EU Transport GHG: Routes to 2050?

Modal shift and decoupling transport growth from GDP growth for passenger transport

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www.eutransportghg2050.eu

Partners

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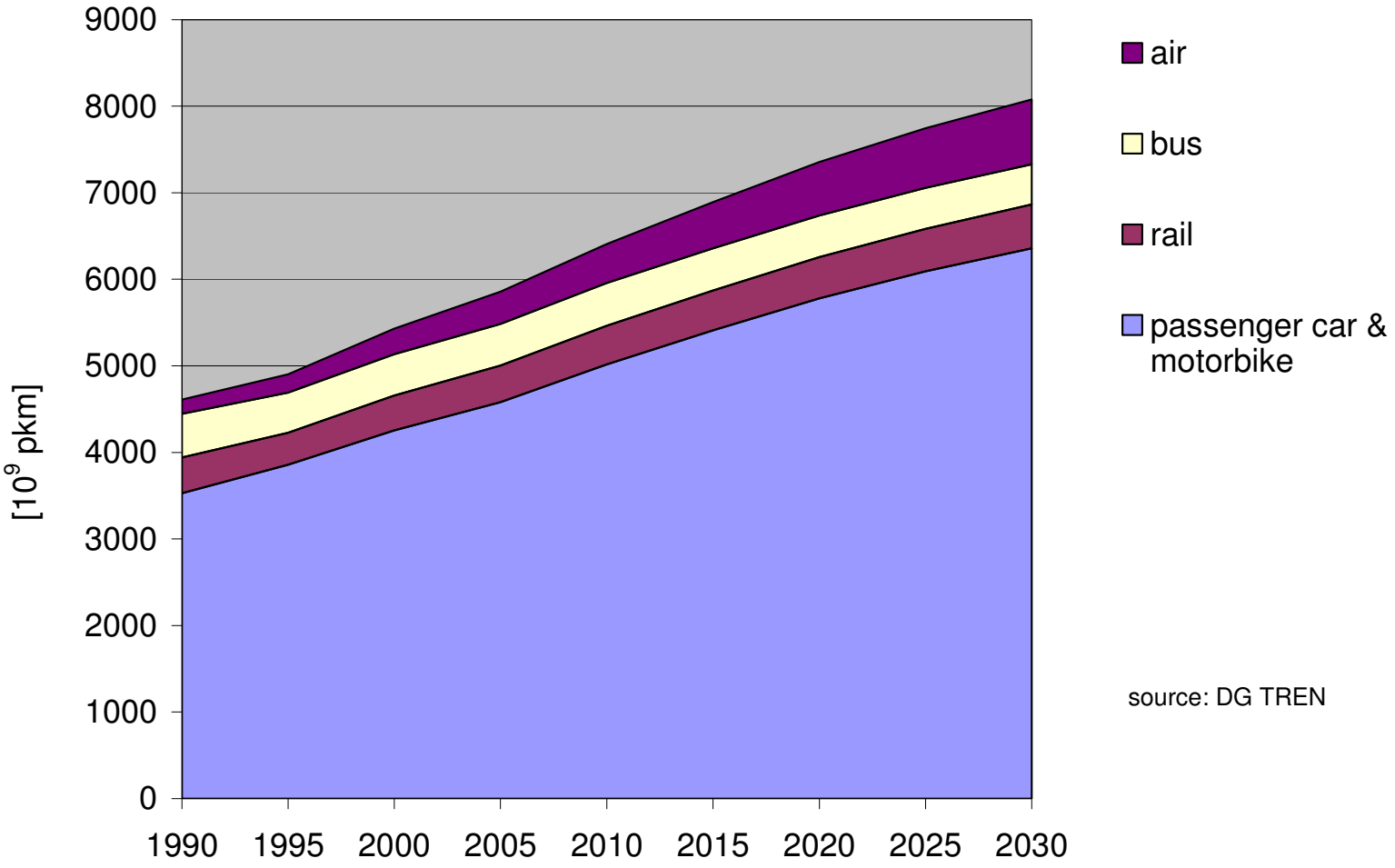
Overview of presentation

1. Modal shift passenger transport
   - Trends
   - Drivers
   - Modal comparison
   - Potential of modal shift
   - Policy options

