Climate change mitigation in transport: the academic literature

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CO2 emissions and transport

- USA
- EU-27
- China
- India
Objectives

- Summary of transport researchers’ engagement with climate change mitigation & energy use
- Explanation for identified trajectories
- Identification of further pathways to be explored
Brief review (i)

Elements within transport systems

- Transport technologies
- Physical infrastructure & land use configuration
- Price of transport
- Psyche of users (behaviour change)
- Institutions

Methods and methodologies

- Various (quantitative) methods but dominance of:
  - Scenario approaches: extrapolation & desirable futures
  - Infer conclusions about future from empirical data about current behaviours
- Dominance of ‘scientific method’ but emerging trend of participatory methods?
Brief review (ii)

Some key tendencies:

✓ Privileging of technological & infrastructural solutions
✓ Growing and reinvigorated popularity of market-based approaches
✓ Quantitative & positivist research prevails but dominance challenged in the margins
Explanations

Pathways followed cannot be understood without:

- Attention to historical evolution of transport studies as academic discipline – understood through Kuhn/Rouse
- Consideration for more general ways of thinking about and acting towards climate change mitigation – understood through governmentality approach
Approaches

✓ Rouse/Kuhn:
  - Normal science ≈ equipment-informed going on, structured by paradigmatic examples

✓ Governmentality:
  - Analytical perspective on ‘conduct of conduct’
  - A particular style of government:
    - Green Governmentality: top-down managerialist approach to prudent use of natural resources by populations
    - Ecological Modernisation: unity of economy and ecology, based on the recoding of environmental issues in economic terms, decentralised government, active role of responsible citizens, and techno-optimism
## Complementarity & reinforcement

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### UKTRC
Making connections

### TRANSPORT STUDIES UNIT
School of Geography and the Environment

### University of Oxford
Insights from employing GL lens

Academic research as techniques that render invisible:

✓ Technology as Latourian mediator in behaviour (cf. ANT)
✓ The entanglement of technology & behaviour (cf. STS approaches)
✓ Markets as fragile and complicated sociotechnical arrangements (cf. ANT & economic sociology)
✓ The gap between intentions and behaviour & the importance of the pre-cognitive realm (cf. practice theory & theories of affect)
✓ Non-linear temporal consequences of emissions (cf. complexity theory)
Additional pathways

✓ Rapprochement with traditions from sociology, human geography, cultural studies, etc. to:
  ▪ Develop understandings of transport as open, complex and social
  ▪ Expand repertoire of methods and methodologies

✓ Move towards broader conception of transport systems:
  ▪ Consider a wider range of agents and interactions
  ▪ Focus more explicitly on links with other sectors

✓ Address questions beyond the minimisation of CO₂ emissions
Further questions (i)

✓ What is the kind of world ‘we’ want to live in & find desirable? How should mobility be configured in that world?

✓ Why are the responsibilities for decarbonising transport located with individuals, vehicle producers and public authorities and not with those stakeholders promoting economic growth and propagating consumerist lifestyles?

✓ Are neo-liberal ways of governing CO$_2$ use in transport not exacerbating existing or creating new social inequalities?
Further questions (ii)

✓ What about agents who are not endowed with the capacities required to instrumentally manage carbon budgets, or cannot exercise the level of choice in shaping travel patterns that neo-liberal logic takes as given?

✓ Is transport in principle a right and/or capability (cf. Sen/Nussbaum) to which people ought to be entitled?