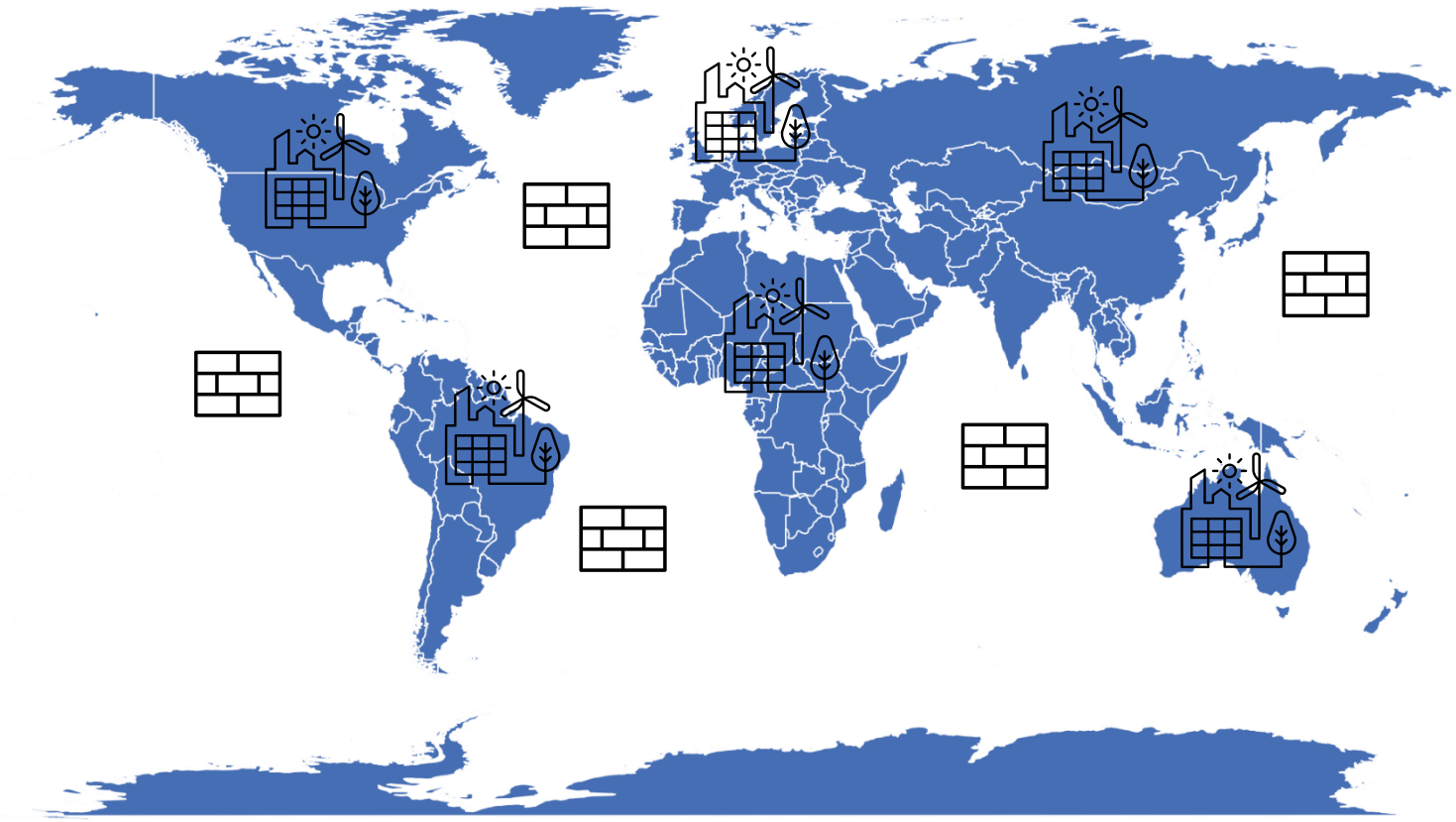
Climate policy in a world with fragmented international trade

Camille Van der Vorst, Rafael Garaffa, Matthias Weitzel
JRC.C.6 – The economics of climate change, energy, and transport