2. Decoupling passenger transport from GDP growth
   - Trends
   - Drivers
   - Policy and barriers options

3. Conclusions/discussion/questions

Projected development passenger modal split

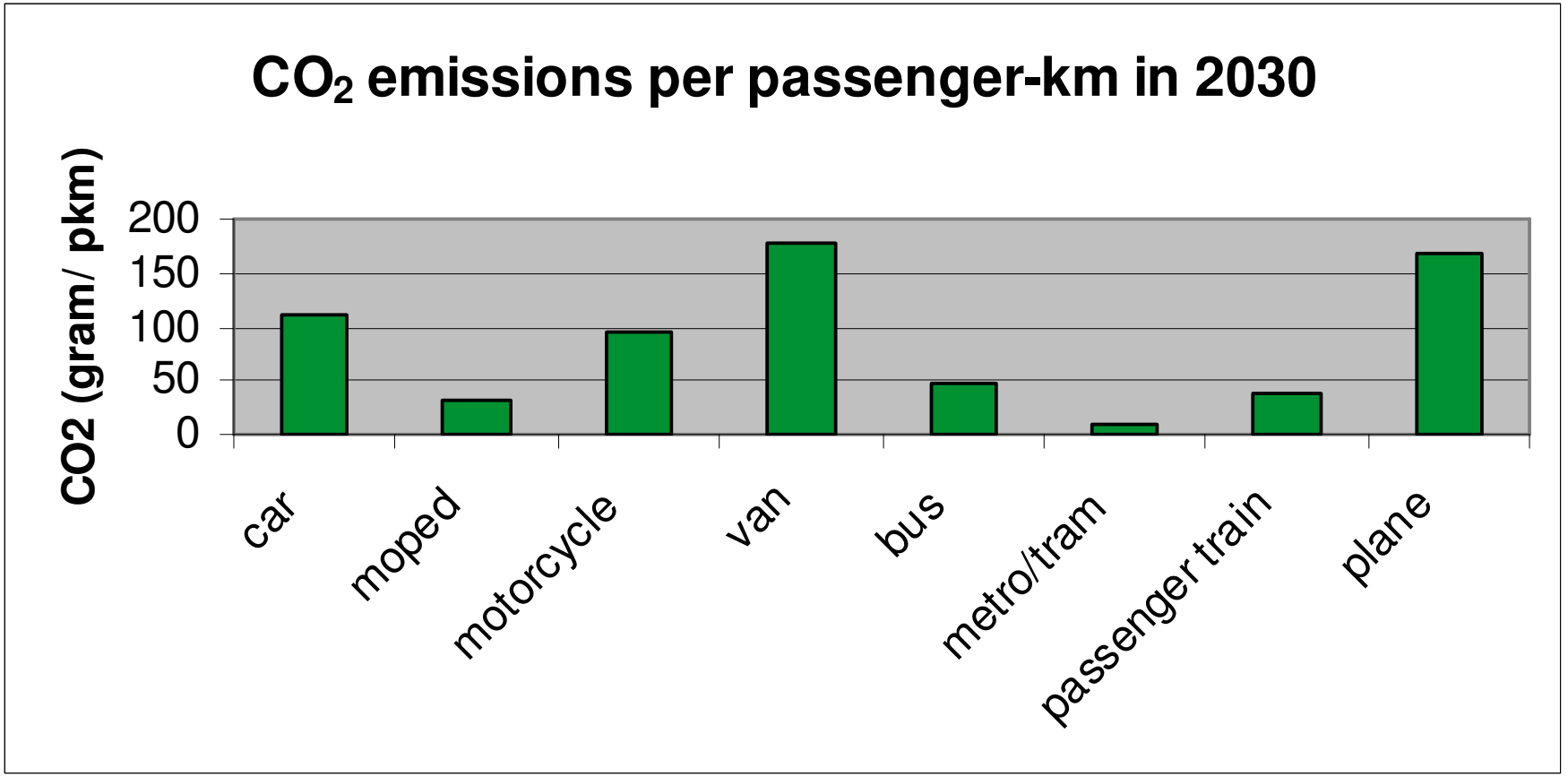


source: DG TREN

Drivers behind the trends in modal split

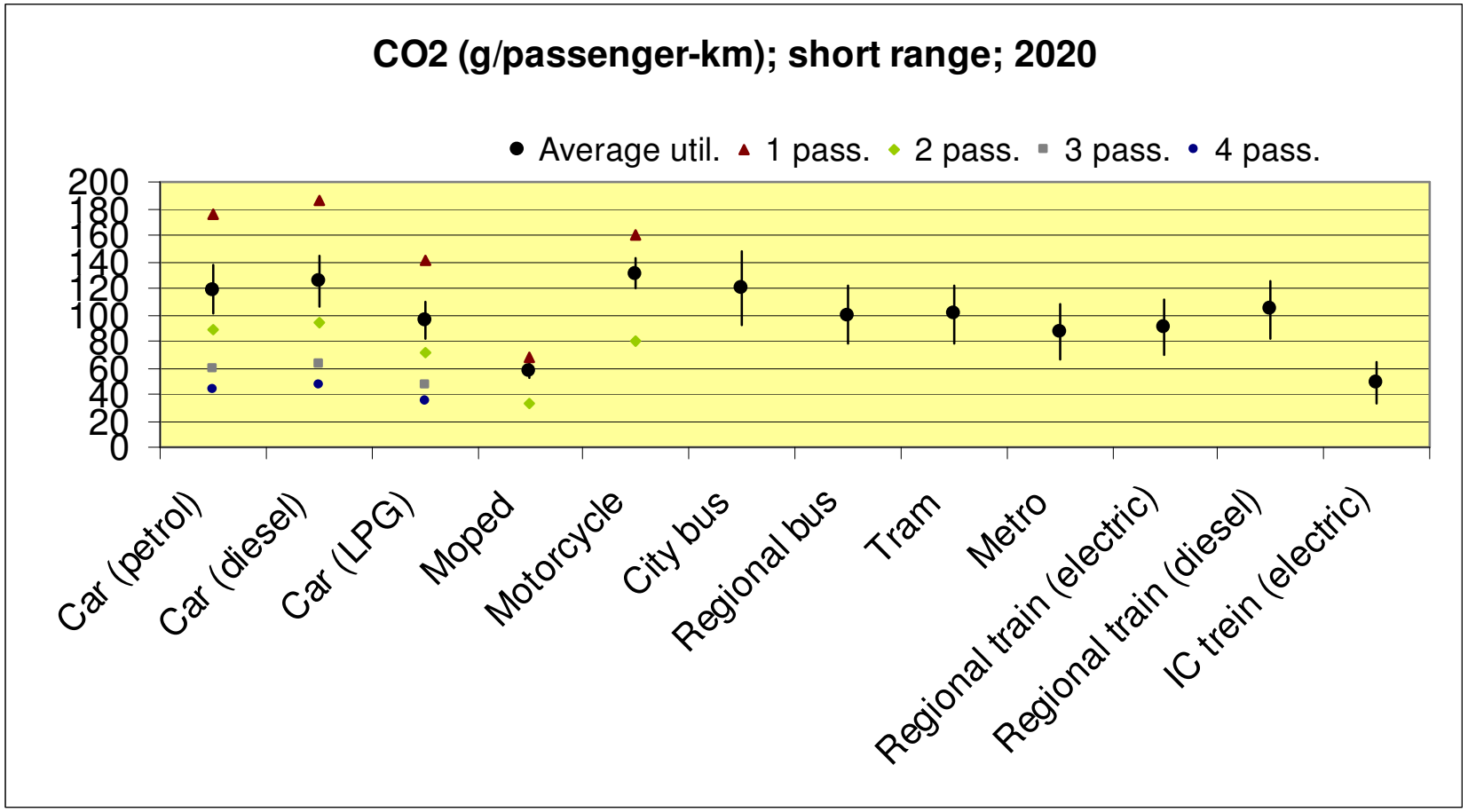
- Increased car ownership, particularly in the new EU member states.
- More flexible and faster transport needed for combining tasks at increasing number of locations (related trends: women participation labour market, increase in leisure activities)
- Current transport costs structure (with high share of fixed vehicle costs rather variable costs linked to transport usage).
- Urban sprawl: in suburbs accessibility to basic services by public transport, cycling or walking decreases.

