

# Climate and energy policy evaluation

...closing knowledge gaps?

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European Environment Agency



# Which knowledge gaps?

- Science tells us to reduce global GHGs
- Clear policy targets to monitor and reduce GHGs
- We are able to measure our GHGs on a detailed level
- We can also measure the relative effects of specific drivers on GHG trends
- Policies are implemented on various levels in order to reduce GHGs
- Can we measure the role played by policies in observed GHG trends?

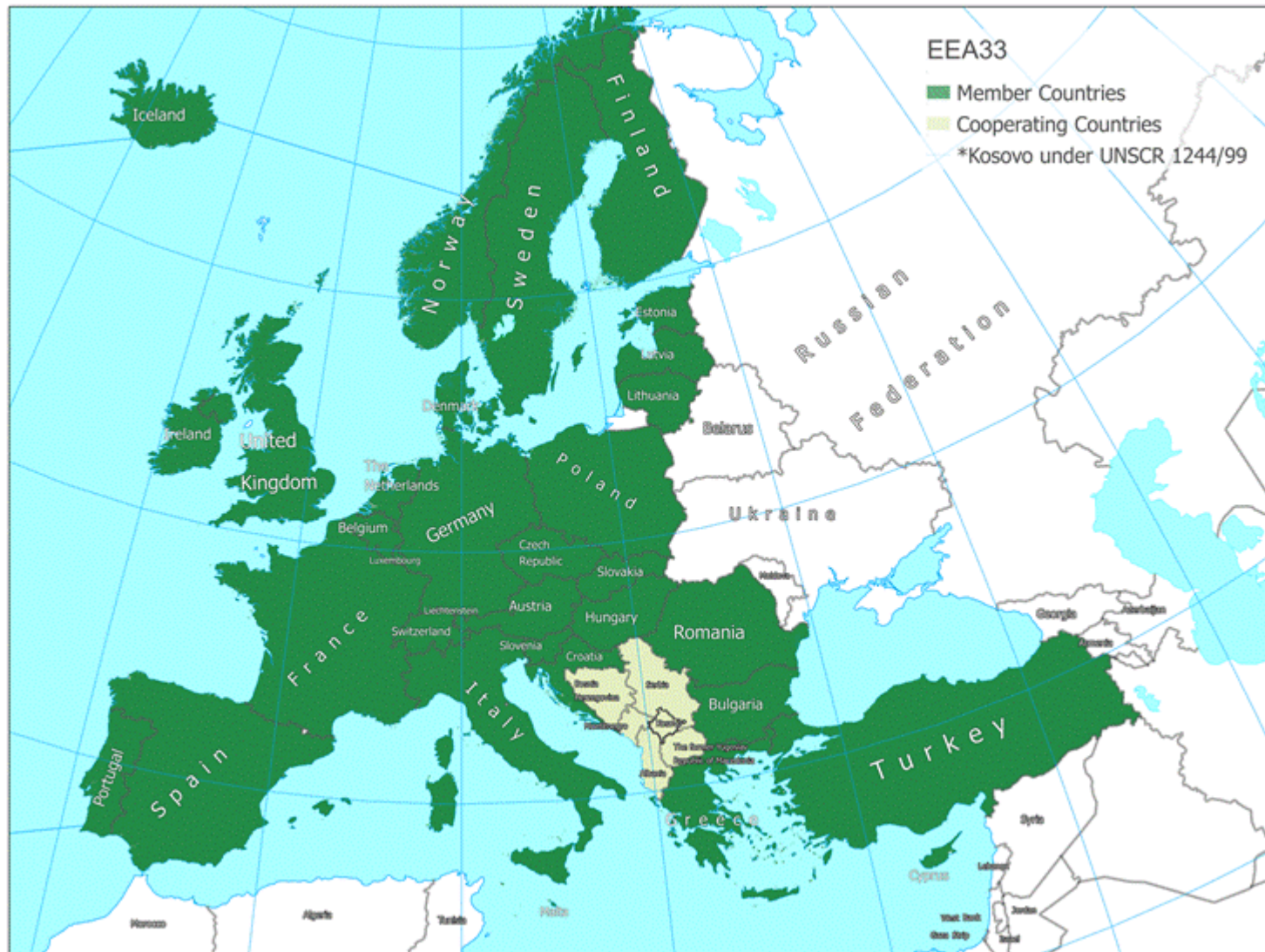
# The European Environment Agency (EEA) aims...

