CURRICULUM VITAE

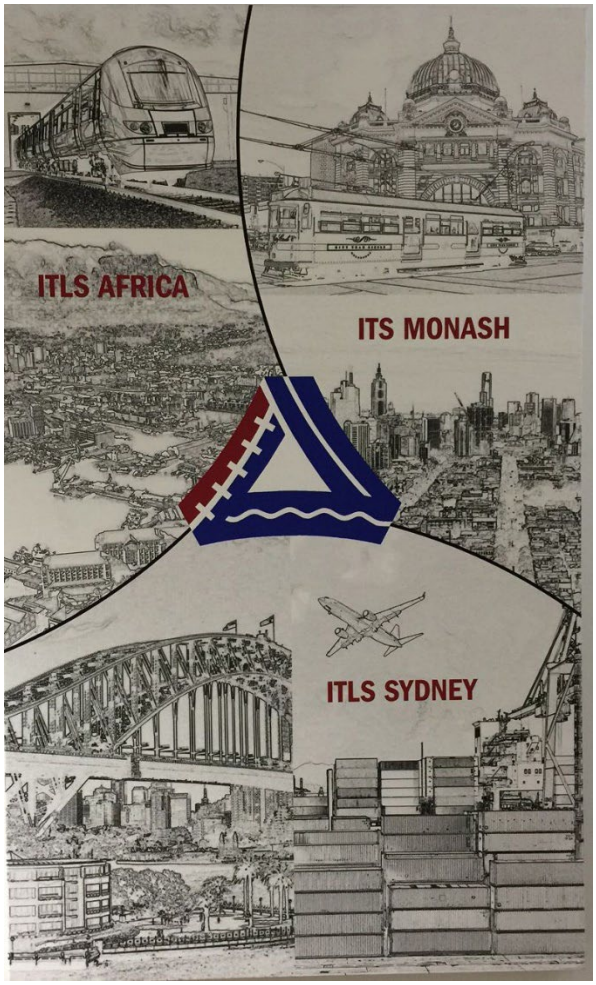
David Alan HENSHER

AM, B. Com (Hons I), Ph.D, FASSA, FCILTA, FAITPM (FTPA)
Member of the Order of Australia (OA)
Companion - Engineers Australia
Chaired Professor of Management
Founder and Director, Institute of Transport and Logistics Studies (ITLS):
The Australian Key Centre of Teaching and Research in Transport Management,
The University of Sydney Business School
The University of Sydney
http://sydney.edu.au/business/itls/staff/davidh
https://imoveaustralia.com/research-capability/institute-of-transport-and-logistics-studies/
https://www.adscientificindex.com/scientist.php?id=115320

https://sydney.edu.au/courses/courses/pc/master-of-transport.html
https://scholar.google.com/citations?user=22m62pAAAAAJ
https://imovecrc.com/smart-mobility-expert/david-hensher/
https://sydney.edu.au/news-opinion/news/2019/03/11/new-road-pricing-system-needed-after-years-of-political-neglect.html
https://sydney.edu.au/business/news-and-events/news/2019/04/11/work-of-leading-researcher-has-a-high-impact-says-research-body.html
https://sydney.edu.au/research/research-impact/bringing-greater-realism-to-the-value-of-new-infrastructure.html
http://www.shanghairanking.com/Shanghairanking-Subject-Rankings/transportation-science-technology.html
(Note: This URL relates essentially to ITLS – 1st in Australia and 6th in the world)
https://sydney.edu.au/business/news-and-events/news/2019/06/07/internationally-respected-academic-honoured-by-the-roads-industr.html
https://sydney.edu.au/business/news-and-events/news/2019/07/25/transport-world-cites-pioneer-researcher-s-global-contribution.html
https://abdc.edu.au/time-on-roads/
https://www.dropbox.com/s/721iu424gp6h0xf/Video%20david%20Hensher%20on%20Road%20Pricing%20Sept%202019.mov?dl=0
https://imoveaustralia.com/project/maas-trial-sydney/
https://cutr.adobeconnect.com/pzn2mdhmz97f/
https://imoveaustralia.com/news-articles/personal-public-mobility/2020-maas-webinar-video-v2/
WFH and COVID1- https://www.youtube.com/watch?v=qDNDox3oPhU
Q&A; https://youtu.be/aUr3Y5E0x4w
My contributions to iMOVE CRC in 2019-2020:
https://imoveaustralia.com/author/profhensherd/
https://www.businessbecause.com/news/insights/7759/15-minute-city
https://drivenmedia.com.au/wp/overdrive-alfa-tonale-nissan-patrol-old-embracing-local-trips/ (5.58 min into talks)
https://www.mobility-payments.com/2022/03/10/maas-expert-mobility-as-a-service-initiatives-on-wrong-track-new-framework-needed/
https://www.sydney.edu.au/business/our-research/research-partnerships/evaluating-travel-behaviour-to-inform-industry-practice.html
https://www.sydney.edu.au/news-opinion/news/2022/04/05/thinking-public-transport--electric-cars-and-the-roads-we-drive-.html
https://docs.google.com/spreadsheets/d/1FFatMl_ZjG8jC-rFDLuRl0VpVpdzeBzD-hZrrt_pv_M/htmlview

Wikepdia: https://en.wikipedia.org/wiki/David_A._Hensher

THE UNIVERSITY OF SYDNEY



Celebrating 30 years of ITLS, 15 May 2021

1990 2020

I T L S

Celebrating 30 years

https://business.sydney.edu.au/events/2021/itls-30th-anniversary

Business Address: Institute of Transport and Logistics Studies (ITLS) H04
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The University of Sydney
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Mobile: + 61 (0) 418 433 057
E-mail: David.Hensher@Sydney.edu.au
Internet: http://sydney.edu.au/business/itls
http://youtu.be/l_NZ5r_P0NQ
https://sbi.sydney.edu.au/planes-trains-and-automobiles-david-henshers-moving-life/
My academic life and transport themes:
https://www.youtube.com/watch?v=mCKo0lpbFzk

https://www.sydney.edu.au/business/our-research/institute-of-transport-and-logistics-studies/research-activity/videos-and-podcasts.html
https://www.sydney.edu.au/business/about/our-people/academic-staff/david-hensher.html
https://elsevier.digitalcommonsdata.com/datasets/btchxktzyw/6



September 2025

See https://scholargps.com/scholars/68113658418878/david-a-hensher

ScholarGPS celebrates the 20254 Highly Ranked Scholars™ for their exceptional performance in various Fields, Disciplines, and Specialties. Your prolific publication record, the high impact of your work, and the outstanding quality of your scholarly contributions have placed you in the top 0.05% of all scholars worldwide according to the most recent 2024 ScholarGPS rankings.
https://scholargps.com/institutions/73922639559023/university-of-sydney?e_ref=16a0905cb4cd83285173

Highly Ranked Scholar - Lifetime

#853	Overall (All Fields)
#90	Social Sciences
#27	Economics
#1	Public transport
#1	Transport economics
#4	Discrete choice
#12	Logistic regression
#23	Mobilities
#123	COVID-19

Highly Ranked Scholar - Prior 5 Years

#528	Overall (All Fields)
#51	Social Sciences
#34	Economics
#1	Australia
#1	Mobilities
#123	COVID-19

Date of Birth: 31 July, 1947

Place of Birth: Bromley, Kent, England

Marital Status: Married to Johanna, two children (born 1981 (Andrew), 1983 (Danielle))

Mentor: The late Professor Michael E. Beesley CBE, London Business School

David Hensher is Professor of Management and Founding Director of the Institute of Transport and Logistics Studies (ITLS): The Australian Key Centre of Teaching and Research in Transport Management in The Business School at The University of Sydney. ITLS is ranked under Excellence in Research Australia (ERA) at level 5 ('well above world standards') and 10th in the world in its field of expertise. Educated in Kenya, East Africa (Parklands, Lord Delamere), England (Lindfield, see https://www.slindoncollege.co.uk/about; Oxford: http://www.stx.ox.ac.uk/) and Australia (UNSW). In January 2023, David was appointed a Member (AM) of the Order of Australia (OA).