Modal comparisons (1)



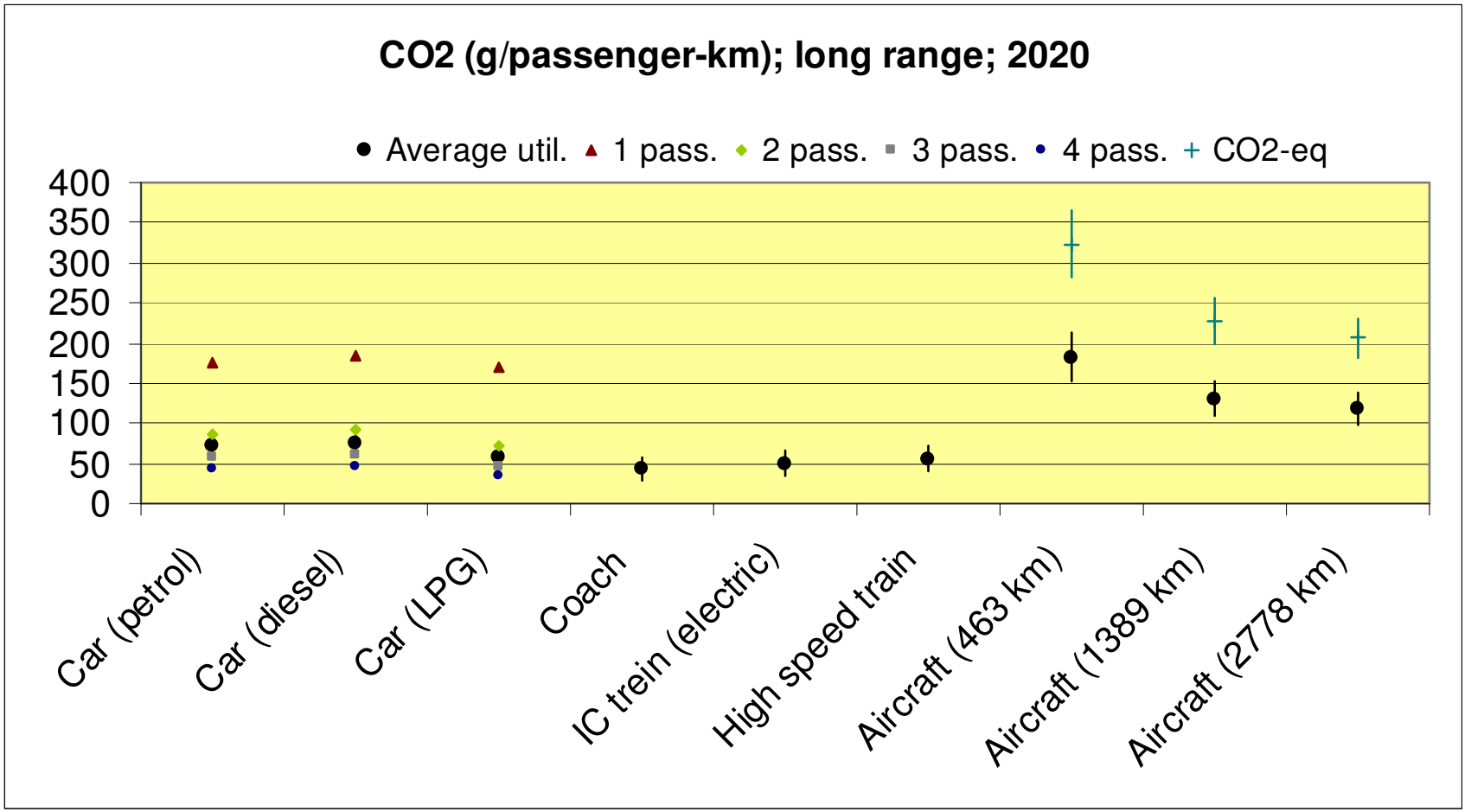
Source: Tremove

Modal comparisons (2)



