BANQUE DE FRANCE

EUROSYSTÈME

DISCUSSION ON:

ENVIRONMENTAL POLICY AND PRODUCTIVITY (PARALLEL SESSION B1)

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*The views expressed in this presentation are those of the authors and do not necessarily reflect the views of the Banque de France. Any errors and omissions are the sole responsibility of the authors.

Three contributions

- **Environmental regulation and productivity growth: Main policy challenges (by De Santis et al.)**

Environmental policies generate positive productivity returns through innovation (Porter hypothesis) and environmental regulation exerts an indirect positive impact on productivity growth fostering capital accumulation especially in high ICT intensive countries.

- **The Quadrilemma of a Small Open Circular Economy Through a Prism of the 9R Strategies (by Grüning et al.)**

A small open-economy circular economy faces trade-offs with respect to circularity, trade, environment and growth (quadrilemma). Solved by increasing the price of the polluting resource and the share of refurbished used intermediate goods.

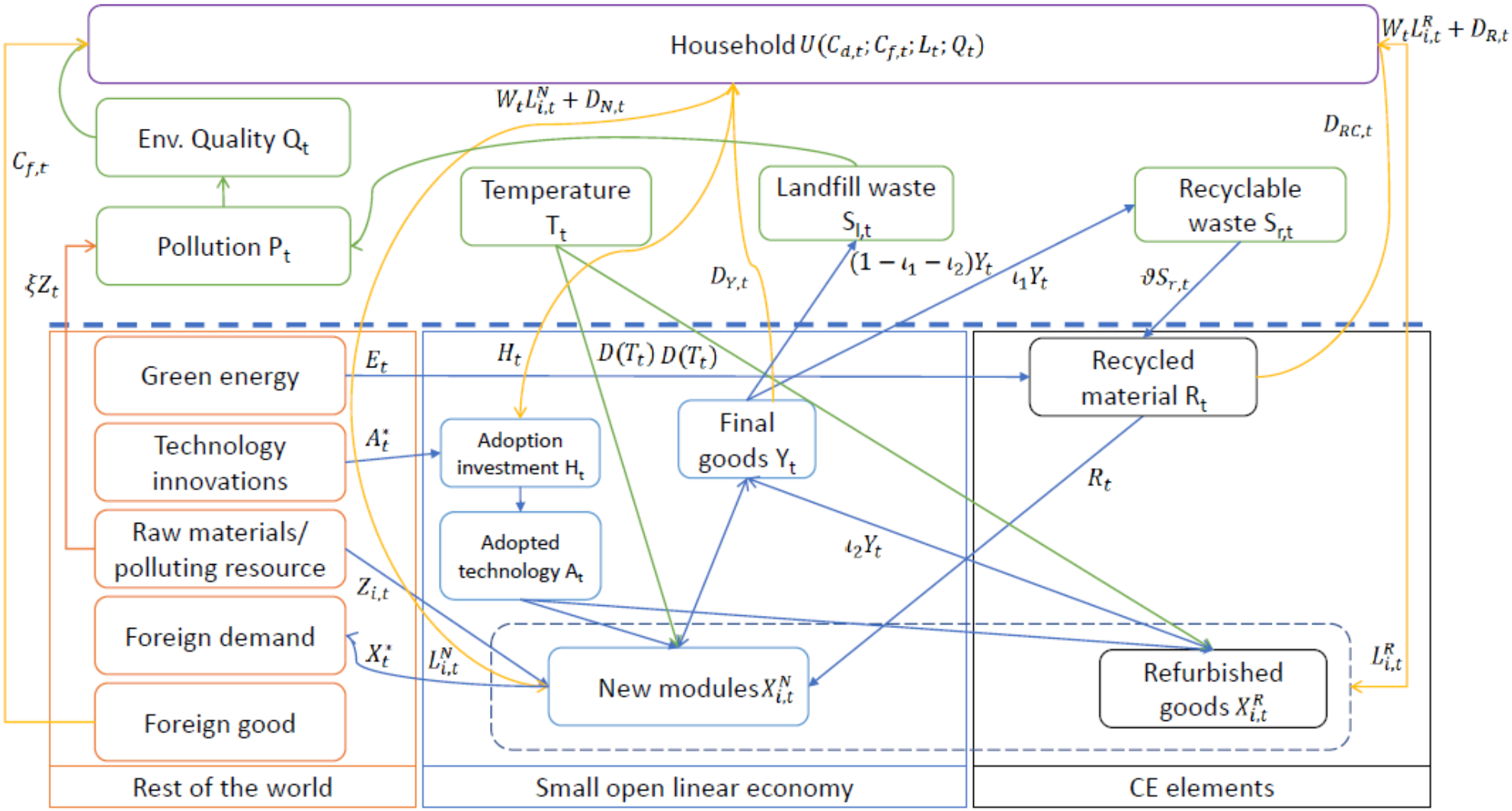
- **Evaluating Energy-Economic Impacts of the Austrian Waste and Resource Economy (by Meyer and Sommer)**