David is a Fellow of the Academy of Social Sciences in Australia (FASSA), Recipient of the 2009 IATBR (International Association of Travel Behaviour Research) Lifetime Achievement Award in recognition for his long-standing and exceptional contribution to IATBR as well as to the wider travel behaviour community (http://iatbr.weebly.com/award-winners.html), Recipient of 2006 Engineers Australia Transport Medal for lifelong contribution to transport, Recipient of the 2009 Bus NSW (Bus and Coach Association) Outstanding Contribution to Industry Award, and Recipient of the 2012 best paper released by the International Association of Maritime Economists (IAME). David is also the recipient of the Smart 2013 Premier Award for Excellence in Supply Chain Management, and recipient of the 2014 Institute of Transportation Engineers (Australia and New Zealand) Transport Profession Award to an individual who has made a significant contribution to the development of the transport/traffic engineering profession over a sustained period (https://www.ite.org.au/iteanz-awards/contribution-to-the-transport-profession-award); recipient of 2016 Award for Outstanding Research as part of the inaugural University of Sydney Vice-Chancellor's Awards for Excellence. David is also the recipient of the 2019 John Shaw Medal which honours an industry champion who has made a lasting contribution to Australia's roads (https://www.roads.org.au/About-us/John-Shaw-Medal). Selected in 2018 by The University of Sydney as one of 25 research stars for the ARC Inaugural Engagement and Impact submission (ranked one of 12 with High Impact). 2024 recipient of University of Sydney Business School award for Excellence in Research.

In 2021 an annual prize was established and named in honour of David for best paper in transport demand modelling at the Australasian Transport Research Forum (ATRF) https://australasiantransportresearchforum.org.au/prizes/ and in 2021 David received the Business School's Research Engagement Award with colleagues. In January 2021 and February 2023, David was announced as the #1 economist in Australia in research.com/scientists-rankings/economics-and-finance/au. A Director of Volvo Educational and Research Foundation (VREF) Centre of Excellence in Bus Rapid Transit (2010 onwards), Emeritus Member of Singapore Land Transport Authority International Advisory Panel 2007-2010 (Chaired by Minister of Transport), Honorary Fellow Singapore Land Transport Authority (LTA) Academy, Past President of the International Association of Travel Behaviour Research and a Past Vice-Chair of the International Scientific Committee of the World Conference of Transport Research. David is the Executive Chair and Co-Founder of The International Conference in Competition and Ownership of Land Passenger Transport (the Thredbo Series http://www.thredbo-conference-series.org/), now in its 32nd year. David is on the editorial boards of 17 of the leading transport journals including one of 4 members of the Distinguished Advisory Board of Transportation Research Part A. David was appointed in 1999 by one of the world's most prestigious academic publishing houses - Elsevier Science press - as series and volume co-editor of a handbook series Handbooks in Transport. In 2010 he was appointed by Routledge Publishers (UK) as Editor of a four-volume major works in Transport Economics as well as Edward Elgar Publishers as Series Editor for volumes on Transport and the Environment. He has published extensively (**over 760 papers**) in the leading international transport and economics journals (such as The Economic Journal, Review of Economics and Statistics, Journal of Econometrics, Journal of Applied Econometrics, Applied Economics, Empirical Economics,

Transportation Research Parts A, B, C, D, and E as well as 17 books, and is Australia's most cited transport academic. David has **over 82,500 citations** of his contributions in Google Scholar (one of the most cited academics at the University of Sydney in all disciplines) and an H-index of 1265 and i10-index of 5652. Recognised in 2024-25 as Australia's leading researcher in the field of Transportation as reported in the Australian newspaper's review of Australia's research excellence. David is ranked second in the world for economists in the field of discrete choice models, as of November 2024 (https://ideas.repec.org/top/top.dcm.html) and ITLS (and the Business School at Sydney) is ranked third. David in 2022-25 is ranked #1 globally for scientists in transport and logistics https://www.adscientificindex.com/scientist/ and #1 in 2024 in Public Transport: https://scholargps.com/highly-ranked-scholars?year=2022&p_profile=1&ranking_duration=LIFETIME&base_specialty=Public+transport&e_ref=a4b6dd2095ee108cdb91.His books include the Demand for Automobiles, published by North-Holland, the Bus and Coach Business (with Ann Brewer published - Allen and Unwin), Transport: An Economics and Management Perspective (With Ann Brewer – Oxford University Press), Stated Choice Methods (with Jordan Louviere and Joffre Swait – Cambridge University Press), Applied Choice Analysis - a Primer (with John Rose and Bill Greene – Cambridge University Press, 1st and 2nd editions), Ordered Choice Models (with Bill Greene – Cambridge University Press), Mobility as a Service (MaaS) (with ITLS colleagues) – Elsevier Science, and Bus Transportation - Elsevier Science. Particular interests are transport economics, transport strategy, sustainable transport, productivity measurement, traveller behaviour analysis, choice analysis, stated choice experiments, process heuristics, and institutional reform (PPPs, privatisation tendering and contracting). David has advised numerous government and private sector organisations in many countries on matters related to transportation, especially matters related to forecasting demand for existing and new transportation services; for example the Speedrail high speed rail project, fast rail in regional NSW, the Fiji Travel Survey, the Liverpool-Parramatta Transitway, the North-West Rail project, West Connex, the Sydney Metro, public transport elasticities, and numerous toll road projects throughout Australia and internationally. David is regarded as Australia's most eminent expert on matters relating to travel demand and valuation and transport reform. Appointments include: a member of the executive committee that reviewed bus transport bids for the Olympic Games, the NSW Government's Peer Review Committee for the Sydney Strategic Transport Plan, Peer reviewer for Transfund (NZ) of the New Zealand project evaluation program, Peer reviewer of the NZ Land Passenger Transport Procurement Strategy for Land Transport NZ, member of the executive committee of ATEC, a consortium promoting a freight rail system between Melbourne and Darwin; economic adviser to Gilbert+Tobin Lawyers on valuation methods in IP context; panel member of Transport NSW benchmarking program; specialist toll road project adviser to Thiess, member of Infrastructure Australia's reference panel on public transport, adviser to the West Connex toll road Project, adviser to Deloitte Access Economics, Transport for NSW and peer reviewer for Southern Water (UK) regulatory pricing reform, and member of Board of Advice of ITLS (Africa). In 2014 David was appointed as a Panel Member to Review The Faculty of Management at The University of Johannesburg and in 2016 to review the Department of Management Sciences at the City University of Hong Kong. Member of Transport for NSW Connected and Automated Vehicle Stakeholder Reference Group (formed in 2017) and Infrastructure NSW Smart Cities Working Group.