Source: STREAM

Modal comparisons (3)



Source: STREAM

Conclusion from modal comparisons passenger transport

- Car and motorcycles emit more CO_2 per pkm than most public transport modes, but highly dependant on vehicle utilisation.
- Rail transport and long range coaches show lowest emissions
- When all emissions of a trip are accounted for, the difference between modes is not that great.
- Emissions per pkm of aircraft are much higher than of surface bound modes, especially when all GHG effects are included.
- High sensitivity to the degree of utilisation: car with four people almost best in class, while car with one occupant scores badly.
- Modal comparison at the long term uncertain.

Potential modal shift passenger transport

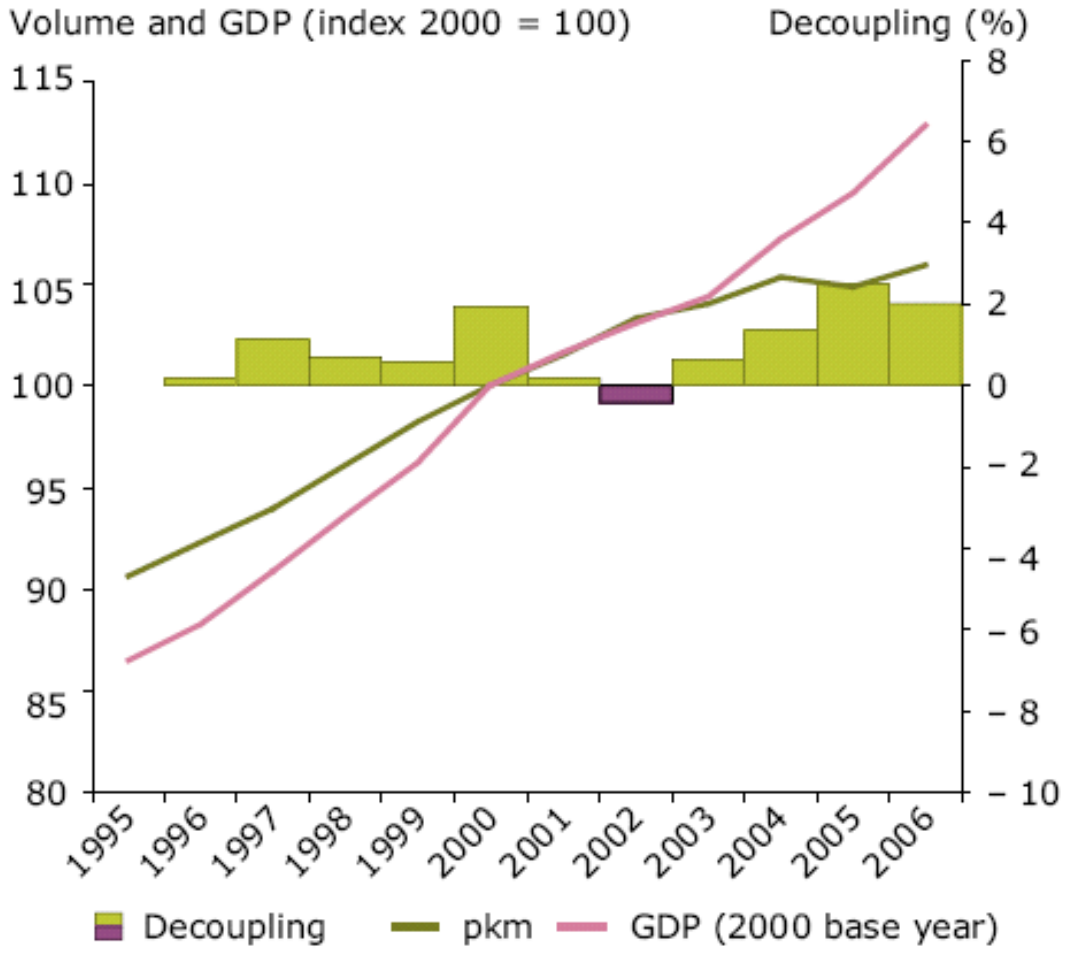
	Reduction CO_2 emission	
short range*	STREAM	TREMOVE
Car to IC train	60%	67%
Car to metro	28%	93%
long range*		
Car to IC train	31%	67%
Air to High speed train**	76%	78%

- Potential shift in pkm found in literature: share rail from 10% now to 17% in 2030 and 33% in 2050.
- Conditions: all rail infra upgraded to the level of highly populated areas and travel cost & times competitive.
- Preliminary estimates for potential CO_2 reduction of modal shift: 2 - 14%.
- No agreement on the CO_2 reduction potential: some see very limited potential at high cost while others are more optimistic.

