

Article

# A Political Economy and Multi-Stakeholder Perspective of Net-Zero Emission Urban Bus Transportation in the United Kingdom

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**Abstract:** The transition to net-zero emission urban bus (ZEB) systems is receiving increased attention in research and policymaking. Most studies in this area focus on techno-economic aspects and the views of a narrow group of stakeholders. This offers limited insight into the range of barriers that constrain transitions in real-world contexts. This article offers a political-economic and multi-stakeholder perspective on the technical and non-technical barriers to ZEB transitions within the UK context. It develops a theory-guided empirical case study, informed by stakeholder theory perspectives and semi-structured interviews with stakeholders in the local bus transportation system. It finds that a transition to net zero will require addressing technical, policy, market, and cooperative barriers across sectors and policy levels. On the one hand, this relates to high costs and performance uncertainties over ZEB technology and infrastructure. On the other hand, it concerns unsustainable bus networks from passenger patronage and coordination perspectives, stakeholder cooperative gaps, and high car use and dependency in urban areas. Policy portfolios and stakeholder collaborations, beyond a ‘net-zero’ and sectoral focus, could tackle barriers to system-level change. Further application of the theoretical framework can contribute to a broader body of knowledge about transition barriers operating in different political and economic contexts.

**Keywords:** net-zero emission transitions; local bus transportation; political economy; barriers; UK



**Citation:** Argyriou, I. A Political Economy and Multi-Stakeholder Perspective of Net-Zero Emission Urban Bus Transportation in the United Kingdom. *Future Transp.* **2023**, *3*, 429–456. <https://doi.org/10.30990/futuretransp3020026>

Academic Editor: Silvio Nocera

Received: 11 December 2022

Revised: 27 February 2023

Accepted: 3 March 2023

Published: 6 April 2023



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## 1. Introduction

ZEB systems have a key role in supporting critical socio-economic activities while contributing to addressing the climate impacts of fossil-dependent societies. They offer inclusive and affordable services that are accessible and reduce congestion, road accidents, greenhouse gas (GHG) emissions, pollutant emissions (NO<sub>x</sub> and PM<sub>2.5</sub>/PM<sub>10</sub>), and noise [1]. They can also leverage local economic recovery and growth by connecting businesses, people, and communities to economic and social opportunities [2]. In the UK, a ZEB vehicle is defined as one that has no combustion engine on board, has no tailpipe air pollutant emissions, and saves at least 30% in GHG emissions compared to a Euro VI diesel engine of equivalent passenger capacity [3]. A single 18 m city bus consumes about 40,000 L of diesel per year. The electrification of its operation will result in reductions of over 100 tons of CO<sub>2</sub> equivalent. Large-scale deployment of ZEBs can also drive GHG reductions in the power sector by stimulating long-term planning and investments in grid decarbonization [4].

In this context, the transition to ZEB systems has received increased attention from policymakers and other stakeholders throughout the world [5]. At the level of the European Union, ZEB deployment is supported through revised environmental directives and initiatives such as the European Green Deal and the Sustainable and Smart Mobility Strategy. Various countries and cities internationally (UK, Norway, Sweden, Australia, China) have also adopted ZEB R&D, policy, and investment programs [1,6–9].