The waste economy has beneficial economic effects and the lifetime extension of products through repair and reuse is even more efficient.

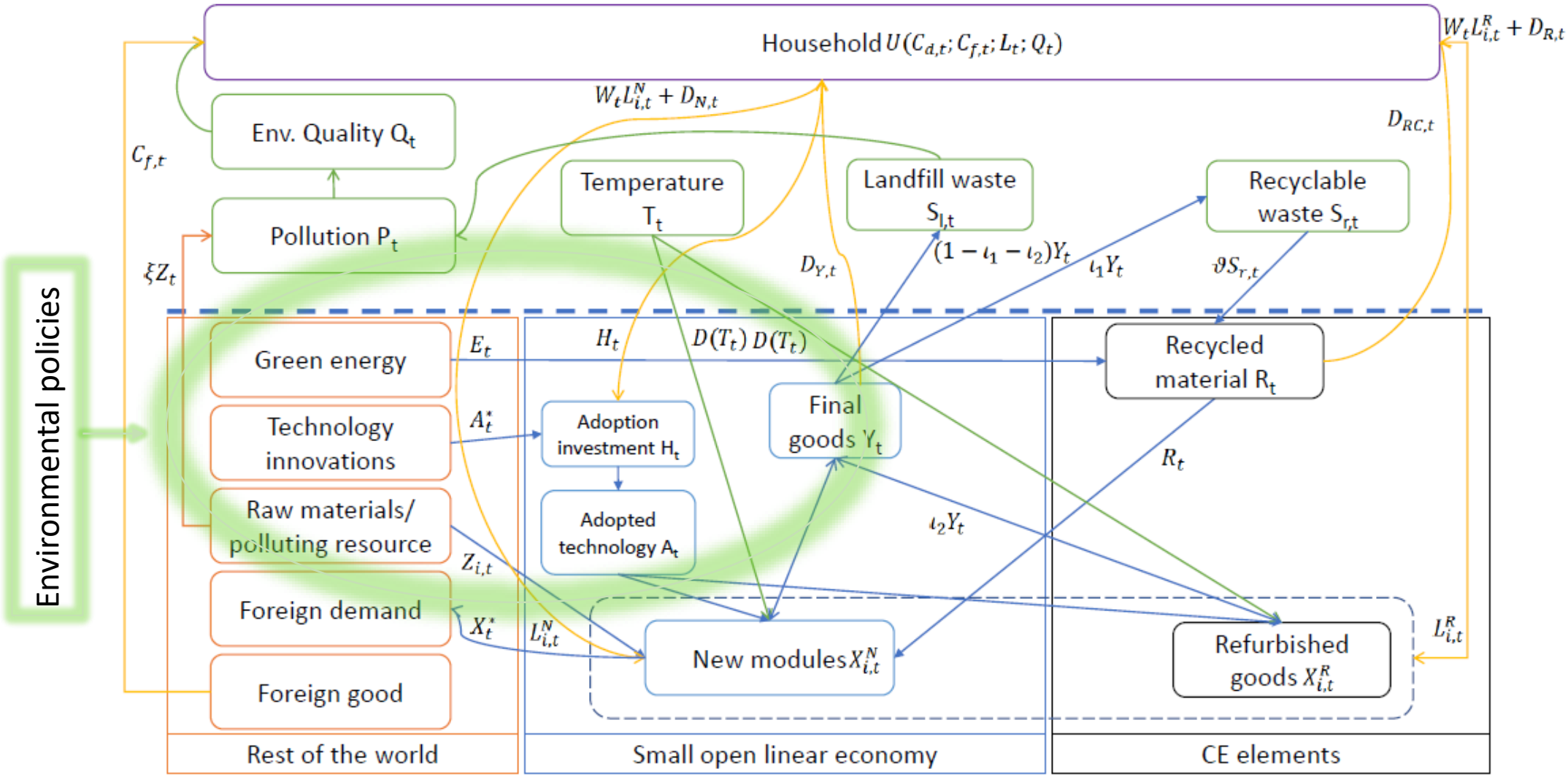
Analysing the impacts of environmental policy is a complex endeavour