Global Ranking: https://www.adscientificindex.com/scientist/david-hensher/115320
https://www.shanghairanking.com/rankings/gras/2022/RS0223

https://www.linkedin.com/posts/usyd-business_business-school-shanghairanking-2025-activity-7397055510002360320-FXP3?utm_source=share&utm_medium=member_desktop&rcm=ACoAAAX6f1UBFXW3PgGk6_-KuQHTd91ryN0fjaw

Professor David Hensher was not only named in the top one per cent in his field in the prestigious 2022,2023 and 2024 Clarivate Highly Cited Researcher List, https://www.sydney.edu.au/news-opinion/news/2024/11/19/sydney-researchers-recognised-in-highly-cited-list.html?utm_source=central_linkedin&utm_medium=o&utm_campaign=clarivate2024

Also 2025: https://www.sydney.edu.au/news-opinion/news/2025/11/12/sydney-researchers-recognised-for-global-leadership-and-impact-.html and https://clarivate.com/highly-cited-researchers/

he is also listed in the top two per cent in a Stanford University study (published earlier in November 2022). See https://www.sydney.edu.au/news-opinion/news/2023/11/15/sydney-academics-recognised-for-impact-in-highly-cited-list.html

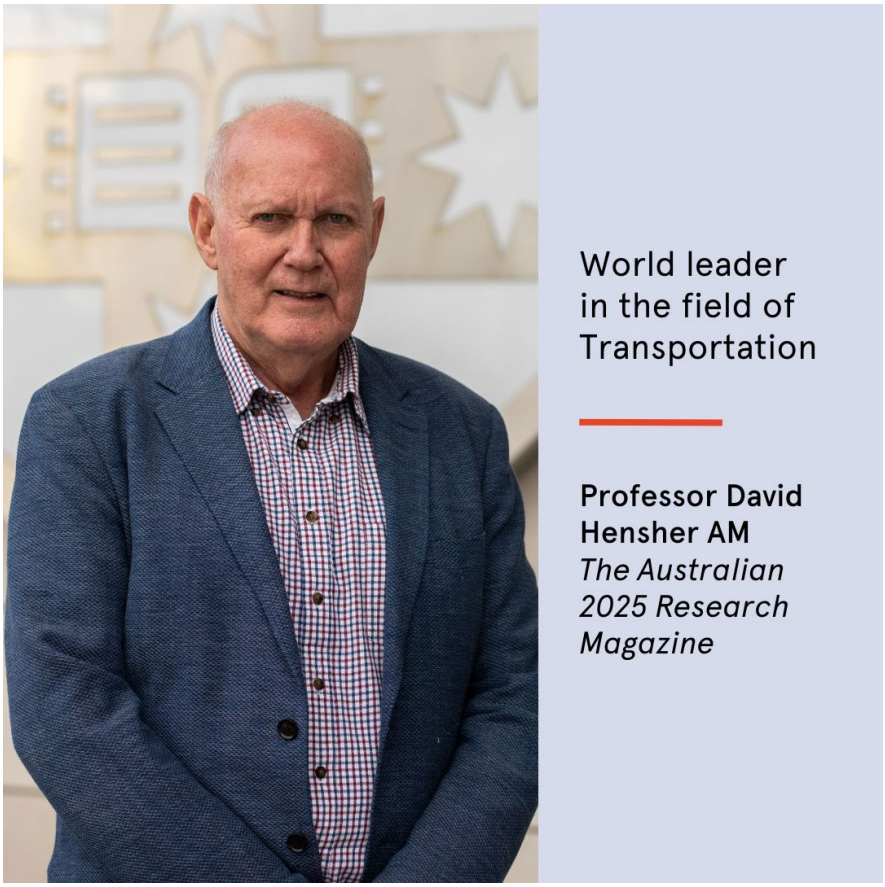
The most recent global ShanghaiRanking (2024) of academic subjects has Sydney in transportation science and technology ranked 8th in the world. https://www.sydney.edu.au/news-opinion/news/2024/11/11/----seven-research-areas-in-shanghairanking-global-top-20-.html?campaign=news-opinion&source=email&area=university&a=public&type=o&pid=daily

In August 2024, The University of Sydney is ranked first in NSW and third in Australia in the latest Academic Ranking of World Universities 2024. The University ranked 74th in the world, maintaining its place in the top 100. David was cited as one of three among the University of Sydney's highly cited academics: "University of Sydney Business School researcher Professor David Hensher, Founding Director of the Institute of Transport and Logistics Studies who is recognised globally for his research on transport economics, strategy and policy and his work on choice and preference analysis, applied to many disciplines. The Institute's most recent research found that employers and workers agree that working from home is more productive, with time saved on commuting spent working instead."

Ranked number 1 in Australia in Transport by the distinguished field as one of Australia's Top 250 researchers (in the Australian's Research 2024-2025 Magazine), 18 November 2025.
https://www.theaustralian.com.au/special-reports/research-magazine/the-2025-research-magazine-showcases-australias-best/news-story/558038b72166c02a020a8df7c506fdc3https://ausprint.meltwater.com/print_clip_previewer/545214148?text=on&keywords=Uni+of+Sydney%2CDavid+Hensher

The 2025 Research Magazine, produced by The Australian and its partner League of Scholars, has named the University of Sydney as a 'fast mover', one of the universities whose research influence grew more than five percent in the past year. The magazine lists top research performers and institutions using big-data techniques to analyse researchers and their work in each of 250 fields of research. Four researchers, the highest number for any university, are named as world leaders in the following fields of research - Professor Anthony Gill from the Faculty of Medicine and Health in the field of Pathology, Professor David Hensher from the University of Sydney Business School in Transportation, Professor Debra Jackson from the Faculty of Medicine and Health in Nursing, Professor Barbara Mintzes, from the Faculty of Medicine and Health in Primary Health Care.
"It's a measure of the talent of Australian researchers that they lead the world in 12, or nearly 5 per cent, of the 250 fields of research which we list in the Research 2025 magazine. Australian universities have even more prominence. They lead in 16, or over 6 per cent of the 250 fields. Four of the world-leading researchers come from the University of Sydney. Anthony Gill is No.1 globally in the field of pathology, David Hensher is first in transportation, Deborah Jackson is first in nursing and Barbara Mintzes is first in primary health care."