# The Political Economy Of Urban Transportation

**Albert A Gayle**

## **The Political Economy Of Urban Transportation:**

**The Political Economy of Urban Transportation** Delbert A. Taebel, James V. Cornehls, 1977 National university publications er Means of Movement J. Allen Whitt, Glenn Yago, 1983 The Political Economy of Urban Transport System Choice Harris Selod, 2004 The Urban Political Economy and Ecology of Automobility Alan Walks, 2014-07-25 Just how resilient are our urban societies to social energy environmental and or financial shocks and how does this vary among cities and nations Can our cities be made more sustainable and can environmental economic and social collapse be staved off through changes in urban form and travel behaviour How might rising indebtedness and the recent series of financial crises be related to automobile dependence and patterns of urban automobile use To what extent does the system and economy of automobile factor in the production of urban socio spatial inequalities and how might these inequalities in mobility be understood and measured What can we learn from the politics of mobility and social movements within cities What is the role of automobility and auto dependence in differentiating groups both within cities and rural areas and among transnational migrants moving across international borders These are just some of the questions this book addresses This volume provides a holistic and reflexive account of the role played by automobility in producing reproducing and differentiating social economic and political life in the contemporary city as well as the role played by the city in producing and reproducing automobile inequalities The first section titled Driving Vulnerability deals with issues of global importance related to economic social financial and environmental sustainability and resilience and socialization The second section Driving Inequality is concerned with understanding the role played by automobility in producing urban socio spatial inequalities including those rooted in accessibility to work migration status and ethnic concentration and new measures of mobility based inequality derived from the concept of effective speed The third section titled Driving Politics explores the politics of mobility in particular places with an eye to demonstrating both the relevance of the politics of mobility for influencing and reinforcing actually existing neoliberalisms and the kinds of politics that might allow for reform or restructuring of the automobile city into one that is more socially politically and environmentally just In the conclusion to the book Walks draws on the findings of the other chapters to comment on the relationship between automobility neoliberalism and citizenship and to lay out strategies for dealing with the urban car system Transport and Mobility Futures in Urban Africa Ransford A. Acheampong, Karen Lucas, Michael Poku-Boansi, Chinebuli Uzondu, 2022-11-02 This book provides a collection of insightful conceptual and empirical works that situate transport and mobility challenges in the unique context of individual countries and cities while highlighting commonalities across the African continent Written from an interdisciplinary perspective the book covers important themes in transport and mobility including the links between urbanization urban structure and accessibility transport equity and poverty non motorized transport public transport and the challenges and opportunities of new and emerging transport technologies and ICT mediated mobility solutions Each chapter engages with the normative

imperatives that are critical to improving the transport and mobility situations of African urban areas now and in the future

### **Aspects of the Political Economy of Urban Transportation in South Africa, with Some Reference to Durban**

Jennifer Dawn Robinson,1985      **ITF Round Tables Privatisation and Regulation of Urban Transit Systems**

International Transport Forum,2008-10-23 Examines experience in integrating private management and capital with public transport policy objectives in a number of developed economies      *Non-Motorized Transport Integration into Urban*

*Transport Planning in Africa* Winnie V. Mitullah,Marianne Vanderschuren,Meleckidzedeck Khayesi,2017-07-14 What challenges do pedestrians and cyclists face in cities of the developing world What opportunities do these cities have to provide for walking and cycling Based on in depth research conducted in Cape Town South Africa Dar es Salaam Tanzania and Nairobi Kenya this book explores these questions by presenting work on walking and cycling travel behaviour the status of road safety in these cities as well as an analysis of the infrastructure for walking and cycling and the workings of the institutions responsible for planning for these modes The book also presents case studies relating to particular opportunities and challenges such as the development and evaluation of walking bus interventions and the opportunities micro simulation of pedestrian interventions offers within a data scarce environment Non motorized Transport Integration into Urban Transport Planning in Africa demonstrates that transport and urban planning remains situated in a logic of automobile dependent transport planning and global city development This logic of practice does not pay adequate attention to walking and cycling It argues that a significant shift in both policy as well as political commitment is needed so as to prioritize walking and cycling as strategies for sustainable transport policy in urban Africa This book will be a key text for practitioners and policy makers working in planning transport policy and urban development in Africa as well as students and scholars of African studies development studies urban geography transport studies and sustainable development      **Mobilizing**

