AUTO MOTIVES: UNDERSTANDING CAR USE BEHAVIOURS

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INVESTOR IN PEOPLE

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Editors

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Evelyn Blumenberg is an associate professor of urban planning at the Institute of Transportation Studies at the University of California, Los Angeles. Dr. Blumenberg's research examines the effects of urban structure — the spatial location of residents, employment, and services — on economic outcomes for low-wage workers, and on the role of planning and policy in shaping the spatial structure of cities. Dr. Blumenberg has investigated the relationship between the spatial structure of urban areas and economic equality; gender issues and U.S. local economic development planning; neighbourhood economies and welfare dynamics; the travel behaviour of welfare recipients and immigrants; the transportation expenditure burden of low-income families; and interagency collaboration in the context of welfare reform.

Rachel Weinberger is an assistant professor of city and regional planning at the University of Pennsylvania. Her areas of expertise include transportation and land-use interactions and sustainable urban transportation. Her work is particularly focused on how transportation infrastructure supply affects individual travel behaviour. Recognizing the many counterintuitive effects of transportation policy over the last hundred years, she is most interested in game-changing strategies for transportation going forward. In 2006–2007, Rachel served as the senior policy

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Birgitta Gatersleben is lecturer in environmental psychology at the University of Surrey, UK. She is also course director of the modular M.Sc. programme in environmental psychology. Her work concentrates around three research areas: sustainable consumption, traffic and transport, and human experiences with nature. She has a strong interest and a wide experience in working in multidisciplinary teams to examine sustainable consumer behaviour in general and sustainable transport in particular. She has worked on a range of research projects examining transport issues, including work exploring the role of transport behaviours on social perceptions in communities, perceptions of transport-generated air pollution, and studies aiming to promote walking and cycling to work and school. Her recent work specifically examines the role of affective and social–symbolic aspects in transport decisions.

Frank Goetzke has been an assistant professor for urban economics in the School for Urban and Public Affairs at the University of Louisville, Kentucky, since 2006. His research focuses on transportation analysis and spatial modelling. He is especially interested in automobile ownership, public transit, non-motorized modes and traffic safety. Previously, he was an office manager for *Walk*Boston, one of the oldest and largest pedestrian advocacy group, a transit planner at the Central Transportation Planning Staff, which is part of the Boston Metropolitan Planning Organization, a travel demand forecasting modeller for Cambridge Systematics. Dr. Goetzke has a B.A. degree in political science and biology from the University of Bremen in Germany (1991), an M.A. degree in energy and environmental studies from Boston University (1996) and a Ph.D. degree in economics from West Virginia University (2006).

Peter Jones is professor of transport and sustainable development in the Centre for Transport Studies at University College, London. He is a member of the Independent Transport Commission. He has had a long and distinguished career in travel behaviour research, and in the provision of policy advice at national and international levels. He was one of the pioneers in the development of activity-based approaches to understanding travel behaviour. In recent years he has researched extensively into the nature of accessibility problems as experienced by socially disadvantaged groups and has looked at the planning and design implications of making urban streets more sustainable. He was co-director of a recent study into UK car dependence funded by the RAC Foundation.

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Sandra Rosenbloom is professor of planning and adjunct professor of engineering and of natural renewable resources at the University of Arizona. She has conducted extensive research for the US government, as well as the European Union, the European Conference of Ministers of Transport, and the governments of Australia, France, Netherlands, New Zealand, Sweden, and UK. She is an appointed member of the Executive Committee of the US Transportation Research Board, an arm of the US National Academy of Sciences as well as a member of the Board's Strategic Policy and Planning Review sub-committee. In 2005 Dr. Rosenbloom was appointed a lifetime associate of the US National Academy of Sciences and was granted the Transportation Research Board, Roy P. Crum Award in recognition of her ground-breaking scholarship in transportation planning.

Tim Schwanen is a senior research fellow with the Transport Studies Unit at the University of Oxford. He is also a lecturer in urban geography at Utrecht University, The Netherlands. Over the past decade he has worked and published widely on a variety of research topics. These include the effect of the built environment on activity/travel behaviour; the geographies of how dual-earner families juggle employment and domestic responsibilities and of the gender division of household labour; time geography and space-time accessibility analysis; travellers' coping with unreliable travel times; interactions between Internet and mobile phone use on the one hand and activity and travel patterns on the other; everyday mobility in old age and research methodologies.