2025: the new top 2% ranking has been published. My single year impact (for 2024) ranks me in the top 0.4% of the top 2% list (1023 globally). "Amazing though not surprising." August 2025 data-update for "Updated science-wide author databases of standardized citation indicators" - Elsevier BV. See https://topresearcherslist.com/Home/Profile/1046073



AREAS OF COMPETENCE:

Survey sampling and data design
Project evaluation and benefit-cost analysis
Transport economics
Logistics economics
Transport policy and strategy
Applied econometric modelling

Consumer preference, choice and demand analysis
Discrete and stated choice methods
Market share forecasting
Privatisation and market performance
Infrastructure planning and assessment
Impact and monitoring analysis
Travel demand modelling
Willingness to pay valuation
Land use-transport interaction
Sustainable transport and de-carbonisation`
Intelligent mobility and Mobility as a Service (MaaS) and MaaF
Governance and strategic leadership

PROFESSIONAL EXPERIENCE:

The University of Sydney:

Founding Director, The Institute of Transport Studies and Head/Chair of Transport, Logistics and Supply Chain Discipline (ITS name changed January 2005 to Institute of Transport and Logistics Studies - ITLS) (December 1990 to present), 30 years in June 2020, celebrated 15 May 2021.
Professor of Management, The University of Sydney Business School (January 2011 to present)
Professor of Management, Faculty of Economics and Business (January 2000 to December 2010)
Professor of Management, Faculty of Economics (January 1998 to December 1999)
Professor of Management, Graduate School Business (July 1990 to December 1997)
Associate Dean (Graduate Coursework Program), Faculty of Economics and Business (April 2002 to January 2009)
Acting Dean, Faculty of Economics and Business (2002 to 2010 as required)
Chair, Graduate Studies Board, Faculty of Economics and Business (April 2002 to January 2009)
Project Sponsor, Faculty Web (2003 to January 2009)
Project Sponsor, Faculty Peer Mentoring Program (2003 to December 2008)
Member, Graduate Studies Committee of the University (April 2002 to December 2006)
Member Teaching and Learning Committee, Master of Complex Systems (MCXS and GradDipCXS), 2015 to present
Director, The Management Research Centre, Graduate School of Business (July 1990 to May 1993)
Inaugural Head, Department of Transport Management, Graduate School of Business (August 1995 to Dec 1997)
Founder and Architect of Graduate Program in Transport Management (MTM, GradDipTM, GradCTM)
Co-founder and Architect of Graduate Program in Logistics Management (MLM, GradDipLM, GradCLM)
Chair of Business School Group who designed the EMBA
Executive Committee of the Graduate School of Business (July 1990 to December 1997).
Faculty of Economics Management Advisory Committee (January 1998 to 1999).
Faculty of Economics and Business Executive (April 2002 to December 2008)
Faculty of Economics and Business Core Committee member for Promotion to Full Professor (Level E 1999 to present) and occasional Chair of Level D Promotion Committee
Faculty of Economics Board of Postgraduate Studies (January 1998 to 2000)
Faculty of Economics Research Committee (January 1998 to 2000)
Faculty of Economics Journal Ranking Committee (2008 onwards)

Member, Executive of School of Business, Faculty of Economics and Business (January 2000 to December 2006)
Inaugural Chair, Faculty of Economics and Business Environment Committee (August 2000 to April 2002)
Member, University Environment Advisory Committee (February 1999 to December 2008)
Member, University Academic Board/Forum
Member, University Graduate Studies Committee (September 1990 - February 1993)
Member, Council of the Foundation of the Graduate School of Business (1990 to December 1997)
Director, PhD Program, Graduate School of Business (February 1993 to June 1995)

National Survey Research Pty Ltd: Co-Director (1989 to November 1994)

The Hensher Group Pty Ltd: Joint Director (November 1994 to present)

Econometric Software (Australia): Joint Director (1990 to present)

Transport Insights: Director (1993 to present)

Macquarie University (Sydney): (1976-1989)

School of Economic & Financial Studies:
Lecturer (offer of Appointment made at December 1975 Meeting) (Sept 1976 - Dec 1977).
Senior Lecturer (January 1978 - September 1980).
Associate Professor (September 1980 - 1989).
Professor of Management, Graduate School of Management, (1989 to July 13, 1990).
Director, Transport Research Group (1985 - 1988).
Director, Transport Research Centre (1989 to July 1990).
Member - Senate Committee on Urban and Regional Studies (Nov 1976 - Sept 1981).
Member - Senate Committee on Environmental & Urban Studies (Sept 1981 to 1989).
Convenor - Postgraduate Studies Committee Economics Discipline (Jan 1977 - Feb 1980).
Convenor - Seminars in Transport (March 1977 to July 1990).
School Research Committee (1978, 1986).
School Postgraduate Studies Committee (Jan 1977 - Dec 1980).
Convenor of Transportation Program at Macquarie University (March 1982 to July 1990).
Founder of Master's Degree in Transport Economics (MTEc), 1988.
http://www.mq.edu.au/

The University of Oxford:

Post Doctoral Fellow (Transport Economics) - St. Cross College (1975-1976).
Post Doctoral Research Fellow - Transport Studies Unit (1975-1976).
http://www.stx.ox.ac.uk/

The University of Melbourne:

Department of Economics, part-time staff member (March 1973 - Nov 1974).

Queen's College - Resident Tutor in Economics and Economic Statistics (Oct 1972 - Dec 1974).

President (High Table) - Queen's College 1974.

http://www.queens.unimelb.edu.au/

Queen's College
The University of Melbourne

Hensher & Associates (Melbourne):
Freelance Consultant (Oct 1972 - July 1974).

Commonwealth Bureau of Roads (Melbourne):
Consultant - Economic Evaluation and Travel Demand Modelling (Dec 1969 - July 1974).

Principal Transport Planner, sometime Acting Deputy Chief (Evaluation) (July 1974 - Sept 1976).

University of New South Wales (Sydney):

Department of Economics - Postgraduate Research Scholar (Jan 1969 - Oct 1972).

Department of Town Planning (Part-time), Adjunct Lecturer in Land and Housing Economics (July 1970 - Oct 1972).

A statement on my most significant research contributions

The three most important contributions I have made to the general field of economics and the specific field of transportation and economics are (i) the development of a new theoretical method to value travel time savings, (ii) the development of choice experiments as a most general representation of stated preference methods, (iii) the development of interactive agency choice experiments (IACE) as a recognition of the interactions between decision makers in choice experiments, and (iv) the incorporation of information processing as a precursor to outcomes in discrete choice models.

Valuation of Travel Time Savings and the Hensher Formula
Contribution: The value of travel time savings research led to a formula that incorporates not only the production elements of time allocation and savings but also the marginal disutility aspects associated with spending equivalent amounts of time in alternative activities. Prior to this research the focus was on either a utility-based approach or a marginal productivity approach. *The Hensher formula* (as it has become known) generalised previous methods enabling one to select appropriate inputs according to whether travel is traded with work or non-work activities, the nature of compensation if non-work time is being foregone and the productivity effect of travel relative to other activities.
Impact: The Hensher Formula is widely used in many transport project applications throughout the world (most notably in Sweden, Norway, The Netherlands, The United Kingdom, USA, Chile, New Zealand and Australia) and most recently by Boeing Corp in their sub-sonic aircraft program. It has become part of the accepted official guidelines on VTTS in Sweden and the UK with a recent UK government report having a whole chapter devoted to 'The Hensher Formula'. It has become the reference source for ongoing research seeking new ways of refining the essential elements of the formula. While new empirical research has improved on the measurement of the components of the formula, it has essentially remained unchanged which in itself is a mark of its intrinsic strength. All value of travel time savings parameters used in Australia by State Road Authorities and Public Transport Planning Agencies are derivatives of research undertaken by Hensher since the early 1970s (and many empirical estimates in other countries use Hensher's work as a benchmark). Given the dominant influence of travel time savings in the definition of user benefits of transport projects, the work of Hensher has played a major role in prioritising investment in the transport sector. In 2014 a paper written by Richard Batley titled "The Hensher equation: derivation, interpretation

and implications for practical implementation" published in *Transportation (*March 2015, Volume 42 (2), 257-275) (DOI 10.1007/s11116-014-9536-3), states that "The Hensher approach represents a comprehensive body of theoretical and conceptual ideas, supported by empirical evidence, on the value to society of savings in business travel time." This contribution was recognised in 2018 by the Australian Research Council under the inaugural Engagement and Impact Assessment as High Impact (1 of 12 academics at the University of Sydney).

