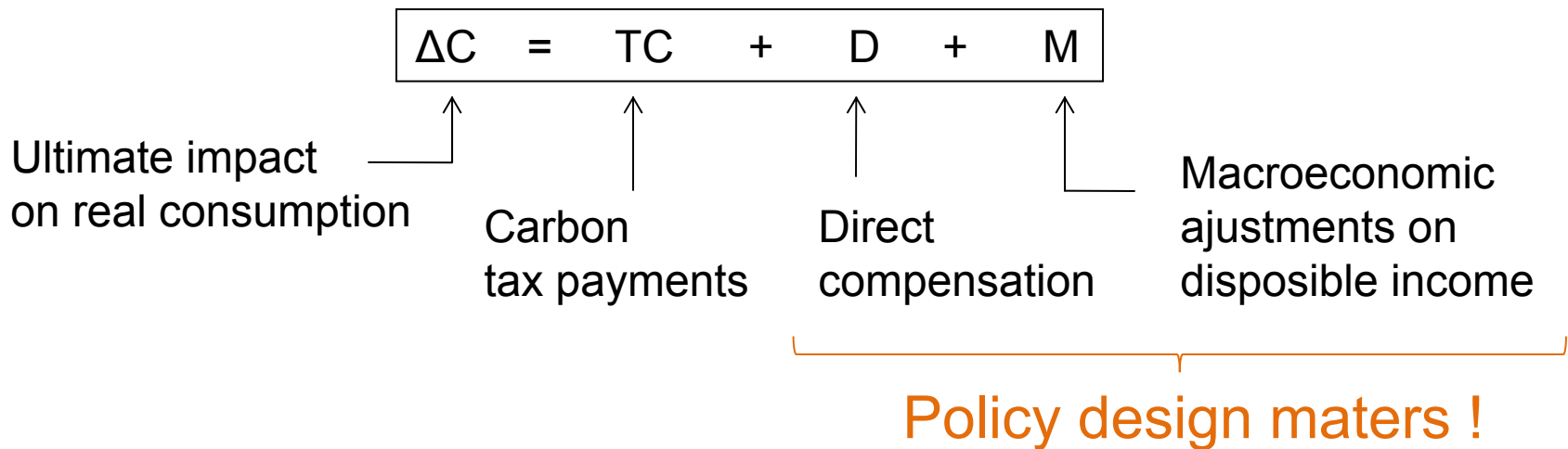
2) Payroll Tax Cut (Distortive tax on labour market)

Total CO ₂ Emissions	-28,5%	-27,1%
Real GDP	-0,9%	+1,5%
Employment	-0,2%	+2,8%

Towards on efficiency-equity dilemma?



A decomposition of the ultimate distributive effect



Revenue-recycling mode	Poorest households' consumption	Richest households' consumption
1) Direct Compensation	+ 6,7% = - 2,7% + 11,5% - 2,1%	- 1,9% = - 1,7% + 3,0% - 3,2%
2) Payroll Tax Cut	+ 0,7% = - 2,7% + 0,0% + 3,4%	+ 4,7% = - 1,7% + 0,0% + 6,4%

Conclusion

- ❑ A decomposition of the ultimate distribution impact
 - ❑ A carbon tax reform is **not mechanically regressive**
 - ❑ The **recycling of the tax proceeds** is crucial
 - **Macroeconomic effects** studied with a general equilibrium framework
 - Policymakers face a **equity-efficiency dilemma**
 - BUT ... **room for a compromise** in the case of France
 - ❑ Towards a dynamic and long term perspective to investigate the best “sustainable use” of the carbon tax proceeds
- *Can climate change policies be the solution to finance our pensions?*

Questions or Comments?

Contact :

Emmanuel COMBET - combet@centre-cired.fr

Web: www.centre-cired.fr