Michael J. Smart is a doctoral student at the University of California, Los Angeles. His research interests include the travel behaviour of immigrant communities, transportation and social equity, and access to the labour market. In particular, his research has focused on the spatial aspects of immigrant communities in the United States, and the effect of these patterns on travel. He obtained a bachelor's degree in German from Yale University and master's degree in city planning from the University of Pennsylvania in Philadelphia.

Joan L. Walker is an assistant professor at University of California, Berkeley, in the Department of Civil and Environmental Engineering and Berkeley's new Center for Global Metropolitan Studies. Her research focus is behavioural modelling, emphasizing methods and their application to urban issues including health, congestion, air quality, equity and quality of life. She is the recipient of a number of honours including the PECASE, which is the United States' highest honour for scientists.

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Introduction

The idea for this edited volume emerged from a session on automobile behaviours at the 2009 Transportation Research Board Annual Meeting in Washington, DC. Some of its chapters are by authors who made presentations at this session. Other authors have been specifically invited to contribute in recognition of their long-standing research into a particular aspect of car-use behaviours, whilst others are relative newcomers to the field. Our list of contributors is far from exhaustive and we recognise that there are many other scholars involved in researching this subject with important things to say about it, many of whom we cite in the chapters that follow. Clearly, no book can include everyone, but it can also be difficult to identify scholars in relation to this topic. In part, because researchers working in this field come from a wide and diverse set of disciplinary backgrounds; while some are in regular dialogue with each other, others are less so and thus harder to locate.

As the title of the volume conveys, this book focuses on the factors that motivate automobile use. One of our key aims with this text has been to draw together and explain the diverse theoretical literatures that pertain to people's auto motives and to consider these theories in light of current empirical research concerning the actual automobile decisions and behaviours of varied population groups, in different locations and circumstances and at different stages of their lives. We believe it to be a unique venture in this respect, particularly in that it purposefully seeks to avoid advocacy of a single perspective or methodological approach, but rather offers a set of broader insights into 'what drives people to drive'.

This edited volume emerges in the context of a growing trend of auto-mobility worldwide. In many ways, increased popular access to private motor vehicles can be a positive trend. As a number of chapters in this volume will demonstrate, most individuals gain huge advantages from car-based travel in terms of increased access to key economic and social activities. In most contemporary societies, travel is now an intrinsic part of the way we live our lives and a large part of the popularity of automobiles is that they allow us to decide when and where we travel and to control our micro-environments while we do so. However, travel by automobile produces numerous negative externalities. While individual benefits of automobility continue to be observed and even reaped, the environmental and social cost of this is also increasingly apparent and there is considerable worldwide concern about the negative

effects of mass automobile use on the global and local environment, as well as the negative social effects of dependence on car-based transport systems.

This book takes a balanced view on these issues. Some chapters focus on the benefits of promoting increased automobile ownership and use particularly for less mobile sectors of the population; others focus on the importance of understanding auto motives in order to reduce our societal dependence on the car. In aggregate, the chapters demonstrate that the motivations for car use are both complex and varied and are usually the outcome of reciprocal interactions between 'personal' factors and 'external' circumstances.

The volume primarily is aimed at post-graduate students, researchers, policymakers and practitioners from a growing spectrum of disciplines with an interest in understanding the motivations and decision processes underpinning the public's overwhelming preference for the car as the primary means of people-based movement. Its core arguments and narratives are presented in such a way so as to offer widespread appeal to a wide-ranging audience including social and environmental scientists, human geographers, behavioural economists, transport and land-use planners, and those working in the field of urban and community development both within and outside academia. The core focus of the book is empirical research into the *auto motives* of populations living in the United Kingdom, Europe, North America and Australia and so it does not directly address the rapid move toward car ownership and use in the developing world. Nevertheless, many of the key motivations it identifies will be equally and sometimes more relevant in development countries and we hope that the book may help policymakers in these contexts to identify more balanced solutions to personal mobility than has so far been achieved within the developed world.

Organisation of the Book

The volume is organised in three sections:

Section 1 is designed to offer a basic framework for understanding the empirical research studies that follow. Chapter 1 by Schwanen and Lucas sets the theoretical context for the book. It identifies the four core approaches that have been developed in different disciplines to explain people's auto motives, namely accessibility and time geography, utility theory, socio-psychological theories and the *new mobilities* perspective. The chapter is based upon an extensive review and analysis of international literature across various academic disciplines, including transport studies, economics, human geography, psychology and sociology.