Stated Choice Methods

Contribution: In the early 1980s seminal research was completed by Hensher (with Louviere) that introduced how choice experiments can be linked to choice theory (set within a random utility theoretic framework). It demonstrated how traditional conjoint (or preference) experimental designs can be modified and implemented within a framework consistent with random utility theory. This contribution laid the foundations for integrating revealed preference and stated choice data into a coherent data enrichment framework. A specific contribution was the recognition that the underlying variance structure associated with the utility expressions defining each alternative in the revealed preference and stated preference choice sets must account for both between and within-data set variance differences rather than focus on between-data variance differences as is standard practice.

Impact: Combining stated choice and revealed preference data as an enrichment strategy is now widely implemented in both research and practice in many literatures (including transportation, logistics, economics, geography, marketing and environmental science). The methods that Hensher developed are especially popular in evaluating the demand for new products, services and technologies, because the stated choice element is a scientifically rigorous way of enriching the decision and choice space beyond the confines of the opportunities available in current markets. The impact and relevance of these new methods is so significant that Hensher is asked almost daily to participate in the design and implementation of SP experiments in many countries.

Interactive Agency Choice Experiments (IACE)

Contribution: I introduced a major advance in stated choice methods that recognises and accounts for the *interaction* between agents in decision making. The method, known as the Interactive Agency Choice Experiment (IACE) enables researchers and practitioners to take into account the interdependencies between individuals in households and organizations in the way that choice outcomes evolve. It recognises the role of cooperation and non-cooperation in arriving at a choice outcome. Most importantly it identifies the barriers that exist and ways that one might break down such barriers when there is non-cooperation. The methods enable us to incorporate IACE perspectives into discrete choice models, something that is very new.

Impact: The IACE research was published for the first time in 2000 and has had an immediate impact. For example a paper presented at the World Conference on Transport Research in Korea in July 2001 (The Long-term Effects of Multi-modal Transportation Networks by Professor Harry Timmermans and his colleagues) describes Hensher's IACE work as pioneering. In addition, two current PhD students in The Netherlands have recently taken up the approach (described by one author as 'path breaking') and are applying it to location choice studies and environmental valuation. The IACE method in both its theoretical and empirical contributions is at the centre of major developments in approaches to the understanding and the prediction of traveller behaviour responses in the transport sector. An ARC-DP grant (2002-2006) was awarded to Hensher to continue research in this area in the context of freight transport and supply chains.

Attribute Processing and Process Heuristics in Choice Analysis

During the period from 2001 onwards, Hensher has introduced the notion of attribute processing as a precursor to outcomes in discrete choice models, both revealed preference and choice experiments. The growing evidence suggests that choice modellers should condition their outcome choice models on the processing strategies adopted by respondents. This can be done by the use of additional information from self-stated process questions (e.g., attributes were ignored, added up, parameter transferred where there is a common metric), and thresholds imposed on the way that specific attributes are eligible in the trade amongst packages of attributes defining labelled or unlabelled alternatives. The papers by Hensher and colleagues have redefined the importance of this area of research and the role it should play in ongoing choice studies.

Other Contributions

Another important area of research by Hensher is his contribution to the literature on the dynamics of discrete choice, best represented by the contribution to the literature on dynamics of choice and automobile demand. Reviews of Hensher's 1992 book on Dimensions of Automobile Demand (North-Holland) demonstrate the substantive nature of the contribution:

'This book constitutes the cutting edge of empirical research on automobile demand….It is rare that a book comes along that induces so much rethinking of one's own field' (in Transportation Research , 28A(4), 363-371, 1994: Ken Train, Economics, University of California, Berkeley).

'Overall this is the most exhaustive and comprehensive automobile-demand book published to date….this is an important book….its approach reflects the most advanced thinking in the field…[it] addresses key issues encountered

using panel data…[and] the description of forecasting methods should have considerable appeal to many researchers and practitioners that forecast with disaggregate models. …It is certainly a must-read for automobile demand researchers' (in *Transportation Science*, 28 (1), 80-81, 1994: Fred Mannering, Department of Civil Engineering, University of Washington).

'…the book provides the reader with a well argued, technically detailed and in some important respect path-breaking microeconomic approach to automobile demand and associated fuel use forecasting….The strength of the text rests in its rigorous and detailed technical development of a tractable analytical method….It seems certain to be regarded as an important addition to this literature….The work demonstrates both the need and the technical challenges associated with the use of longitudinal travel survey data. Here the book's availability is most timely.' (*Transportation Research Forum,* 1995, 137-138: Frank Southworth, Oak Ridge National Laboratory, Tennessee)

My standing internationally is seen through the publication in 2000, 2001 and 2005 (2015 second edition) of three major books - Stated Choice Methods (Cambridge University Press, with Louviere and Swait), Applied Choice Analysis (Cambridge University Press with Rose and Greene), and Transport Economics and Management (Oxford University Press with Brewer). The latter book has been described in a review by Professor Chris Nash (Director of Institute for Transport Studies, University of Leeds) as 'This is an excellent book. It brings together in one volume everything a transport manager needs to know about economics and management….No other book covers this ground, and even in the specific transport economics area no book is so up-to-date or thorough'.

In a paper dated 2004 and titled 'Evaluating the research output of Australian universities' economics departments' by Richard Pomfret and Liang Choon Wang, it is stated that "David Hensher ranks third if self-citations are excluded."

MAJOR RESEARCH AND CONTRACT PROJECTS

Active

Is the Debate on Net Zero Emission Targets in Australia aligned with Political Preference Bias?

Net Zero emission targets have become a politically sensitive policy in many, but not all, countries, with suggestions that they are not achievable but potentially misaligned with energy security as they become intertwined with the move towards renewables and away from fossil fuel energy sources, where the latter is widely seen as the baseload for many nations. Australia is embroiled in a political debate on whether net zero will achieve its emission objectives in the presence of escalating energy prices and uncertainty in respect of cost and damage to an economy that has a wealth of fossil fuel resources as well as some support for nuclear power which currently is not sanctioned by the Federal government. There has been a lot of media attention on Net Zero (CO_2) or greenhouse gas emissions, and it is unclear whether it is well understood, and what it might mean for Australia, given there are views that it is either a great idea or a bad idea. This research draws on a new survey in Australia to gain an appreciation of public understanding of Net Zero and what the public thinks it might mean for Australians, and how their preferences are aligned with political parties. We estimate a hybrid logit choice model of support for political parties that encapsulates the endogeneity of "soft" variables such as latent attitude variables that are driven by observable "causes," and unobservable heterogeneity, which together with contextual and socioeconomic characteristics provide evidence on preference bias for or against Net Zero associated with political affiliation.