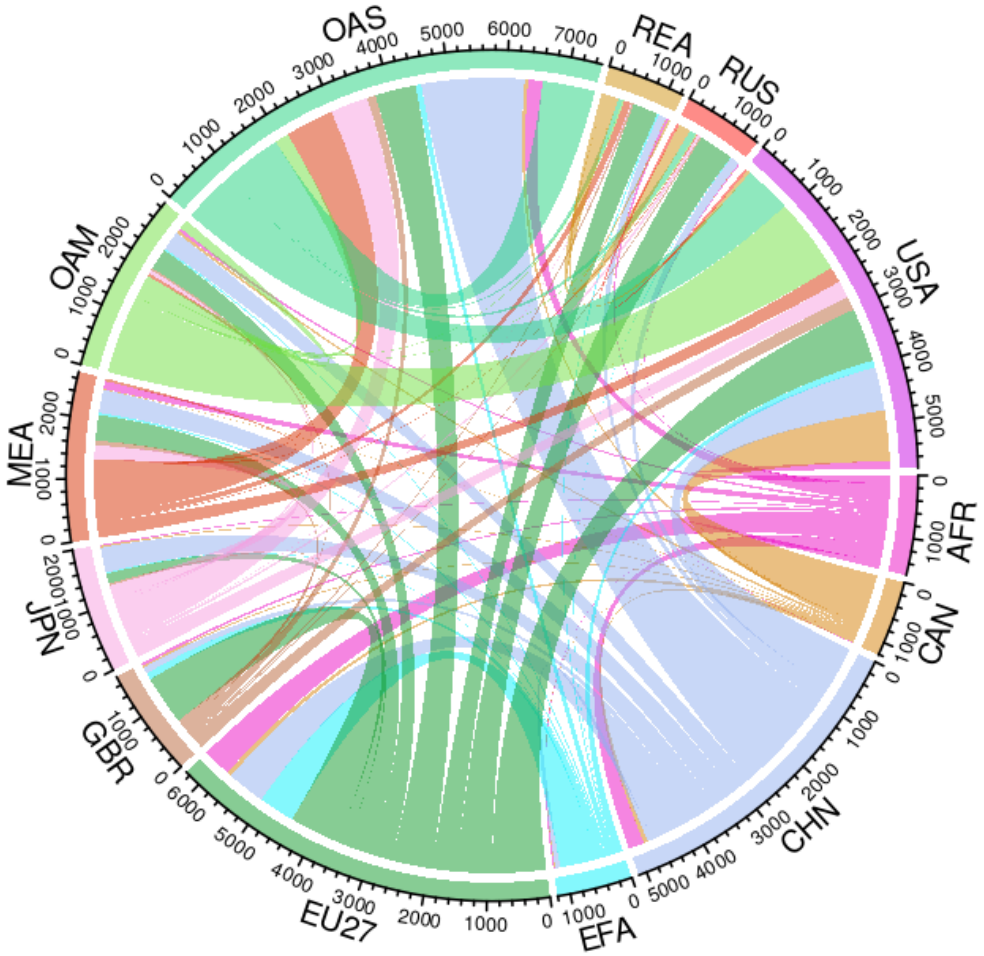
European Commission

Global governance of climate mitigation

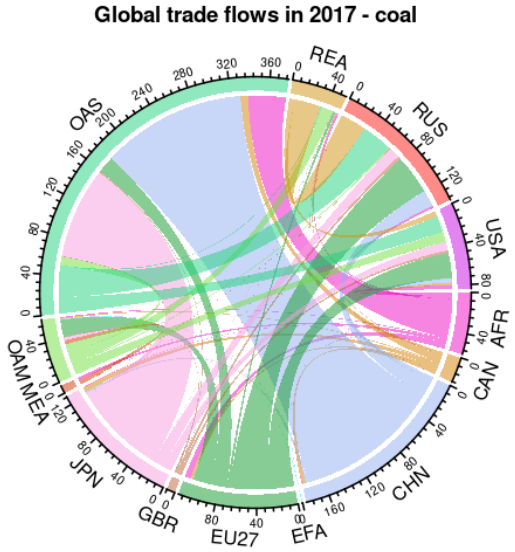


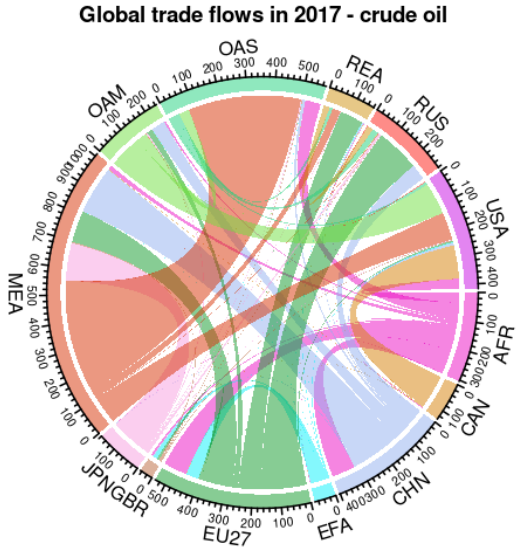
Does the level of cooperation in international trade influence climate mitigation?

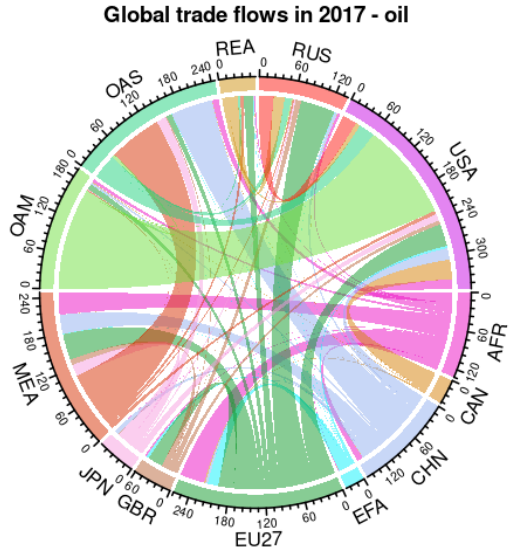
Global trade flows in 2017 – all sectors (b.$)