In Chapter 2, Jones builds on these various theories to offer an understanding of the nature and dynamics of car dependence. His chapter draws on the concepts and findings of a recent RAC Foundation for Motoring study, to explore the nature and meaning of 'car dependence', and how this becomes reinforcing over time. In particular, it seeks to explore whether car use is a matter of choice or constraint, and the conditions under which changes to driver behaviour would be feasible in order to make them more sustainable.

Chapter 3 builds on this second issue. Drawing on existing research, Weinberger and Lucas examine programs and policies that have motivated or have the potential to motivate changes in automobile behaviour.

In Sections 2 and 3 we turn to empirical research evidence to support or refute these theoretical explanations. These chapters are designed to allow the reader to explore in greater detail what motivates people to prefer their cars in practice.

Section 2 is primarily concerned with empirical analysis of the different theoretical perspectives on why people drive that are outlined in Chapter 1. First, in Chapter 4, Farber and Páez apply the principles of time-use geography to demonstrate how the spatial expansion of activity spaces over time, as a result of increased journey distances and car-based travel, has led to time budget constraints and associated reduced participation in discretionary, out-of-home activities for certain social groups.

In Chapter 5, Gaker and Walker demonstrate the use of concepts from behavioural economics, which integrates the fields of psychology and economics, to explain people's transport choices. In particular they focus on three themes within this literature: the influence of biases, the power of information and feedback, and how we are influenced by the social norms of those around us.

Goetzke and Weinberger pick up these themes in Chapter 6, to explore how people learn travel behaviour habits and preferences from their own experiences and by observing their peers. They use discrete choice analysis and random utility modelling in their analysis of two datasets. Their first study, uses the 2000 United States Census Public Use Micro Sample (PUMS) to look at data on recent movers to United States, transit rich cities and the effect of previous residential location on the decision to own automobiles. Their second study looks at the impact of peer, or social network, effects on decisions to own cars in New York City using data from the 1998/1999 New York Regional Household Travel Survey.

Chapter 7 examines the social-symbolic aspects of car use. Gatersleben draws on her own socio-psychological studies of consumer behaviour to explore the relationship between materialism and attitudes, perceptions and behaviours in relation to the car. In line with existing research on materialism, these show that people who express stronger materialistic values are more motivated to own and use a car, particularly an expensive car, and attach more value to the social symbolic aspects of their cars and are less likely to want to reduce their car use.

Section 3 of the book explores some of the empirical research that has been developed to understand the auto motives of different sectors of the car-driving populations. Schwanen's first chapter in this section focuses on the gender dimensions of car use in the everyday lives of well-educated middle-class men and women in the city of Utrecht in the Netherlands. He uses a mixed-method approach combining literature review, in-depth interviews and a questionnaire survey to identify gender differences in access to cars, household responsibilities and employment status, as well as the norms, discourses, practices and cultures of mobility.

In Chapter 9, Rosenbloom focuses on the transportation patterns of older drivers in the United Kingdom and the United States as a way to illuminate the motives underlying older people's continued dependence on the car and their well-documented reluctance to cease driving. It concludes that, given the huge number

of older drivers who may need or wish to reduce driving, governments must not only take action to keep older drivers on the road safely for as long as possible, but also substantially expand their support of a variety of public transit, community transport and volunteer driver systems, as well as more effectively integrating transportation and land use and housing policies.

Chapters 10 and 11 both focus on the car-use behaviours of low-income populations in Australia. In Chapter 11, Currie and Delbosc examine often conflicting views about what motivates car ownership and use of low-income groups in the suburbs and whether this is effectively 'enforced' by their housing location. Their chapter is based on a household survey covering travel, housing location, life situation, social exclusion and well-being of household in the wider Melbourne region. Lucas's chapter which follows focuses on the people living on or below the poverty line in the United Kingdom. It identifies the rapid growth in private vehicle use of low-income households over the last five years and considers whether this recent trend has emerged out of personal preference or practical necessity.

In Chapter 12, Blumenberg and Smart identify a similar strong and growing trend in the automobile use of immigrant populations in the United States. Using data from the US Census 2008 American Community Survey, the authors explore the multiple dimensions of immigrant automobile use in the United States: the factors that motivate their assimilation to automobiles, limit their use of automobiles and shape how they use automobiles.

In the final chapter of this section, Chatman and Klein expand on the themes of the previous chapter in their case study of the home and work location decisions of immigrants to the State of New Jersey. They analyse commuter mode choice data from the United States census to demonstrate how home/work location, as well as the occupations of immigrant workers, plays a role in their lower levels of auto reliance for commuting from that of the average US-born citizens.