Policy that can contribute to modal shift

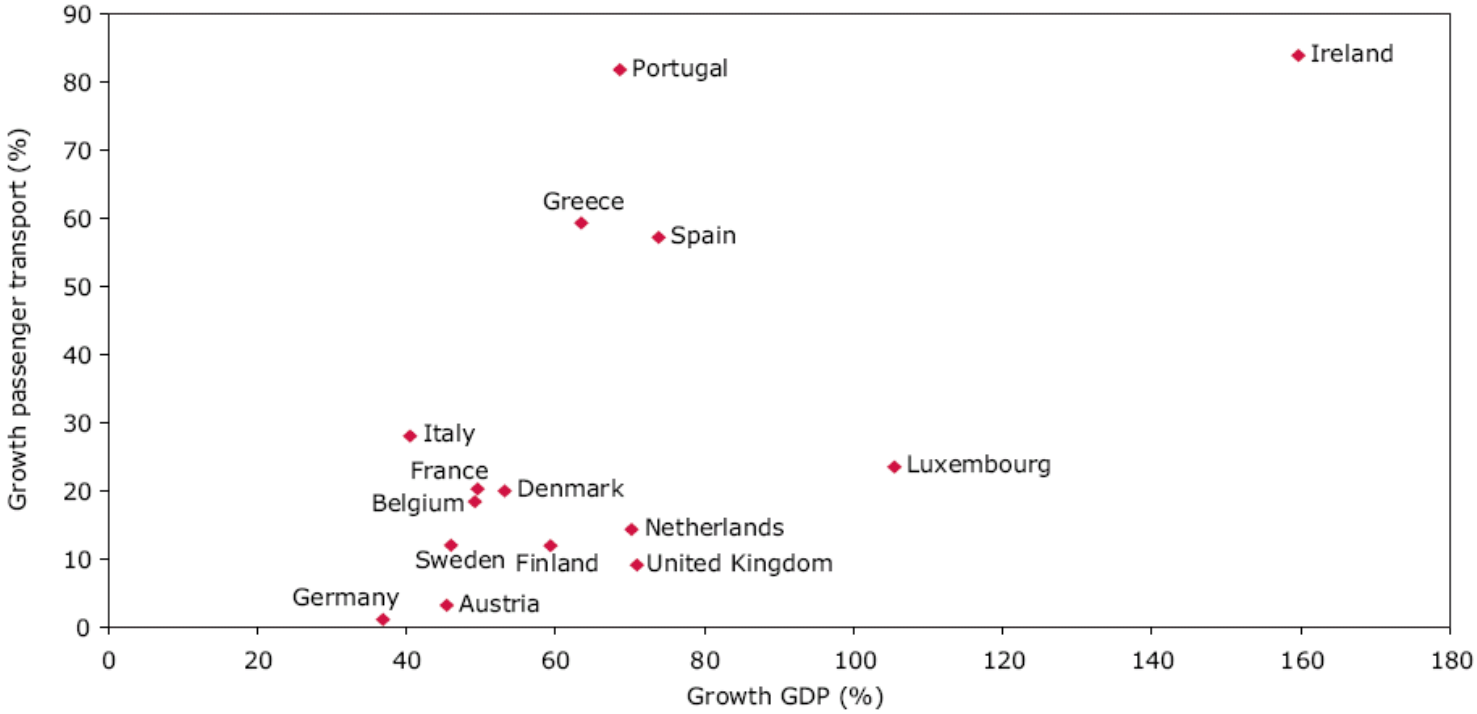
- Infrastructure policy
- Spatial policy
- Improving interconnectivity of intermodal networks
- Transport pricing
- Speed limits

Limited decoupling



GDP growth vs passenger transport growth

EU-15: Growth passenger transport (1991–2002) — growth GDP (1991–2002)