**City-regional Urbanization** Jean-Paul Addie,2013 Studies of cities and urbanization are confronted with significant theoretical and methodological challenges as the urban question is reposed at the city regional scale Normative understandings of city regions as sites of economic innovation and distinct political actors on the world stage belie the complex processes underlying their production This has significant implications for social justice and political practice This dissertation engages the challenges of city regional urbanization through a critical comparative analysis of urban transportation institutions and infrastructure in the Chicago and Toronto city regions Focusing on long term historical and spatial structures the study demonstrates how multiscalar political economic and social processes crystallize in specific urban formations and in turn how processes of urbanization shape urban governance and practices of everyday life The dissertation develops three central theoretical innovations First it introduces a geographical historical materialist comparative framework to examine the contingent evolution of city regional formations in space and across time using a cross national perspective Second it reframes urban transportation as a key realm of political economy inquiry redressing the

limitations of traditional transportation geography and the poststructural approaches which dominate urban infrastructures literature Third it incorporates diverse urban suburban and post suburban spaces within an overarching theorization of city regional urbanization as an expression of centripetal and centrifugal forces Qualitative methods are used to uncover and analyze socially entangled and geographically disparate urban relations The empirical analysis reveals that the prioritization of particular scales of mobility spurs the emergence of new city regional topologies which do not neatly align with territorially defined forms of state space Strategies of regionalization are as likely to open new fissures in city regional space as they are to fuse collective regional agency The convergences and divergences witnessed between the Chicago and Toronto city regions illustrate the place specific path dependent properties of institutional and infrastructure fixes that highlight the importance of historically and geographically sensitive comparative research The dissertation's dialectical and comparative contributions open the city region as a multifaceted multiscalar and multilayered object of analysis It concludes by outlining how the study's dialectical approach to city regional urbanization can inform debates on urban transformation and social change

The Political Economy of Urban Mass Transportation William Craig Jeffery, 1973      **Urban Mobility**

**Development in Northeast India** Tumbenthung Y. Humtsoe, 2024-02-02 Urban Mobility Development in Northeast India theoretically and empirically explores the interrelationship between and among city transportation economic growth and environment to contribute towards engendering green urbanization for green growth In a time of aggravating environmental crisis the book recognizes the duality of contrasting impact of city and transport to economic development and environmental degradation To serve as a guide for policy research the book accessibly presents a contextual study blending qualitative as well as quantitative methodology in the context of a highland as well as a frontier capital city of the Northeastern Indian state of Nagaland Kohima towards creating a sustainable city with an inclusive and green mobility The book underscores that management of urbanization and urban mobility challenges should go beyond supply side management and demand side management by democratizing policy making as well as considering efficiency equity welfare and practicality concerns and suchlike rationales By traversing from abstraction to everyday life from global context to frontier context and from macro level to micro level the book makes significant theoretical as well as empirical contribution The book will be of use to students researchers policy practitioners as well as general readers interested in Urban Studies Transport Economics Growth Economics Development Studies Environmental Studies and Asian Studies especially in relation to highland and frontier regions in developing economies in general and Northeastern Region of India in particular

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*Cyclopaedia of Political Science, Political Economy, and of the Political History of*

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David R. Decker,Ignacio Duran,1982    **Innovations in Green Urbanization and Alternative Renewable Energy** Federica Rosso,Donato Morea,Didit Okta Pribadi,2022-10-19 This book thoroughly examines the aims of green urbanism providing a perspective to help responding to the growing environmental challenges posed by the enormous increase in human needs The book gives insights about architectural intervention in urban planning which provides green design strategies in a way that improves the efficiency of building in terms of energy consumption and environmental conservation The book also gives attention to the paradigm of the intermediate city thus helping in overcoming the challenges posed by the growing urbanization process Finally the book gives a futuristic vision of cities anticipating their challenges and providing possible solutions for them The book targets a wide audience interested in implementing the SDG goals in energy and green urban planning and those interested the interdisciplinary nature of green urbanization and alternative and renewable energy accommodates The book is a culmination of selected research papers from the 4th version of the International Online Conference on Green Urbanism GU of Roma Tre University Italy 2020 the 3rd version of the International Online Conference on Alternative and Renewable Energy Quest 2020    **Transit Research Abstracts ,1992**

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