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“to support sustainable development and to help achieve significant and measurable improvement in Europe’s environment, through the provision of timely, targeted, relevant and reliable information to policy making agents and the public”



# 32 members + 7 cooperating countries



Science-based evidence (IPCC: 2°C target → reduce global GHG by 50%) → EU policy targets → policy action + monitoring, reporting and verification

### Rationale

- UNFCCC
- Legal: EU Monitoring Mechanism Decision / Regulation
- EEA mandate and work program
- Stakeholders' interests

### Data

- EU's official GHG inventory report (submission to UNFCCC)
- GHG projections
- Information on national policies and measures
- ETS
- Other datasets: air pollution, ODS, F-gases, etc.

### Assessments

- Progress towards **policy targets** (UNFCCC, Kyoto, 2020 targets for EU and Member States)
- **Understanding effects of various factors on GHG trends, in particular policies**
- Links between air pollution and climate change
- Point sources, externalities, etc.

### Products

- Data sets / viewers
- Indicators
- Reports / papers

**Stakeholders:** member countries, Commission, EU parliament, media, academia, general public

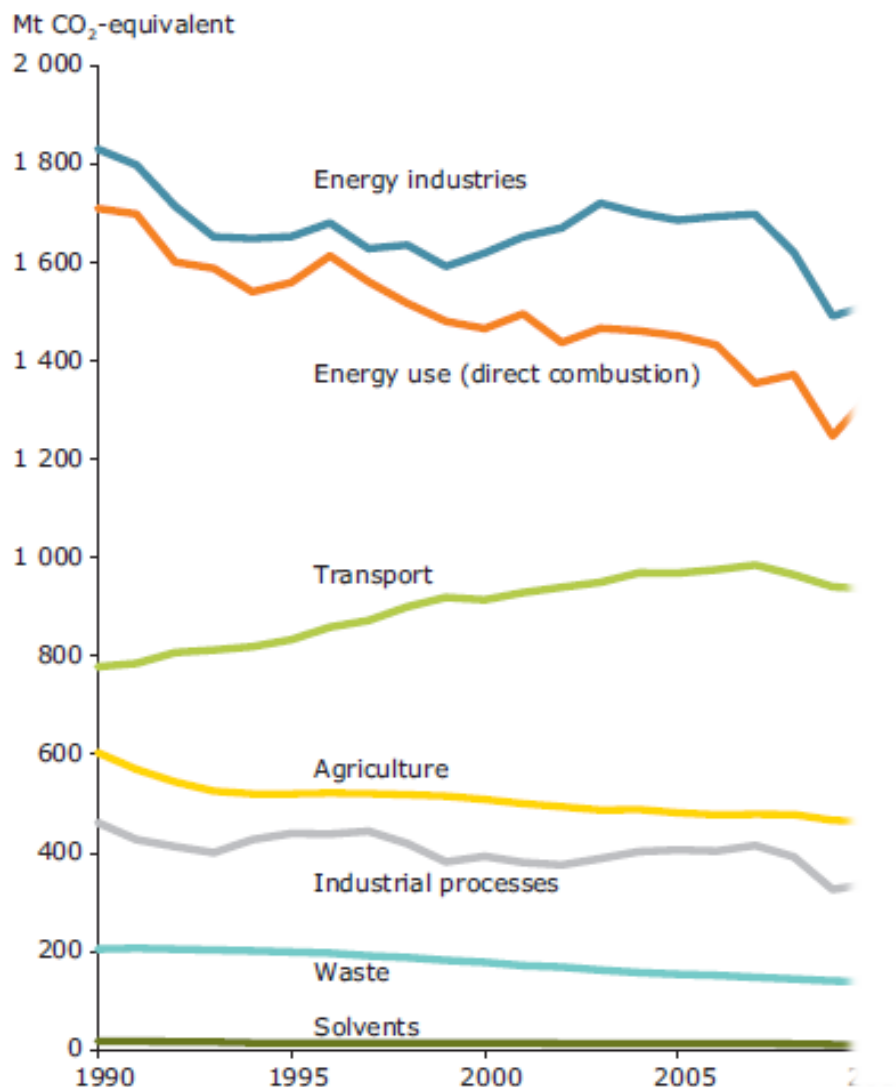




# Greenhouse gas emissions in Europe: a retrospective trend analysis for the period 1990–2008

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(How) Can we explain these trends (1990-2008)?

