Climate Change, Energy and Transport: Expanding the Research Agenda

What are the key research topics, approaches and disciplines that should be involved in making a substantive social sciences contribution?

Introduction

Anthropogenic climate change is becoming a central concern to transport researchers, policymakers and professionals, and this is no surprise: transport is one of the few sectors whose contribution to greenhouse gas emissions (GHG) is growing in both absolute and relative terms. A lot of research on climate change mitigation in transport is being conducted but much more work is required. In the ESRC-funded study *Climate Change, Energy and Transport* seven key research themes have been identified on the basis of literature reviews, questionnaires among transport scholars and interviews with twenty leading UK scholars from across the social sciences. The list is certainly not exclusive but highlights the importance of (further) cross-fertilisation of transport studies and the wider social sciences. Here we identify some of the key research topics, the methodological approaches, and the social science disciplines that should be involved.

1. Mitigation and Adaptation

Most transport-related scholarship on climate change has focused on mitigation and reducing emissions. Whilst of the greatest importance, more research is also needed on adaptation, particularly in risk-prone areas and especially in the Global South. Such work should not be limited to a focus on infrastructures’ resilience or to risk analysis at the transport system level. Deeper understanding is also required of whether and how people consider climate change-related risks in their everyday transport choices and practices, and of the resilience of their mobility patterns.

2. Governance

Good governance is indispensable to climate change mitigation and adaptation in transport but climate change is only one – and not the most important – of many priorities among governments, businesses and other stakeholders. And questions about moving beyond discourse to practice can be raised given financial austerity (much of the Global North) and weak institutions (much of the South). The traditional model whereby public policy is the dominant force in achieving change is no longer
self-evident. More theoretical and empirical research on governing climate change mitigation and adaptation in transport is required, and drawing on state-of-the-art thinking about governance and transition management from political science, sociology and other disciplines will be invaluable.

3. Cultures of Provision and Regulation

The role of motivations, attitudes, norms, values and emotions in people’s travel practices are increasingly understood, but knowledge of how these factors shape the practices and decision-making of policymakers, corporate actors, lobby organisations and other stakeholders is much more limited. A better understanding of those factors is vital if we are to grasp the possibilities of and barriers to climate change mitigation and adaptation in transport. Institutional routines and habits as well as negotiations and power struggles within and between organisations involved in the provision and regulation of transport systems also merit further scrutiny. Understandings from, among others, organisation studies and the ‘new mobilities paradigm’ could inform conceptual work on these issues as well as empirical research using ethnographic and interpretative methods.

4. Behavioural Change

Changes to people’s transport practices are inescapable if transport’s GHG emissions are to be lowered but they are also notoriously difficult to achieve on a large scale. Research on ‘smart mobility’ thrives and state-of-the-art insights from the psychological and economic sciences (e.g. behavioural economics) are incorporated into travel behaviour analysis. But the integration of social theory into transport studies lags behind, despite the critical insights that could be learnt about how transport is profoundly shaped by culture and social processes: travel behaviour is as cultural as it is economical or psychological. Drawing on social theory would enrich researchers’ thinking about travel habits, about how travel attitudes and values come into existence and change, and about people’s everyday decision-making. This is, among others, because it highlights the systemic dimensions of behaviour and moves beyond narrowly individualistic understandings of behaviour change. As such it would also help in moving beyond the unhelpful pitting of technological change against behaviour change that pervades much transport thinking. ‘Theories of social practices’ and the ‘new mobility paradigm’ in sociology and geography provide obvious starting points for rethinking behaviour change.

5. Equity and Distributional Issues

Carbon reduction should not marginalise other concerns, including social sustainability. Questions about whether vulnerable groups – e.g. car-captive low-income households in rural areas – are disproportionately adversely affected by GHG emission reduction measures demand more attention. The same is true for critical questions about who benefits and who loses from major (public) investments in transport systems that are justified with reference to climate change and for the distribution of mitigation responsibilities between the Global North and South and issues of
intergenerational equity. Ethics and justice should be given much greater emphasis and more sustained engagement with the disciplines of philosophy, political science and sociology is required.

6. Innovation

Technological innovation (e.g. electric vehicles and fuel economy improvement) is accepted as an inevitable and important aspect of any strategy to reduce transport’s GHG emissions. The dynamics of innovation processes are, however, only partly understood: How do inventions emerge? How can they become competitive? How can transport’s carbon lock-in be overcome? Understandings from innovation studies, sociology and human geography on socio-technical transitions can greatly aid transport scholars in addressing such questions. Drawing on those literatures would also help in thinking about small-scale, bottom-up innovations by ‘users’ (rather than corporate actors) who reinvent and reshape conventional transport technologies in their everyday practices.

7. Integration with Other Sectors

‘Silo thinking’ is strong in both policymaking and academic research about transport: solutions for transport problems are typically sought within the transport sector, and the tight couplings of transport to societal domains beyond land use are often insufficiently appreciated. This already constitutes a barrier to grasping the potentials and pitfalls of transport-related climate change mitigation but will become even more problematic in the future: technologies like the electric vehicle will reintegrate transport more closely into other energy systems. Thinking about the interdependence of multiple mobilities and flows – people, goods, information, energy, food, water, waste, and so on – is required to better understand how carbon consumption can be reduced and infrastructural resilience enhanced. Research on infrastructures from geography and sociology and work in energy studies will be helpful in putting transport in broader perspectives.

Acknowledgements

This policy brief was authored by Dr Tim Schwanen and Professor David Banister (Transport Studies Unit, University of Oxford), and by Dr Jillian Anable (The Centre for Transport Research, University of Aberdeen).

The research was funded by the Economic and Social Research Council (RES-584-28-0002) originally under the UK Transport Research Centre, as one of their Scanning Studies.

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