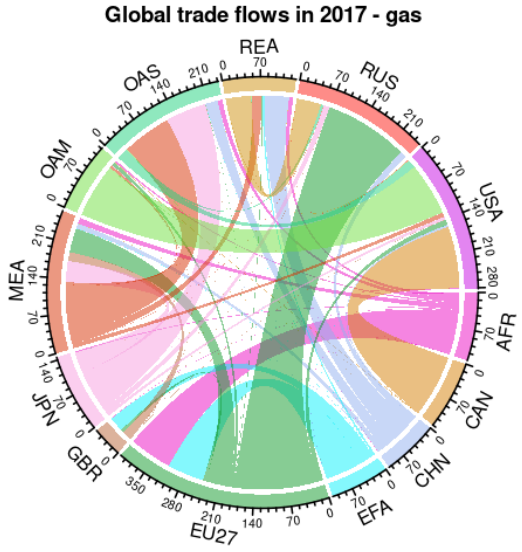


Global trade flows in 2017 – energy sectors (b.$)









References and scenarios

Globalisation

Current levels of globalisation with current policies for climate mitigation

Globalisation + 1.5°C

Current levels of globalisation and temperature increase by end-of-century is limited to 1.5°C

Fragmentation

Fragmentation of international trade with current policies for climate mitigation

Fragmentation + 1.5°C

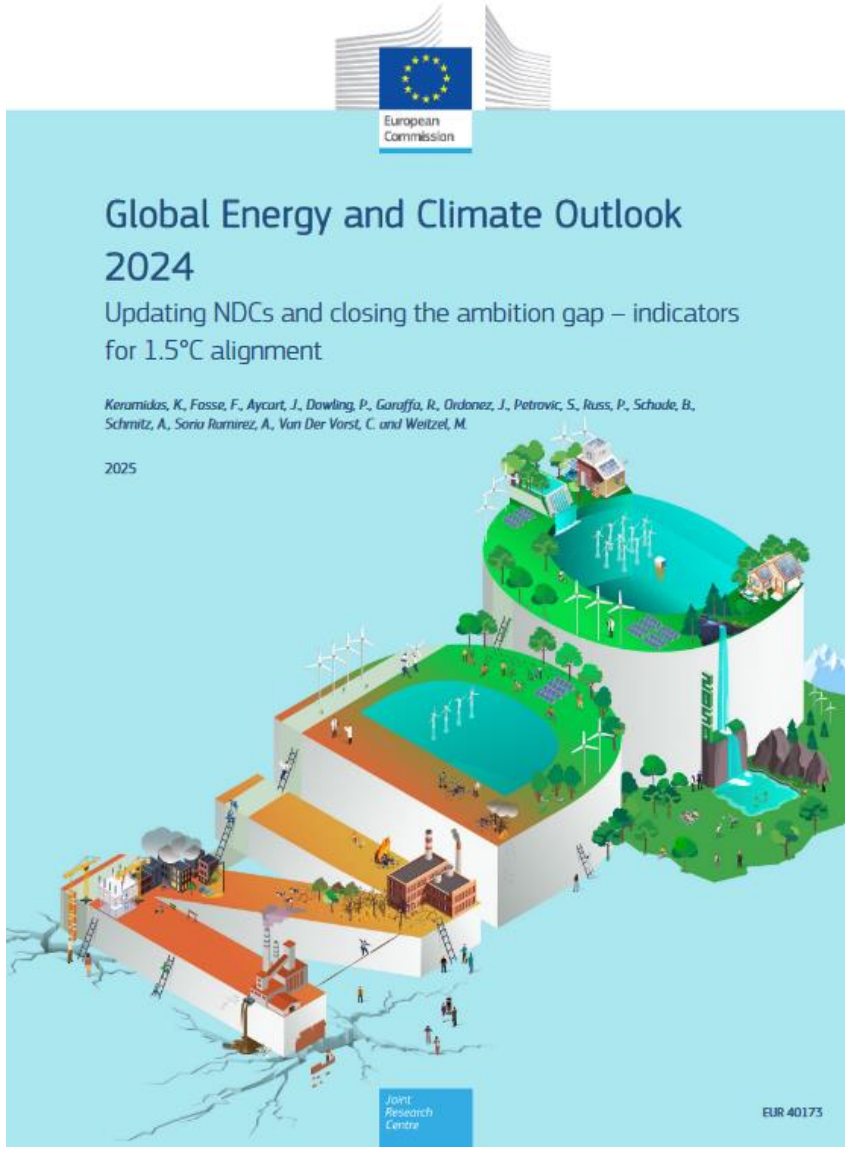
Fragmentation of international trade and temperature increase by end-of-century is limited to 1.5°C