- The challenges posed by climate change requires a transformation of our economies
- This transformation comes mainly from three different areas of action which are interrelated:
  - POLICY: Environmental policies and regulation – carbon taxation, environmental norms, incentives to circularity,… They can be market or non-market based
  - TECHNOLOGY: Innovation can help support the transition to a low-carbon economy – more energy and material efficient technologies, renewable energy sources, carbon dioxide removal, …
  - BEHAVIOURS: Change in habits, repairing and recycling goods, pooling and sharing goods/services…
- These transformations have large economic implications and we need tools to assess them and to quantify the risks associated.

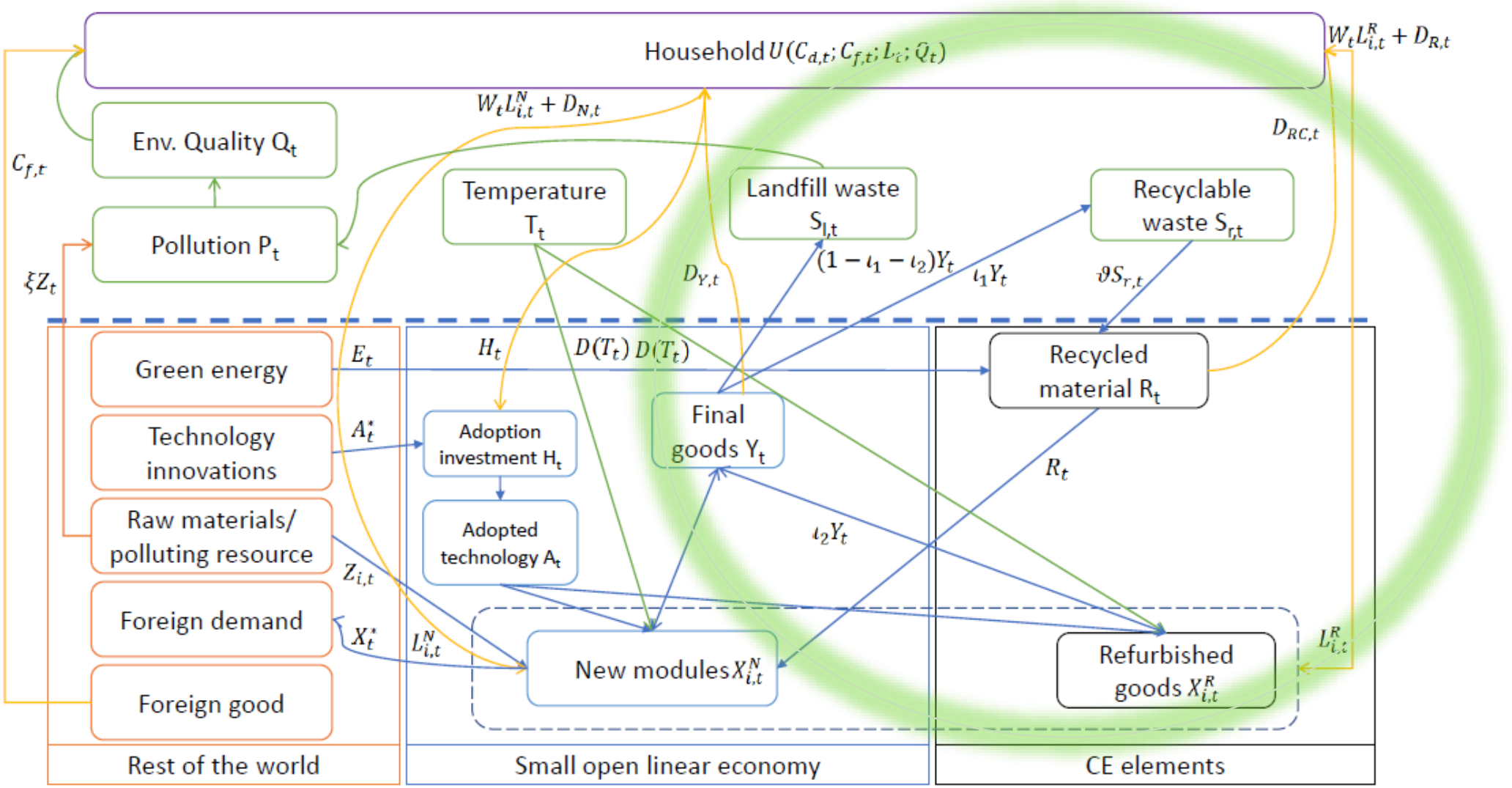
Modelling the complexity of economic dimension of environmental issues by Grüning et al.