An agreeable price: Discovering the path to critical road pricing reform 2026-2028, Professors Michiel Bliemer, Matthew Beck, and David Hensher, $584,440

This project aims to investigate the timely and critical pathway for transitioning to a fair, equitable and parsimonious road user charging system for passenger cars. This project expects to generate knowledge in the area of road pricing using innovative experimental methods and field trials incorporating new technologies. Expected outcomes of this project include an enhanced understanding of responses to different pricing structures and sources of resistance in road pricing reform. This should provide significant benefits, such as a validated road pricing structure that is acceptable to drivers and policy-makers, and future-proof funding for road infrastructure that is essential to perform economic, commercial and social activities.

Establishing a Framework of Support to Scale in Mobility as a Service. Funder: **iMOVE Project No: 3-034**. Amount: AUD600,000. 2023 – 2025. Researchers: Prof. John Nelson (CI), PIs: Prof. David Hensher, A/Prof. Chinh Ho, Emerita Prof. Corinne Mulley, Dr Edward Wei, Dr. Camila Balbontin, Dr. Thiranjaya Kandanaarachchi, Ms. Wen Liu, Ms. Rebecca Connell

Design of a Regional Town and Rural Hinterland (RTRH) MaaS Blueprint. Funder: **iMOVE Project No: 3-020**. Amount: AUD300,000. 2021-2022. Researchers: Prof. John Nelson (CI), PIs: Prof. David Hensher, A/Prof. Chinh Ho, Dr. Haoning Xi, Dr. Camila Balbontin, Andre Pinto

Behavioural Change for Sustainable Transport. Funder: **iMOVE Project No: 3-039**. Amount: AUD360,000. 2023 – 2025. Researchers: Prof. John Nelson (CI), PIs: Prof. David Hensher, A/Prof. Chinh Ho, Emerita Prof. Corinne Mulley, Dr Edward Wei, Dr. Camila Balbontin, Dr. Thiranjaya Kandanaarachchi, Ms. Wen Liu, Ms. Rebecca Connell

ACT Sustainable Transport Study. Amount: AUD96,329. 2025 – 2026. Funder: **Office of the Commissioner for Sustainability and the Environment within City and Environment**. Researchers: Prof. John Nelson (CI), PIs: Prof. David Hensher, Emerita Prof. Corinne Mulley, A/Prof. Chinh Ho, Dr Edward Wei, Dr. Yuting Zhang, Dr. Camila Balbontin, Ms. Wen Liu

An agreeable price: Discovering the path to critical road pricing reform. (Michiel Bliemer, Matthew Beck, David Hensher), ARC- Discovery Project 2026-2028, $584,440
This project aims to investigate the timely and critical pathway for transitioning to a fair, equitable and parsimonious road user charging system for passenger cars. This project expects to generate knowledge in the area of road pricing using innovative experimental methods and field trials incorporating new technologies. Expected outcomes of this project include an enhanced understanding of responses to different pricing structures and sources of resistance in road pricing reform. This should provide significant benefits, such as a validated road pricing structure that is acceptable to drivers and policy-makers, and future-proof funding for road infrastructure that is essential to perform economic, commercial and social activities.

Re-Pricing Road User Charges – How might we get it over the political line? (with Edward Wei and Russell King)

The most challenging transport reform has always been associated with re-pricing of car use. While society complains about the growing levels of congestion on our roads, they seem reluctant to support a package of pricing reforms that can make each and every car user better off both financially and in saving time. It appears, with rare exception, that even when there is evidence of user-based support in surveys, that politicians immediately reject any suggested re-pricing model for an apparent fear of losing electoral support at the ballot box. There exist a number of systemwide charging reforms such as the Oregon kilometre-based charging, but they are in the main opt in models, which offer an appealing way for politicians to support the ideals of giving everyone a choice. The cordon-based congestion charging schemes in London, Milan, Stockholm, New York, and Singapore, while applying to all users who enter a specific location, are limited to one location, whereas our interest is in a metropolitan-wide initiative applied to all travellers. In this research, we propose a way forward that will both give everyone a choice and deliver benefits to individuals and society. The key feature is the option for people to switch from a fixed annual registration fee to a distance-based charge during peak periods (for a portion of the fee) and ensuring that the total cost does not exceed the full registration fee. This structure enables those who opt out of a certain number of peak trips to avoid the distance-based charge, reaping financial savings while enhancing travel times for those who drive during peak periods. We show that not only are car users better off, but Treasury is also better off. The focus is on metropolitan areas, but we also consider the implications for regional and rural jurisdictions.

Monetizing the value of changes in eudaimonic wellbeing (with John Stanley, Janet Stanley and Dianne Vella-Brodrick)
Over the past two to three decades, several factors have come together to stimulate a search for monetized values of wellbeing change. Those factors include concerns about the adequacy of Gross Domestic Product as a measure of economic/societal success, improved measurement of various conceptions of wellbeing, the utilitarian (welfare) origins of cost-benefit analysis (CBA), and limitations in the availability of market-based measures of monetary benefits/costs for application in CBA. Application of monetized wellbeing values in public policy/project appraisal or evaluation is one desired outcome of such efforts, extending the coverage of CBA. Wellbeing measurement and analysis is broadly divided between hedonic and eudaimonic streams. The hedonic stream is largely seen as being about experiences, encompassing life satisfaction/evaluative wellbeing and affective (positive and negative) components, while eudaimonic wellbeing is mainly about functionings (or orientations). Some degree of overlap between the hedonic and eudaimonic conceptions of wellbeing is usually recognized with some researchers going as far as suggesting that this overlap is sufficiently strong empirically for wellbeing to be seen as a single construct. They acknowledge, however, that 'measures of eudaimonia may contain aspects of meaningful goal-directedness unique from hedonia'. Monetization of the value of a unit change in wellbeing has developed within the hedonic stream, focusing on life satisfaction, where the pioneering efforts of authors such as van Praag and Ferrer-i-Carbonell (2004) is notable. However, there has been little progress in monetizing changes in eudaimonic wellbeing. This gap is of concern to several of the current authors, who are undertaking a CBA of nature-based interventions for young adults with mild mental illness. That research is identifying strong gains in both life satisfaction and eudaimonic wellbeing, prompting a need for monetized values of changes in eudaimonic wellbeing (or psychological wellbeing, PWB), to complement the available monetized measures for changes in life satisfaction, for more complete benefit measurement. Stanley et al. (2021) have published monetized values for changes in positive affect and for two of Ryff's (1989) six components of eudaimonic wellbeing (personal growth and positive relations with others). The current research extends that earlier work to derive monetized estimates of the value of changes in overall eudaimonic wellbeing, encompassing all six of Ryff's (1989) component measures. We sets out current understandings of hedonic and eudaimonic (or psychological) wellbeing, with a particular focus on life satisfaction in the hedonic stream, including consideration of some monetization research. We then describe the methods used to estimate monetized values for unit changes in life satisfaction and psychological (eudaimonic) wellbeing, with results detailed. We discusses those results and present the conclusions. A key aim is to stimulate discussion of ways of monetizing eudaimonic wellbeing and of circumstances where those wellbeing values may be most appropriate in CBA.