Content of the presentation

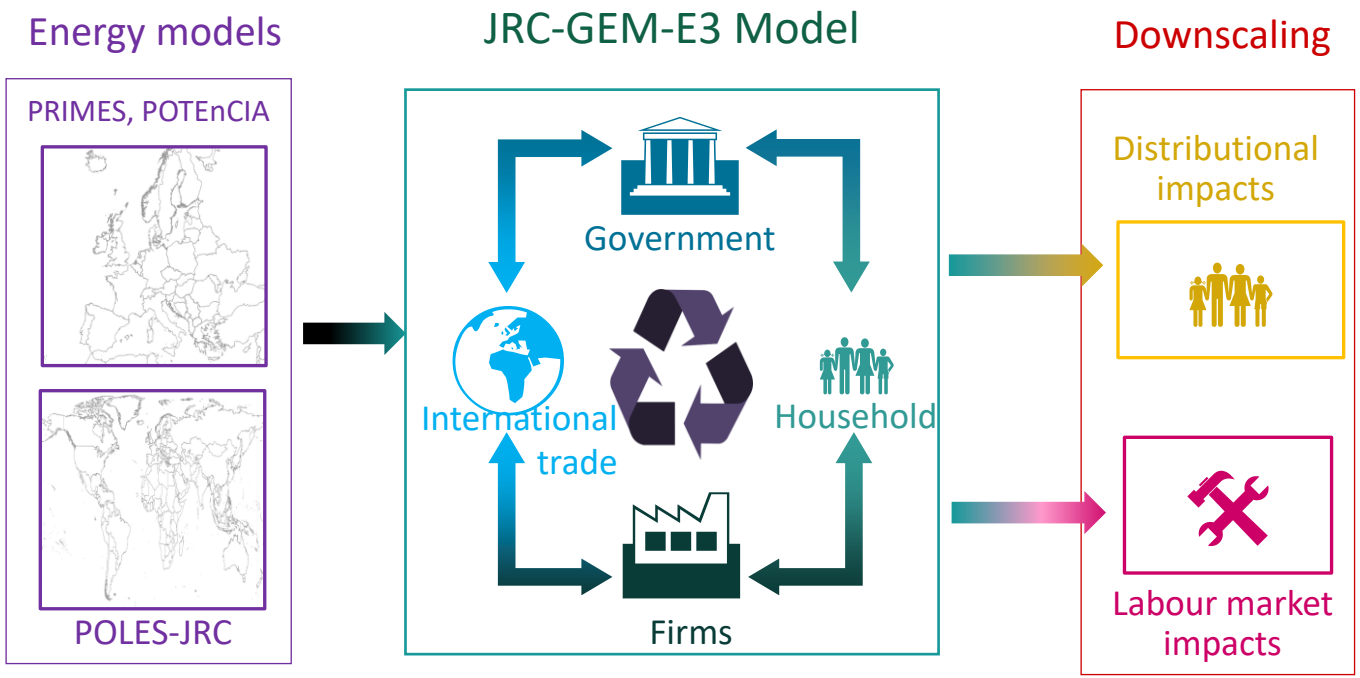
- Methods
  - Model setup
  - Scenarios
  - Simulation of a reference with fragmented trade
- Results
  - Globalised vs fragmented
  - GDP changes
  - Sectoral results

Global Energy and Climate Outlook (GECO)

- Annual publication about energy and emissions projections under various scenarios
- Energy modelling by POLES-JRC
- Socio-economic modelling by JRC-GEM-E3
- Stay up-to-date!
  Contact JRC-GECO@ec.europa.eu to sign up for our mailing list