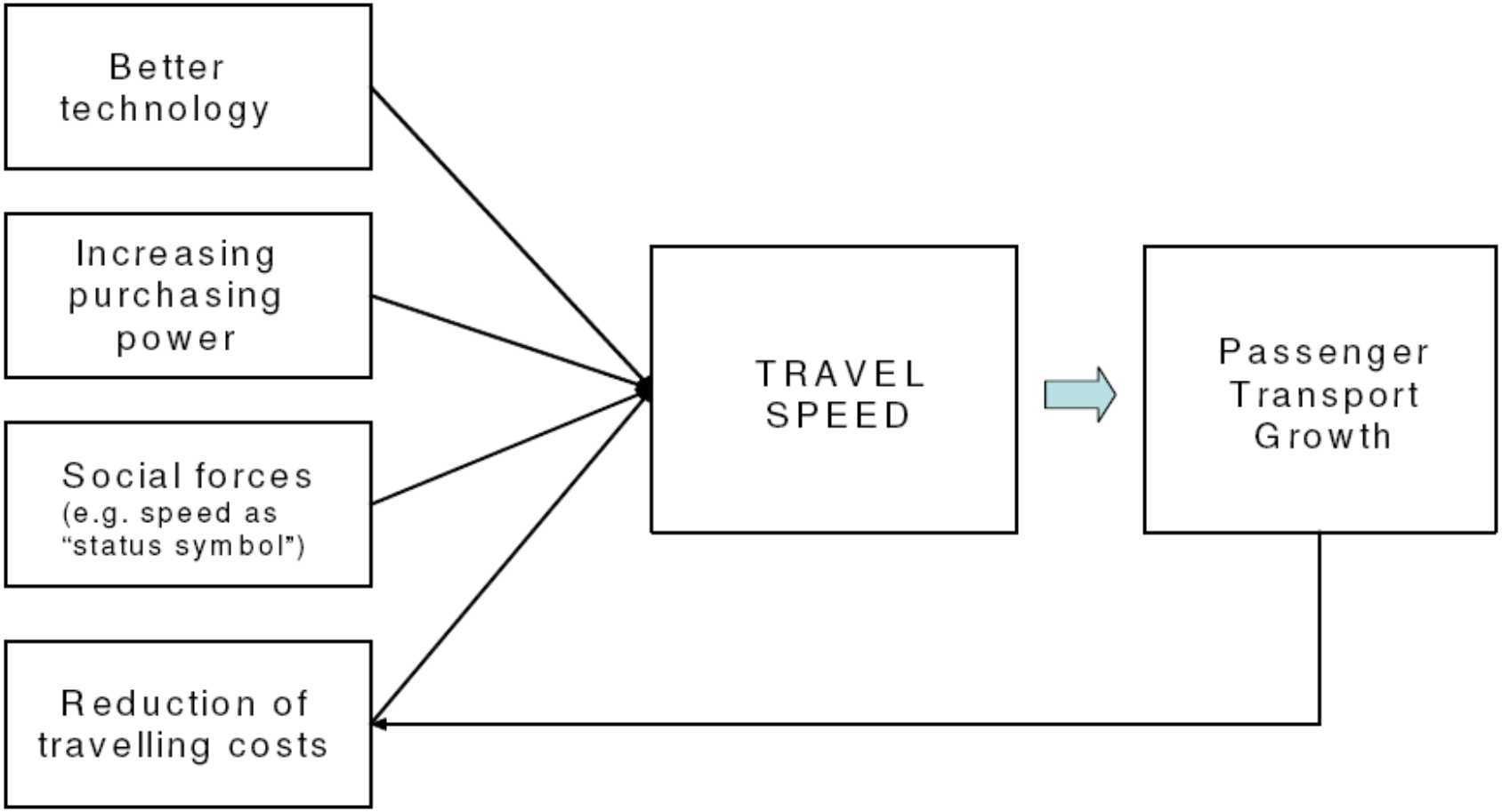
Note: The figure shows the correlation between growth in the economy and growth in passenger transport. The correlation is visible from the distribution, but there is also a relatively broad range of different economic growth rates which can lead to the same growth in passenger transport.

Source: EEA, 2006, Fact sheet 12, 2005 data sheet (based on Eurostat, 2005a, and EEA, 2005d).