Mobility as a Service: Challenges and Opportunities (with John D. Nelson and Corinne Mulley)

Mobility as a Service (MaaS) continues to generate interest as an ecosystem that supports the digital integration of all modes of passenger transport. As a multi-modal offering through pay as you go and/or a subscription plan, MaaS claims to revitalise the mobility landscape by offering seamless access to mixtures of modes from a single digital platform app. Despite the rhetoric and proliferation of trip planning apps claiming to be MaaS, little success has been seen in the market as defined by its scalability and

a business model, be it commercial or subsidised, with rare exception in China and Japan. This research documents what MaaS is, what it is meant to achieve, why it is struggling, and what opportunities are out there in urban and rural/regional settings that may in time, turn the tide to give MaaS a future, especially as an ecosystem that goes beyond multi-modalism to multi-service, and a recognition that uni-modal solutions remain a behaviourally appealing mobility solution.

The impact of a low cost flat public fare policy on the number of trips (with John M. Rose, Andrea Pellegrini and Matthew, J. Beck)

This study analyses six waves of cross-sectional survey data collected both before and after the introduction of a $0.50 flat fare structure across all public transport modes operating within Queensland Australia. The frequency of public transport trips is reported from approximately 650 to 700 respondents per wave across each of the six waves of data collection., including information on trips that are reported as being trips that would have occurred irrespective of the low fare structure, trips that occurred solely as a result of the low flat fare structuring being introduced, and public transport trips that involve switching to public transport modes from some other mode of transport. Our findings so far suggest that the low fare structure led to increased public transport due to induced demand, with much less scope for mode switching behaviour. Further, the primary beneficiaries of the fare policy appear to be younger lower income individuals who are already regular public transport users. As such, consistent with the introduction of low or zero fare policies in other jurisdictions, the introduction of a flat $0.50 fare in Queensland has resulted in increased public transport patronage for some groups, while only limited mode switching behaviour is observed to have occurred.

Time for a Reset of Bus Contracts?

In the last 40 years we have seen an accumulation of global experiences in delivering bus services under a range of contracts, including public ownership. Driven initially by an ideological position that competition in the market is highly desirable in delivering cost efficient services (linked mainly to competing bus services, in contrast to the broader multi-modal competitive element), it was not long before the natural monopoly argument was used, especially in urban contexts, in recognition of the risk and often evidence of inefficient competitive outcomes through economic deregulation. This led to a global preference for competition for the market (or competitive tendering) in settings where government wished to move away from publicly owned and provided bus services. In some contexts, it was decided to stay with an incumbent operator under a negotiated performance based contracting regime. We now have a significant amount of real-world experience with many versions of such contracts, with lessons learnt, positive and negative, giving us a rich array of ideas that should be embedded in what we might do to improve on the delivery of bus services, given the set of primary objectives linked at least to customer service and value for money. This researchsets out what we call a contract reset strategy within which we propose a number of significant changes in the way the majority of bus contracts are currently delivered. The arguments and proposals are sufficiently generic to apply to any context in which all relevant stakeholders, notably the regulator and the operator, would want to venture in developing and implementing the next generation of bus contracts. Some key elements that need drastic reform include a move to more flexible (hence less rigid) contracts, identifying risk and ensuring it is shared across all who gain to benefit, simplifying contracts at the *ex ante* bid stage with a recognition of an ability to review and revise during the tenure of the successful bidder, the opportunity to migrate to a collaborative contract (of great value in the decarbonisation transition), and to protect trust in the partnership between the principle and agent.

Systematic assessment of push and pull initiatives in behavioural responses associated with public transport fares, service frequency, car-related tolls, distance-based road user charges, and parking charges (with Edware Wei and Wen Liu)

There has been a constant flow of empirical evidence suggesting the likely modal trip impact that stand-alone policy initiatives such as public transport fares or service frequency and road pricing reforms (be it tolls or distance-based charging) have on the change in travel behaviour. While the evidence, typically converted to mean direct elasticity and cross elasticity modal estimates, is informative, there is a dearth of empirical evidence on elasticities associated with policy initiatives that combine policies such as a public transport fare or service frequency change and a car-related toll and /or distance-based charge and/or parking charges. This esearch investigates the one-way trip and arc elasticity impacts of stand-alone policy initiatives and compares the two elasticity effects when push and pull policy initiatives are at play. We find not only that there are asymmetric effects according to whether the policy involves an increase or a decrease, but that the combined policy initiatives suggest very different mean arc elasticity impacts, opening up opportunities for behavioural changes that are not obtained to the same extent from a stand-alone policy initiative. Each policy by itself generally, although not always, has a lower relative elasticity compared to when it is combined with another policy. We use the advanced Metroscan integrated transport and land use strategic model system to obtain the evidence for 2024 in the Sydney Metropolitan Area.

The influence of flexi-time and flexi-place work on online ordering expenditure (with Andrea Pellegrini and Edward Wei)

In recent years we have seen a tsunami of change in both the way in which work is performed by location, when, and the quantum of hours, which is now seen as flexi-place and flexitime, together with the growth annually in online shopping. These two phenomena may be related to working from home all day and/or a blended or hybrid workday (part in the main office and part elsewhere) may have contributed to boosting online ordering. In this research, we estimate a Tobit regression model with a zero-corner solution to explore the interplay between the amount of money spent on online shopping and whether the hours working from home and/or hybrid work results in an increase in expenditure on online ordering. There appears to be little evidence in the research literature given to this relationship. We draw on a March 2024 survey for Australia to investigate the presence of a link, and we find that there are systematic differences, with a higher incidence of online expenditure associated with a higher probability of working from home all day or on a blended workday. Partial effects estimates suggest a statistically significant difference, and as the mix of flexitime and flexi-place changes over time, we can expect a noticeable response in the quantum of online shopping expenditure.

Evaluating Demand and Feasibility for Mobility-as-a-Service (MaaS) at an Urban Scale (With NUS, Prateek Bansal, Leonard Lee)
This study investigatess the feasibility and appeal of such a digital mobility solution – Mobility-as-a-Service (MaaS) – in Singapore. The central idea of MaaS is to bring several public and private transport operators on a digital platform where the end-user can subscribe to several travel modes as a mobility bundle. The user would interpret mobility in the same way as they perceive other services, such as those offered by telecom operators (e.g., a monthly subscription of X messages, Y calls, and Z GB internet at $W cost). The MaaS platform offers a subscription of "mobility bundles" at varying prices, depending on available travel modes and their frequencies in the bundle. For instance, a mobility bundle could include unlimited use of public transport and shared electric micro-mobility (e.g., e-bikes) for a fixed monthly cost, with a threshold on the monthly usage of carsharing and ride-hailing services. MaaS aims to provide seamless door-to-door mobility solutions, with a vision to build safe, sustainable (car-lite), and healthy societies. We investigate the following:

- How much are potential MaaS users willing to pay (WTP) for a mobility bundle? How much value do they associate with attributes of each travel mode (e.g., WTP for ten kilometers of additional carsharing)? How heterogeneous these valuations and preferences are across users with varying socio-economic characteristics, activity patterns, and travel behavior? This aspect is critical for designing customized mobility bundles for potential MaaS users.
- How should personalized mobility bundles be designed for users with varying mobility needs? While choosing a MaaS bundle is difficult for users (especially for early adopters), making a recommendation is an equally complex problem for modelers due to the "curse of dimensionality." The choice of a mobility bundle includes the selection of travel modes, frequency of use and unit (the number of trips, time, or distance), and subscription period (yearly, monthly, or weekly). A personalized recommendation will simplify the selection of a mobility bundle for users as they could tweak its attributes instead of creating from scratch.
- How will the share of each travel mode, specifically car ownership and ridehailing usage, be affected due to the introduction of MaaS in a city? Generating personalized mobility bundles for the entire synthetic population of the city based on their simulated travel patterns and aggregating them in spatiotemporal dimension could help determine the travel mode share after MaaS adoption. This exercise will help determine supply-side infrastructure requirements, environmental impact, and the feasibility of MaaS at an urban scale.