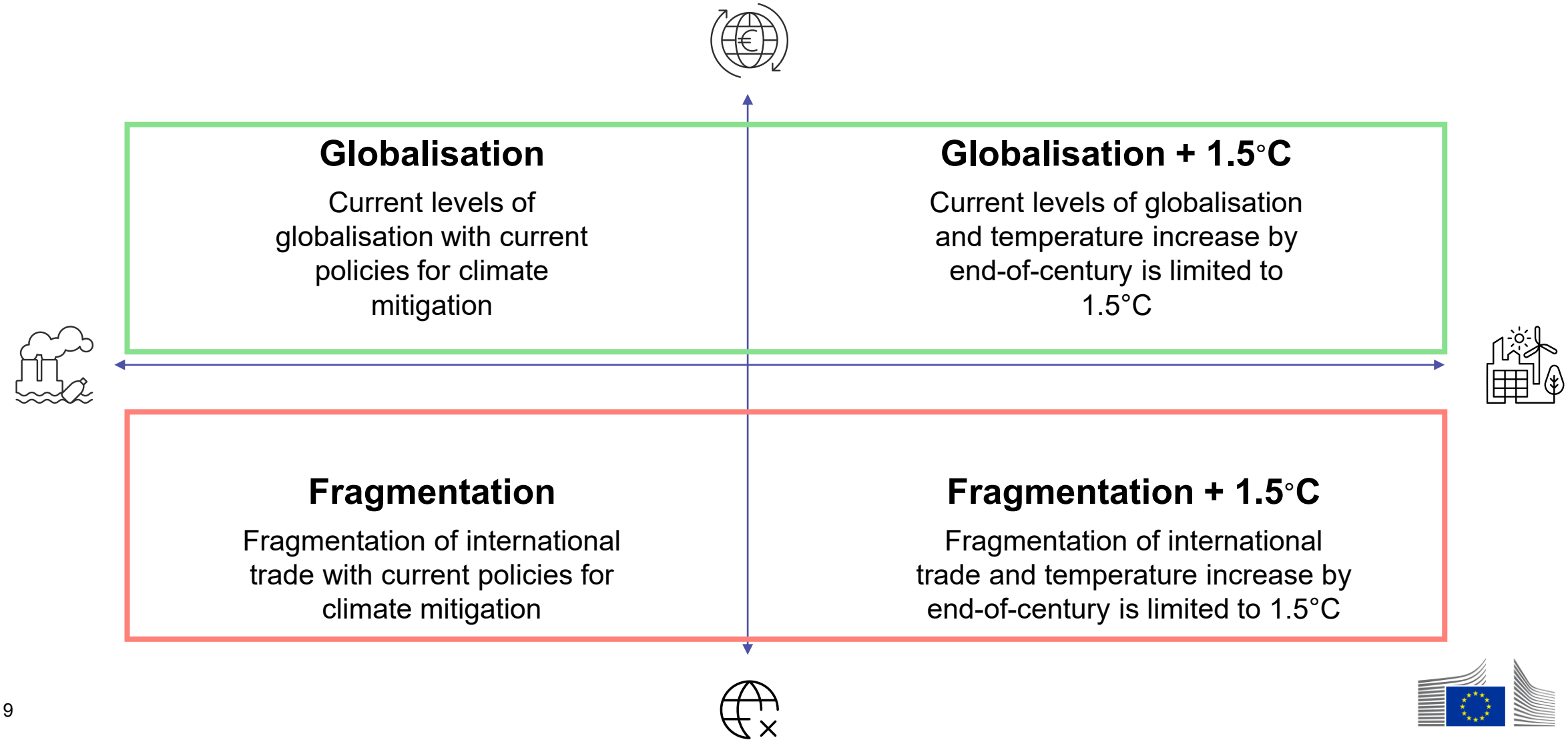


JRC-GEM-E3



- Computable General Equilibrium model
- Four institutional sectors
- Aggregation of all sectors of the economy (31 sectors) and of all world regions (49 regions)
- Recursive-dynamic
- Focus on relative changes from reference to scenario
- Linking of energy sectors, energy-intensive sectors, electrification, energy efficiency, carbon prices, etc.

References and scenarios

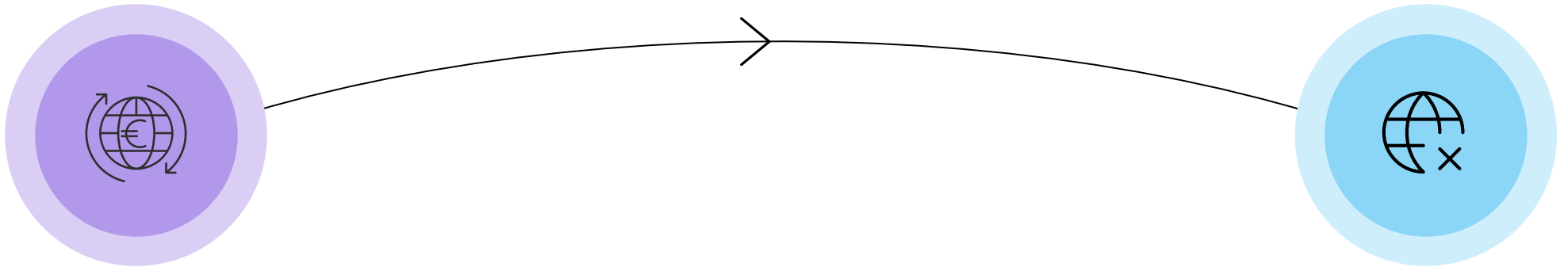


How to create a fragmented world?

Globalisation

Increase in ad-valorem import tariffs on all goods and services to reflect general turn towards self-sufficiency and autonomy