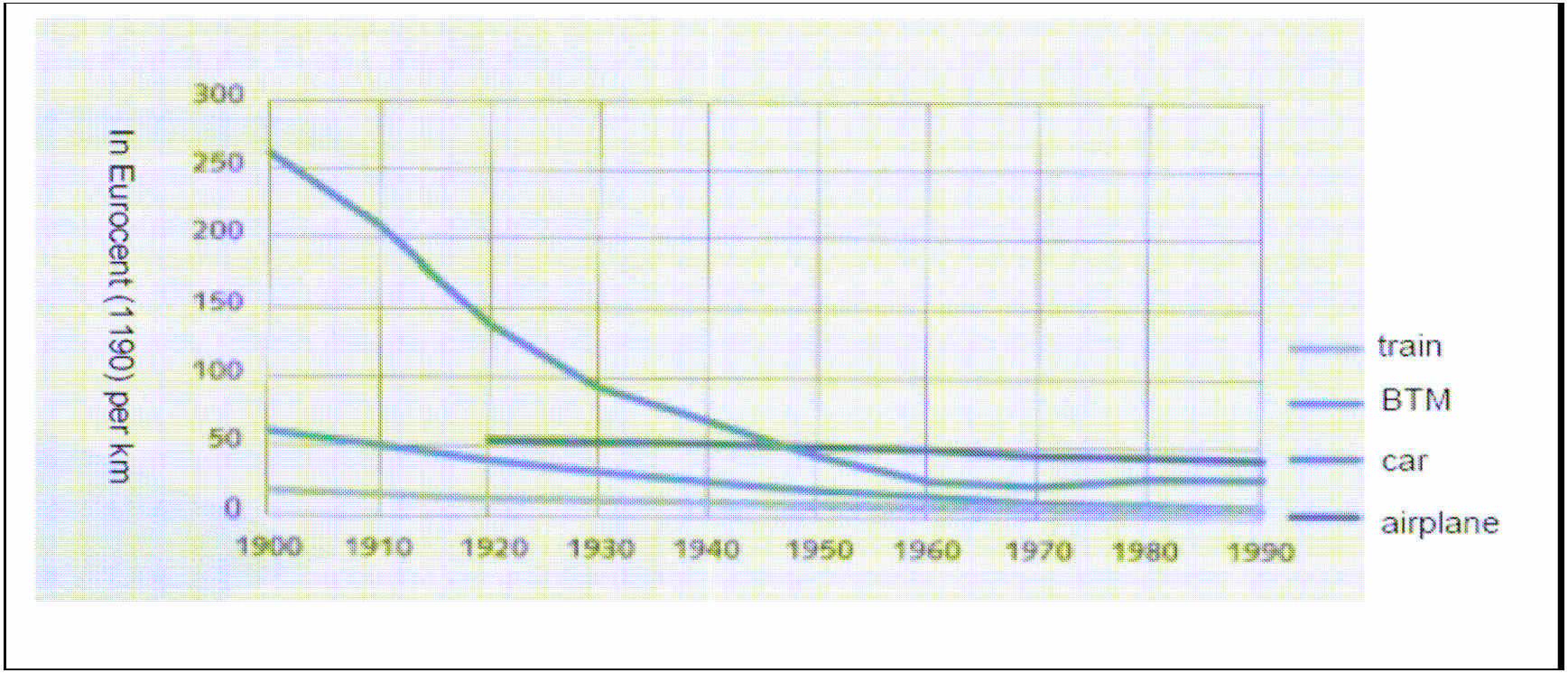
Main drivers passenger transport growth

- **Speed, cost and quality**: travelling has become faster, cheaper, more comfortable and reliable.
- Shift to ever **faster modes** of transport; the time persons spent on travelling has nearly stayed the same.
- The following forces made the switch to faster transport modes possible:
  - **Technological improvements (both vehicle and infra)**, each mode has become faster, cheaper and more comfortable
  - **Increasing purchasing power**
  - **Social forces** (i.e. Status)
  - **Reductions in travel costs**, promoted the shift to faster modes

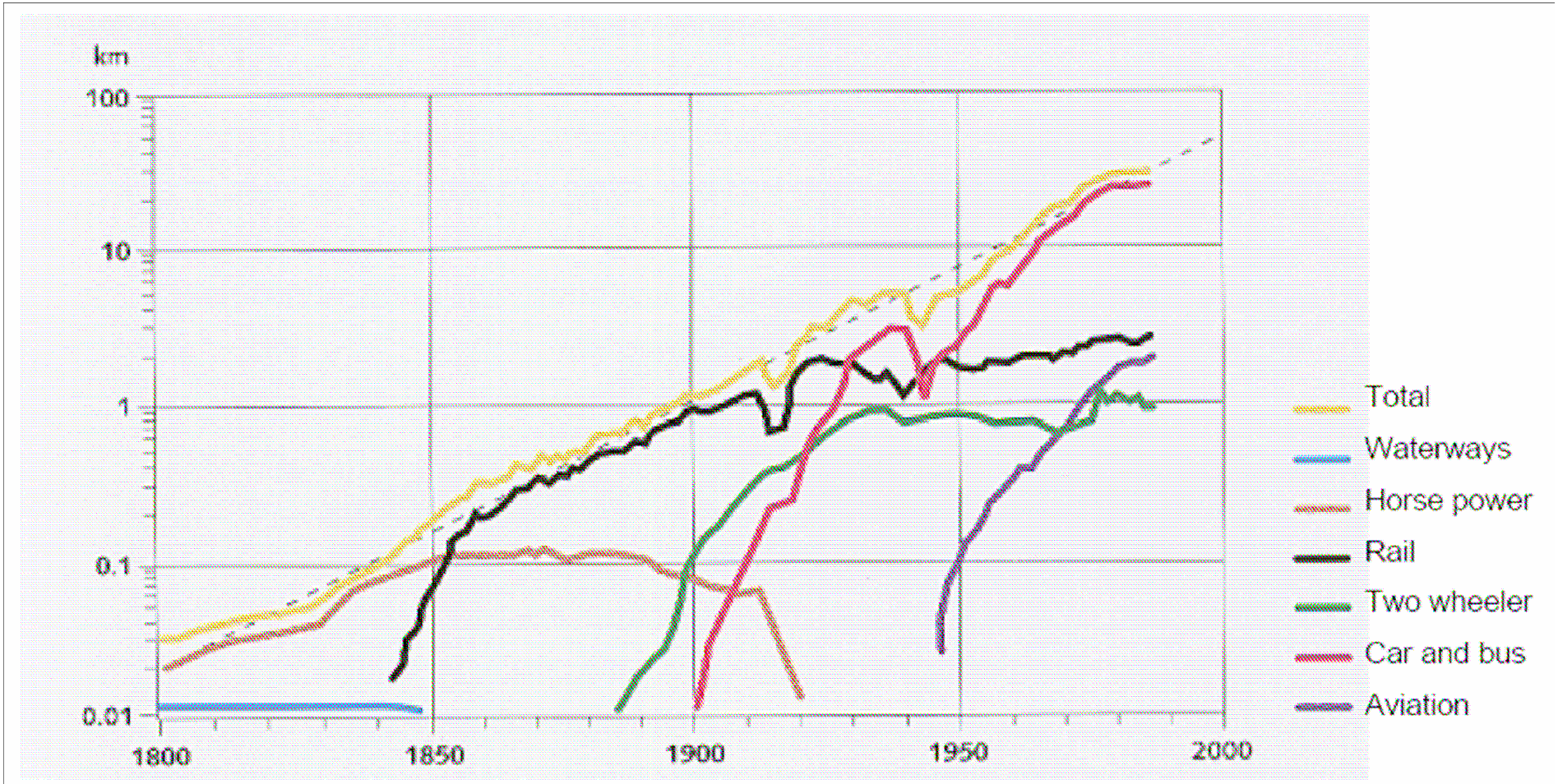
Transport speed and passenger transport demand