Modelling the complexity of economic dimension of environmental issues by De Santis et al.



Modelling the complexity of economic dimension of environmental issues by Meyer and Sommer



Remarks on Paper 1 (De Santis et al.)

- Value added of the paper:
  - Inclusion of capital (ICT and non-ICT) in a PH-like equations
  - Treating endogeneity with multiple equation system
  - Distinguishing market and non-market policies
- Questions:
  - Control variables missing? E.g. Human capital, overall R&D, innovation policy by government – especially the recycling of tax proceeds –, openness,…
  - Although the analysis is at aggregate level, an indicator of structural (dis)similarity across countries could be useful
  - How to account for the transition costs, incl. mismatch in labour force, imperfect substitution in primary/intermediate input that would create frictions, …?

Questions on Paper 2 (Grüning et al.)

- Value added of the paper:
  - Comprehensive modelling of CE in an open-economy DSGE
  - Accounting of the various dimension of circularity and the various trade-offs
  - Useful for policy prescriptions
- Questions:
  - How to tackle challenges to properly take into account climate change in a DSGE?
    - Need stationary models (with unique steady state) to solve (and therefore estimate) DSGE models
    - When the climate is taken into account, several variables, such as CO2 emissions or temperature increases, are non-stationary variables that will have an endogenous and non-linear impact on the TFP
    - Standard methods to solve this type of model may be challenged

Questions on Paper 3 (Meyer and Sommer)

- Value added of the paper:
  - Distinction between the use of waste (substituting primary/secondary raw materials) and the reduction in waste (through lifetime extension strategies)
  - Accounting of the sectoral dimension (through cross-sector interdependencies)
  - Breakdown of direct, indirect and induced effects on growth and employment
- Questions:
  - Scale effects and associated costs, in terms of financing (public/private). Analysis shows positive effects (1.2% on GDP and slightly less than 1% on employment). What would be the effects with a larger reliance on waste use and reduction?
  - What is the degree of possible frictions, notably in the labour market, to switch to a different way of managing resources? Is there any mismatch ?

General remarks from a policy viewpoint

- In analyses assessing the transition from one type of economy (fossil fuel-based and linear) to another one (low-carbon or circular), the past might not be a good guide. To quantify impacts, long-horizon scenario analyses could be considered to envisage a wider spectrum of possibilities and the risks associated
- Models used are adapted from existing tools. There may be the need to rethink the way we model the economy including in particular non linear effects and accounting for model uncertainty
- To face huge uncertainty in future economic costs and opportunities, we should develop tools that include risks more explicitly

Thank you

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