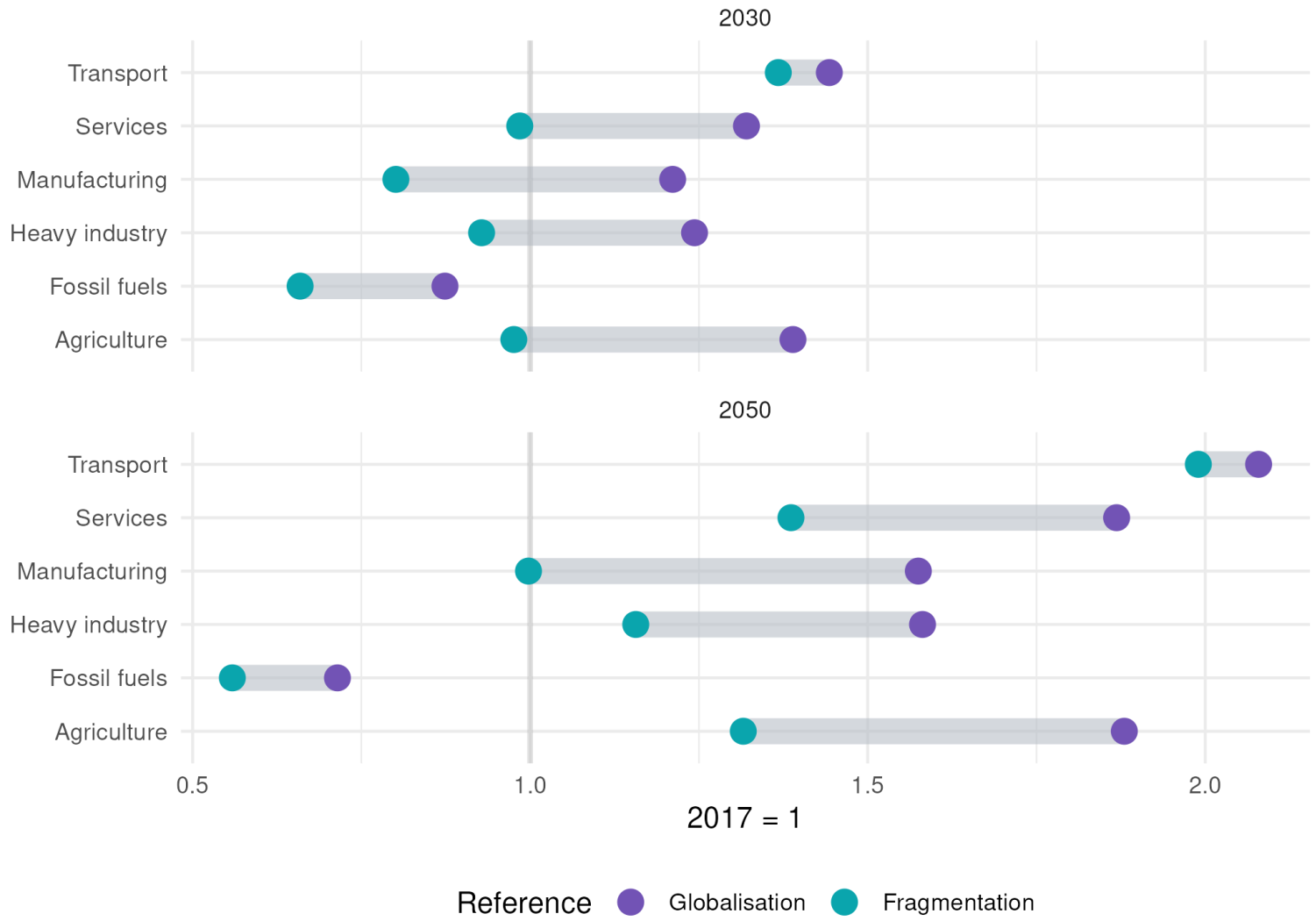
Fragmentation



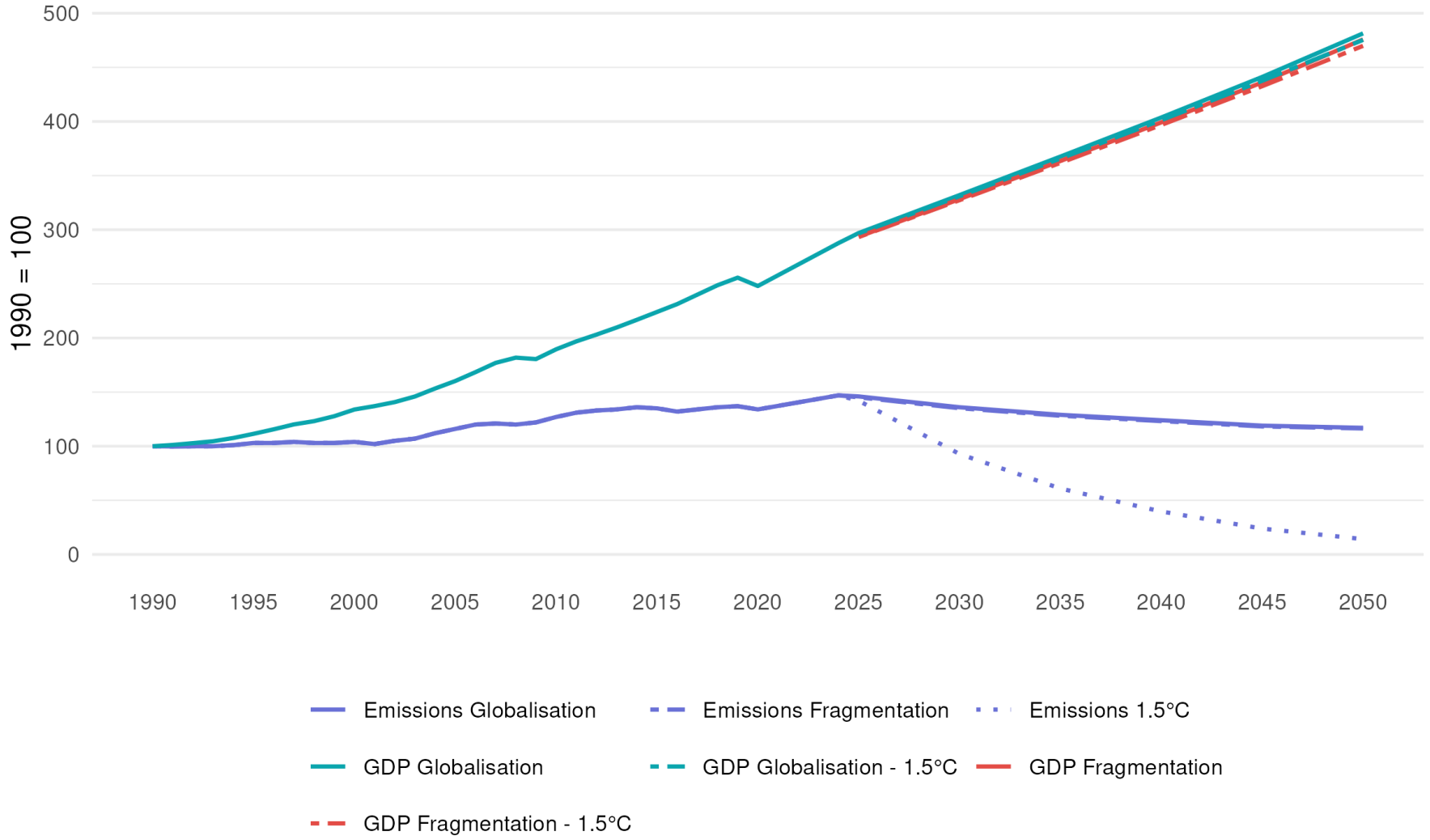
Reference scenario reflecting current policies and current economic structure