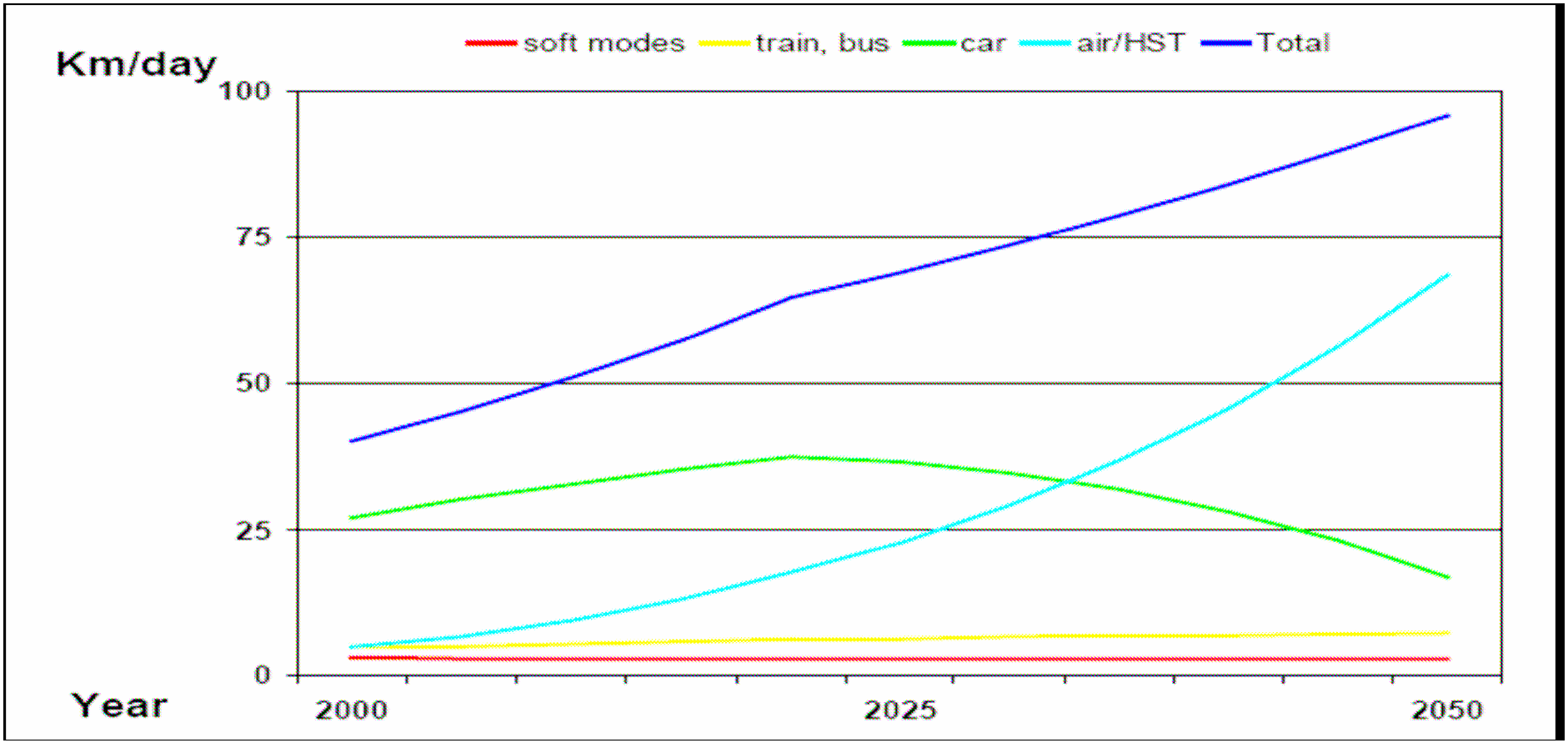
Trend in passenger transport cost



Average speed increases steadily since 1800…



Long term expectation of modal shares



Policies and barriers

- **Transport pricing options**:
  - Price increase (price elasticities passenger cars
  - Variabilisation: from fixed to variable taxes and charges
- **Infrastructure policy:** less fast growth capacity will result in increasing travel times this will ultimately result in a decreasing transport demand.
- **Speed limits**: increased travel times result in the long run in a decrease in the transport demand.
- **Urban planning**, e.g. compact cities with all basic facilities in the neighbourhood.
- **Measures in other sectors**: tax levels for buying/selling a house and policies aimed at teleworking , teleconferencing.
- **Main barrier for curbing freight transport demand growth**: the risk of adverse economic impacts.

Conclusions

- **No modal shift to rail and public transport expected, rather to aviation.**
- **Significant differences in average GHG intensity of modes.**
- **Impact of modal shift depends strongly on vehicle utilization.**
- **Estimates for modal shift potential ranges from 2 to 14%.**
- **Demand growth main driver behind GHG growth passenger transport.**
- **Higher speed (shift to fast modes, GDP growth, increased car ownership) and low cost main drivers behind transport growth**
- **Main policy options for modal shift and demand management:**
  - **Spatial and urban planning**
  - **Infrastructure policy**
  - **Transport pricing**
  - **Speed limits**

Questions

- How much passenger modal shift is possible till 2050?
- What do see as GHG reduction potential of passenger modal shift?
- What would be needed for a substantial modal shift?
- Do you agree that passenger transport growth is the main driver for passenger transport GHG emissions?
- Do you agree that increased speed is the main driver for passenger transport growth?
- What do you regard as the main options for decoupling passenger transport growth from GDP growth?