What were the underpinning drivers?

What was their relative contribution?

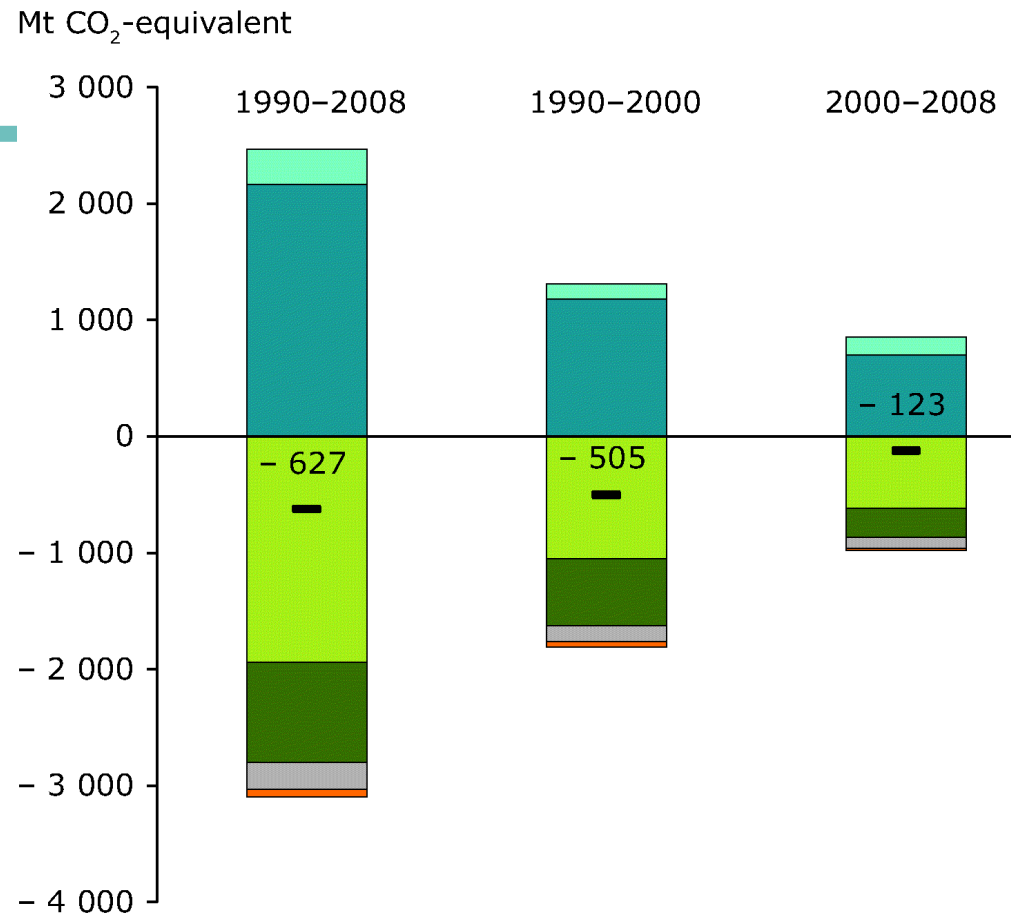
Are some of these drivers' contributions reflecting the effects of specific EU policies and measures?

