ECM Households: How to deal with no-regret measures?

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Outline ECM Households

» Environmental Costing Model for Flanders
» ECM Climate Households
  » Model Structure
    » Assumptions
    » General structure in Markal
  » Result: Marginal Abatement Cost Curve MAC
    » How to deal with no-regret measures?
  » Result: Marginal Abatement Cost Curve 2020
» Conclusion
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Environmental Costing Model for Flanders

» Bottom-up, techno-economic Markal model
» Sectors:
  » Energy
  » Industry
  » Residential & Service sector
  » Agriculture
  » Transport
  ➔ Cross-sectoral optimization
» Emissions
  » GHG: CO₂, N₂O, CH₄, F-gases
  » Air pollutants: SO₂, NOₓ, VOC, PM (TSP, 10 & 2.5)
  ➔ Multi-pollutant optimization
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Model Structure: Assumptions

» Costs?
  » Costs of reduction measures: investment and operational costs excl. taxes, subsidies
  » Energy prices: POLES model + distribution costs
  » Discount rate: 4%

» Optimization period:
  » 2005-2030, 5 years periods
  » Results: focus on 2020
Model Structure in Markal

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How to deal with no-regret measures?

» Trajectory of the MAC below zero?
  » Which are those no-regret measures?
  » Cost-efficient → At which CO\textsubscript{2}-price?
  → Cost-efficient sequence of reduction measures?

» Possible methodology:
  » KO: Markal with negative CO\textsubscript{2}-price → fuel consumption greater than demand,…
  » Methodology based on invest.m → Principle:
How to deal with no-regret measures?
Possible methodology: Principle

For each reduction measure: Estimation invest.m’s for 2 CO$_2$-taxes (No investments allowed)

⇒ Result: If invest.m = 0  → Marginal Costs MC for every reduction measure (no-regret: MC<0)

⇒ Sequence is known ↔ if dwelling characteristics ~ characteristics in 2005

How to deal with no-regret measures?
Possible methodology: Principle

?The exact trajectory?
Result: Marginal Abatement Cost Curve 2020
Cost-efficient reduction measures?

Conclusion

» Difficulties:
  » Exact cost-efficient sequence of no-regret measures?
  » Exact trajectory of MAC at negative CO₂-prices?

» Answers are important because no-regret measures play an important role in the residential sector!
Thank you!