Reference scenario reflecting current policies and fragmented global trade

World trade per sector compared to 2017



Minimal interaction between climate and trade policy at global GDP level



Change in GDP compared to Globalisation

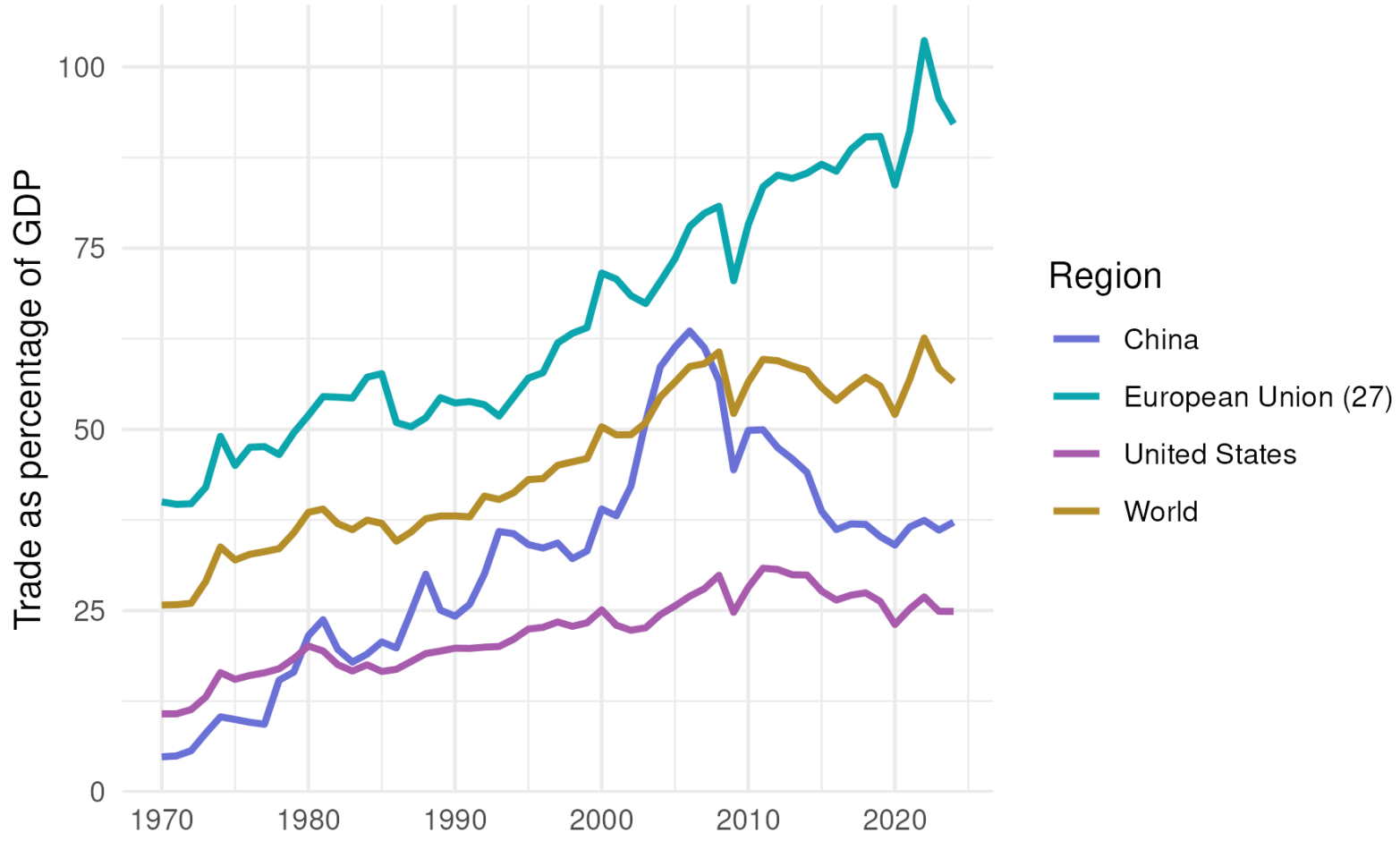
Change in output compared to Globalisation

Conclusions

- Minimal interaction between climate and trade policy at global GDP level
- Fragmentation leads to lower GHG emissions but does so inefficiently
  (GDP reduces more than emissions)
- The level of cooperation in international trade has potentially more interaction with climate mitigation policy at the sectoral level