**Can we single out the effects of policies? Which ones?**  
**Quantitative vs. qualitative?**



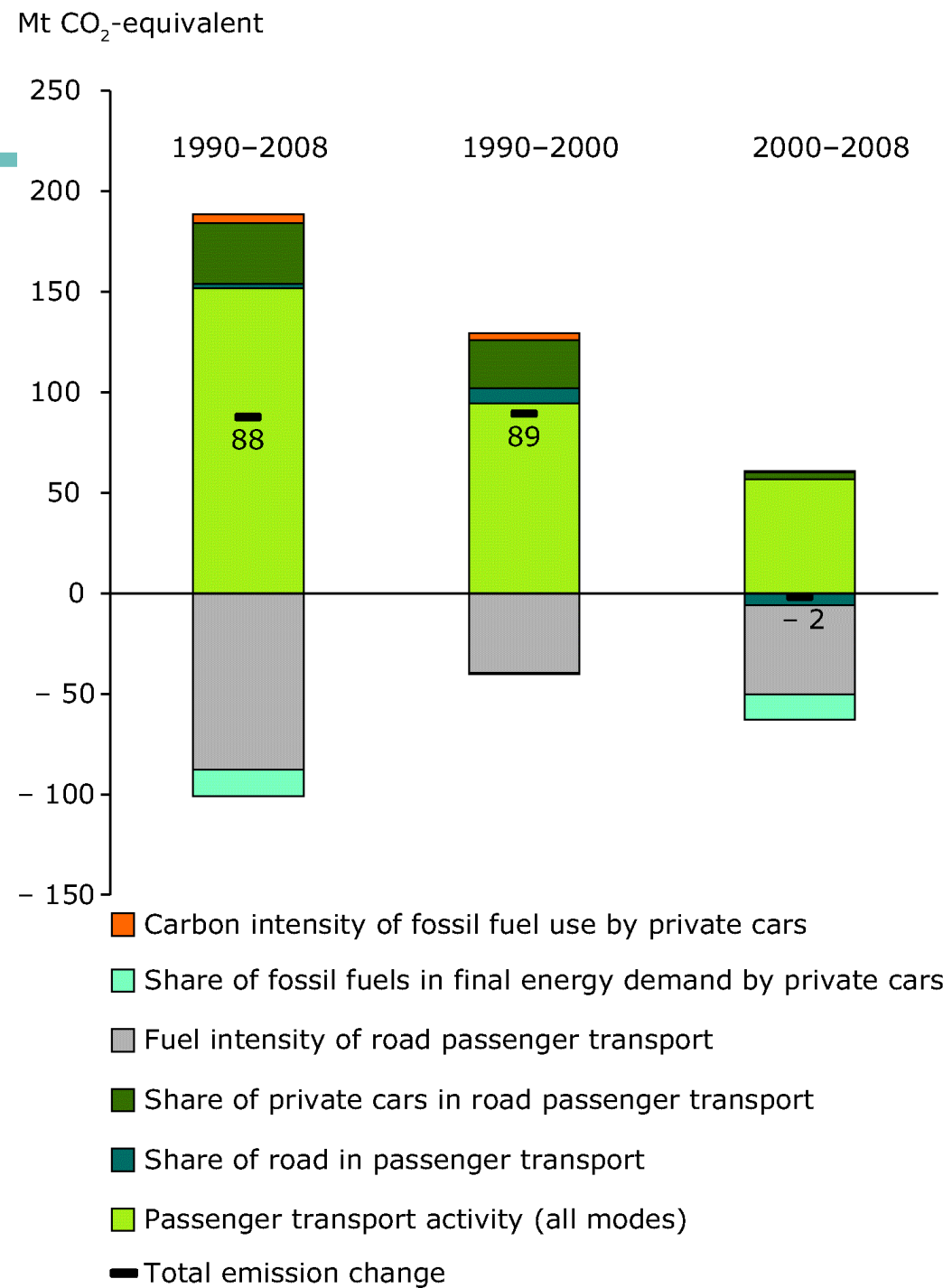
# Total GHG emissions

- Decreased from 1990 to 2008, despite strong economic growth as well as increases in EU population, energy production and energy consumption
- Short-term variations in energy consumption were mostly due to the households sector, which adjusts its energy demand to the annual variations of climatic conditions.
- The share of coal was significantly reduced, while gas became dominant