The concluding chapter of the book draws together some of the key themes that have emerged out of the individual chapters. Importantly, the chapter identifies that the subject of this volume is likely to become increasingly important in the light of the challenge of a number of irreversible global trends, namely the increasing automobility of the developing world, diminishing natural and manufactured resources for road infrastructure to meet the growing demand for car-based travel, the rapidly changing age structure of the population and ongoing concerns about the social welfare of non-driving sectors of the population.

Karen Lucas
Evelyn Blumenberg
Rachel Weinberger
Editors

SECTION 1

THEORIES AND CONCEPTS OF CAR USE

Chapter 1

Understanding Auto Motives

Tim Schwanen and Karen Lucas

1.1. Introduction

The primary objective of the chapter is to 'unpack' some of the core theoretical explanations of what motivates people's car use. Our aim is to provide an overarching context for the remainder of the book. Car use is an issue that has captured the attention of academics and practitioners from diverse disciplinary backgrounds, including economics, human geography, psychology and sociology, transport studies, urban studies, planning studies and environmental science.

Many of these disciplines borrow from each other theoretically and empirically, so there is cross-fertilisation of ideas. However, there is still no single consensual view about exactly what informs people's travel choices or what makes them prefer the automobile over other transport modes in most situations. This chapter will demonstrate that a complex combination of factors is at play, including those which predominantly rest with the individual such as personal values, intentions, attitudes and time and money budgets and those factors that are largely outside of the individual's sphere of influence, such as the price and availability of different modes of transportation, the location of services and physical attributes of the built environment as well as culturally inflected social norms and moral values. It is often difficult to determine from the literature the order of importance or direction of causality of all these factors and it is highly likely that this will differ according to an individual's personal circumstances and in different geographical and physical contexts.

The following sections offer a broad overview of the different theoretical standpoints, beginning with explanations that revolve around the accessibility car use offers. It will then move on to explore utility-based theoretical approaches and extensions of these followed by socio-psychological models of choice behaviour and through to the new mobilities paradigm (Sheller & Urry, 2006) and its associated

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conceptualisations of car dependence. We do not claim that this list of approaches is exhaustive; theoretical developments in certain disciplines (e.g. political sciences, health research and development studies) are not discussed in any detail. However, we do believe that the approaches considered here cover the diversity of explanations as to why people use cars in the realms of research and planning quite well.

The reader should be aware that our discussion of the literature mainly concentrates on car use rather than car ownership (although some of the other chapters do also consider the latter). While we readily acknowledge the tight links between ownership and use, we wanted this introductory chapter to have a sharp focus. It is not immediately evident that car use and ownership are driven by the same set of factors. Car ownership has also been studied less frequently and from fewer theoretical perspectives. It is for these reasons that we have limited ourselves to car-use behaviours alone. At the same time, we sometimes look at mode choice in general rather than car use per se. This is because a broader focus allows us to sift out the distinctive factors relevant to car use.

1.2. Accessibility and Time Geography

One set of explanations for the widespread use of the car pertains to the more immediate and efficient *accessibility* it provides the user. We understand accessibility here from a geographical perspective, that is as the relative ease with which people can reach locations and activities that are distributed in space and time (Pirie, 1979; Kwan, 1999). Accessibility thus concerns the potential to move from one place to another rather than recording actual physical movement. There are at least three fairly obvious reasons why the car increases people's accessibility more than other forms of transport. First, in most situations, the car increases the speed of travel and so offers people the capacity to cover much larger distances within a given timespan. Secondly, in contrast with collective transport modes, such as the bus, metro or train, car-based travel offers people more flexibility in terms of where and when they can travel. Thirdly, given the spatiotemporal ubiquity of the road system, parking availability and so on, car-based travel is seamless, direct and relatively constraint free. This not only reduces inconvenience but also further accelerates the trip.

Time geography, originally developed by the Swedish geographer Torsten Hägerstrand and associates at Lund University in the 1960s, offers a useful conceptual framework to illustrate the above notions of accessibility (Hägerstrand, 1970). Time geography is most well-known for its three-dimensional view on time and space: space is represented as a two-dimensional plane and time is orthogonally integrated into this plane as a third dimension (Figure 1.1A). Within the resulting space–time aquarium, space–time paths — sequences of trips and activities at stationary locations — can be drawn as uninterrupted, broken lines. For ease of interpretation, space is often reduced to a single dimension, which produces a two-dimensional view on space and time (Figure 1.1B). If a person stays at a given