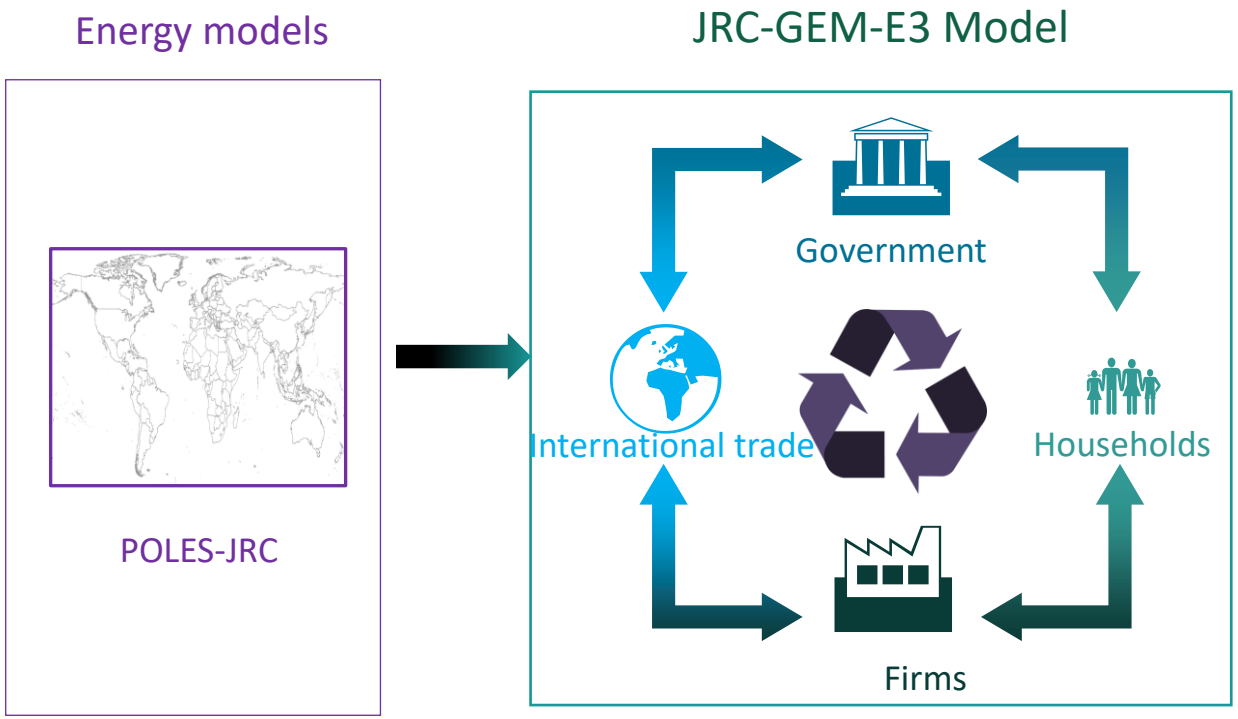
Thank you

Slowbalisation or fragmentation?



Source: Our World in Data

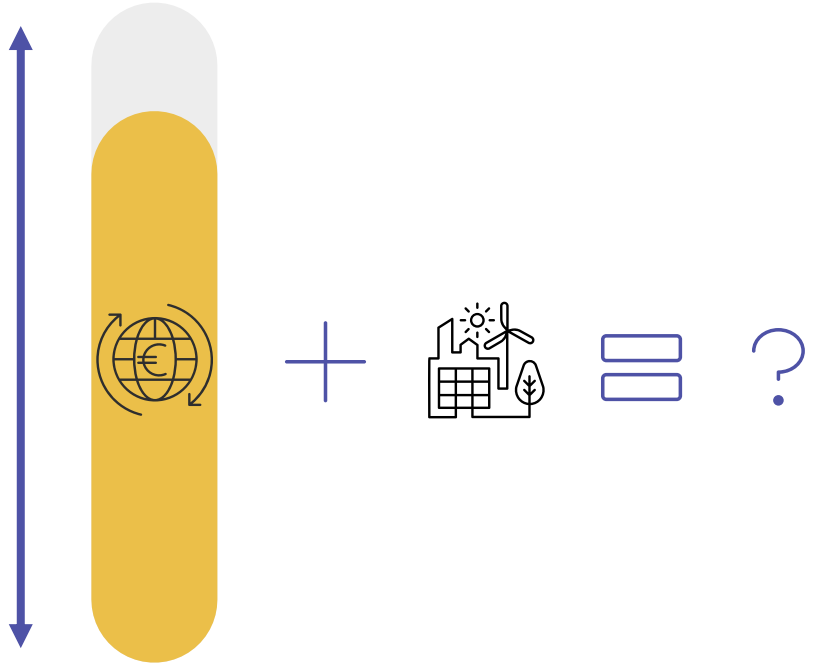
Linking POLES-JRC and JRC-GEM-E3



- JRC-GEM-E3 base year based on GTAP and POLES-JRC
- Reference scenario up until 2050 based on POLES-JRC and additional sources
- Scenario assumptions based on POLES-JRC
- Linking of energy sectors, energy-intensive sectors, electrification, energy efficiency, carbon prices, etc.

Interaction between climate and trade policy?

Cooperation



Fragmentation

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