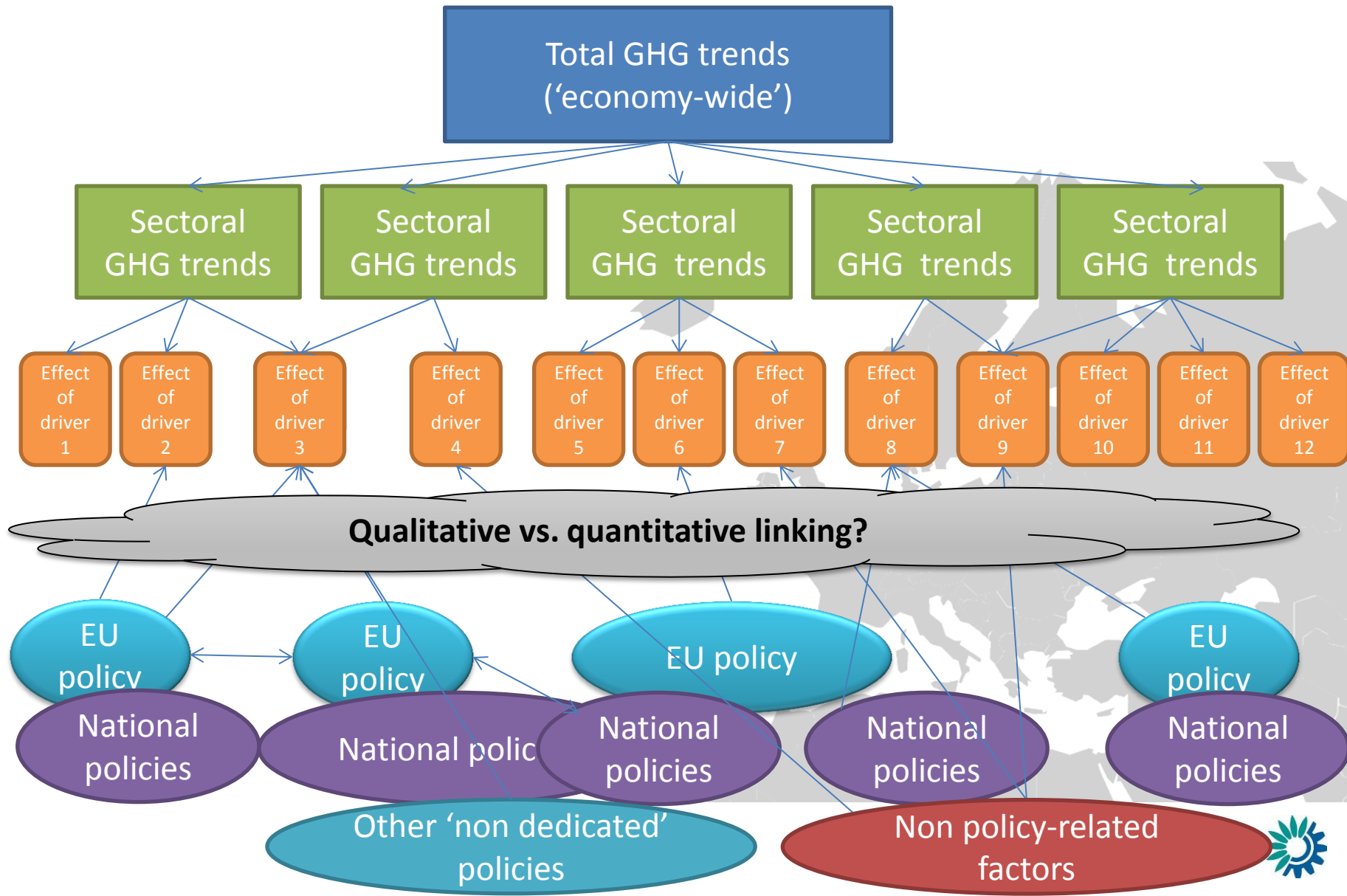


# Transport (passenger cars)

- Steady increase in CO<sub>2</sub> emissions from passenger cars from 1990 to 2000:
  - sustained growth in transport demand
  - increasing share of road compared with other modes
- Trend stabilisation between 2000 and 2008
  - significant reduction of the growth in transport demand
  - fuel efficiency improvements:
    - technological improvements,
    - dieselisation
    - more recently, biofuel blending



## How to refine the assessment of causality between policies and emission drivers? At what level(s)?



# Closing knowledge gaps

- The availability of GHG data allows quantitative analysis of GHG trends:
  - By sector, country
  - On an annual basis or for a longer period
- Additional data on explanatory variables and decomposition analysis provide quantitative effects of relevant drivers on GHG trends
- Drivers are policy related (e.g. renewables, efficiency) or not (e.g. weather, population, GDP per capita, economic structure)
- The influence of policies / instruments on drivers can be attributed to some drivers but quantification remains a methodological challenge
- Systemic effects to be disentangled between the different effects of individual policy measures

# Thank you for your attention!

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