

A French case study

- A **2035** snapshot of the French economy under the 3 paradigms
- Implementation of **IMACLIM-P**, a **recursive CGE** model with secondary income distribution among **5 household classes**
- Macroeconomic results + focus on **equity issues**
- Insights on **energy poverty** through micro-simulation

Paradigm drivers 1

- From WP1
 - Total and active population
 - L productivity and **annual working hours** (Orange -28%)
- From WP5 (WITCH)
 - International energy prices (inc. WEURO elec)
 - Carbon tax (€122 per ton CO₂)

Paradigm drivers 2

- **Demand-side management** assumptions
 - Specific electricity *per head*: +12%/+12%/-25%
 - Oil in automotive fuels: id./-50%/-80%
 - Transport intensity: endo/endo/+ pkm trend
 - Housing tax (- urban sprawl): 0/100/100 € *per m²*
- **Income distribution** levers
 - Unemployment rate: 8.5%/6.5%/4.5%
 - Wage inequalities: 10% lag by quintile/id. /id.
 - Income tax reform: none/none/x2 rates

Macro results

2006 to 2035	PEAR	APPLE	ORANGE
GDP	+65%	+66%	+29%
Final E consumption	+32%	+25%	-12%
CO ₂ emissions	+26%	+14%	-25%
Hh E consumption	-6%	-18%	-32%
Hh CO ₂ emissions	-12%	-49%	-73%
Inequalities: Gini	+12%	-6%	-33%
Inequalities: Q1 lag	9 pts	9 pts	-6 pts

Energy poverty

Through micro-accounting with reweighting

Million households	Q1	Q2	Q3	Σ	
2006	1.59	0.86	0.52	2.97	
2035	PEAR	2.62	1.36	0.66	4.64
	APPLE	1.60	0.57	0.19	2.35
	ORANGE	1.06	0.41	0.14	1.60

Main findings

- Paradigms can be modelled... except **energy efficiency gains**?
- Paradigm shifts through **carbon tax** and **housing tax** to get at transportation activities
- Paradigm shifts might have **regressive** impacts
- These can be checked by **fiscal reforms**
- 1st quintile cannot lose too much **public support** if it is to maintain relative wealth