Behavioural Change for Sustainable Transport
Decarbonising the transport sector through transitioning from internal combustion engine vehicles to low or zero emission vehicles will not solve the majority of issues that face the transport sector. Enabling people to choose more sustainable public and active transport will have a more beneficial impact in the short and long term. To achieve this, we need to understand how policy and infrastructure actions can make that transition work for cities and communities across Australia. This research, beginning with an extensive literature review, will uncover attitudes and actions that are best likely to deliver actual change to a more sustainable transport system and include recommendations for policy makers and operators to expedite those changes with evidence-based policies and interventions. The literature review will also investigate the economic impacts and potential cost benefit analysis of transition to more sustainable transport initiatives. To maximise the benefits for Australia, there needs to be a well-planned and collaborative approach. To that end we will design and implement an Australia-wide online survey of demographically representative citizens to better understand their appreciation of, and willingness to support sustainable transport transitions. Outcomes will be analysed to offer insight into preparing a pathway forward for sustainable transport services in Australia and enable emissions reductions to meet more ambitious decarbonisation targets.

Workforce Performance, Productivity and the Roles of Employee Motivation and Wellbeing in Employees' Post-Pandemic Work Location Choices (with Edware Wei)
This research reviews the literature and collects new employee motivation and productivity data. The survey covers other barriers and drivers associated with the hybrid work form, including work-life-balance (WLB), commuting time and patterns, and financial and non-financial incentives. The paper then discusses employee motivation theories and their relationship with productivity. We then present the survey approach followed by of the empirical findings and conclusions.

Accommodating the growing role of active and micro-mobility modes in strategic travel demand models (with EdwardWei, Wen Liu and Camila Balbontin)
There is growing interest since the beginning of the COVID-19 pandemic in recognising the role that active and micro-mobility modes play in the full suite of modal-based activities. While the idea of the 'next normal', remains unclear, there are signs that living locally and the impact of increased working from home, has generated greater interest in active travel and micro-mobility for local trips but also as ways to access and/or egress modes for longer trips. We have designed a new travel and mobility survey in which revealed and stated preference data is used to identify current and future interest in the frequency of using a richer set of motorised and non-motorised modes for all stages of a door-to-door journey, distinguishing trip purpose, time of day, and day of week. Trip frequency over a 7-day week is much more informative than the more traditional choice of a mode survey approach for a typical day. We estimate a series of frequency or share choice models to gain an understanding of the role that active and micro-mobility modes play with increasing working for home and a move to more local destination activity. The new models provide a way to improve the treatment of active and micro-mobility modes in strategic travel models systems widely applied by state-based agencies.

Airport Capacity Investment with Airport – Airline Vertical Arrangements – Economic and policy analysis of risk allocation under information asymmetry, *Hong Kong Research Grants Council*, Project No. POLYU 15237424, HK$$779,112.

Assessing Service Delivery for Community Transport (CT) under Community Transport Service Contracts with TfNSW Funded by the Commonwealth Home Support Program (CHSP) (with Edward Wei and John Nelson)
The project has the following objectives: Assess the actual impact of high distance/duration journeys on the capacity of CHSPs to meet contracted outputs; Review current unit price(s) against trips by distance/time. Determine at what point the ultimate limit

beyond which trips are just too expensive to deliver. Calculate a reasonable and realistic cost per kilometre for service delivery. This may vary by location. In this study, the locations for assessment are the 16 Aged Care Planning Regions (ACPRs) in NSW. The current unit prices for ACPRs are the benchmark prices to compare against the actual trip costs; Quantify how far (distance) is "too far" and how long (time) is "too long". Assess what trips would not be delivered under "too far/too long" parameters, and project the impact on customers if those trips are not delivered; Identify where gaps exist: demand for transport exceeding delivery, and vice-versa. Identify where outputs might be transferred from one area to another to fill the gap. If the current "one size fits all" model doesn't work, develop a reasonable and realistic one that will work.

The Link between Service Frequency and Patronage (with Edward Wei, Wen Liu and John Nelson)
Bus service frequency is extensively studied in many papers; however, we found a lack of a single source that will enable a synthesis overview of the main elasticity evidence on the relationship between service frequency changes and patronage growth. This research provides such a synthesis, drawing on the published literature and some new scenario predictions for metropolitan Sydney.

Establishing a Framework of Support to Scale in Mobility as a Service, (with John Nelson, Corinne Mulley, Chinh Ho, Sampo Hietenan, TMR Qld)
In order to orchestrate a successful, sustainable and reliable Mobility as a Service (MaaS) ecosystem, there is a need to consider a vast array of enabling frameworks. The adoption or support of any one framework in Australia is likely to have ramifications for all ecosystem participants. As a result, careful consideration of the many objectives that ecosystem participants may have is needed, in order to bring about the best possible solution and avoid an unstable, ego driven MaaS world.
This project seeks to consider the (ideal) MaaS framework that benefits users and providers in a sustainable way. It acknowledges the many actors within the ecosystem, their specific value adding roles and potential barriers to the adaptation of a sustainable MaaS framework. The project will develop and evaluate a proposed framework that involves a tendering authority that is responsible for a common access platform into which competitive tendered MaaS consortium bids are assessed with multiple 'winners' selected to ensure coverage of all multi-modal and multi-service products across the successful bid. Such an approach serves to give users choices and ensure a competitive MaaS market that appears well aligned with a new digital platform (such as *AnyPaaS*). A governance model will be developed that reflects the committed interests of the relevant stakeholders. See https://imoveaustralia.com/project/framework-of-support-to-scale-in-mobility-as-a-service/

What is an Ideal (Utopian) Mobility as a Service (MaaS) Eco-System? (with Corinne Mulley and John Nelson)
There is a substantial and growing literature on Mobility as a Service (MaaS). While we might question the extent to which much of the literature and commentary is really about MaaS (since this gets us nowhere), we thought we might begin by setting out what we think MaaS supporters (dare we say disciples!) would like to see (or dream of) in place that all participants can (willingly) lock into to contribute to a MaaS eco-system that benefits all in a sustainable way.
This is not an easy task, yet it must be done if we are to discuss the challenges and highlight the necessary conditions to move MaaS out of a niche future to one that is scalable. The key essential elements are the user platform that houses all digital apps of MaaS providers, the way in which data and the types of data is shared in the eco-system, the governance model that appeals to all participating parties, and the sharing of the benefits (e.g., revenue), costs, and associated risks, amongst participating parties.

Mobility as a Feature (MaaF): Rethinking the Focus of Mobility as a Service (MaaS) (with Sampo Hietanen, MaaS Global)
In the last 10 years, Mobility as a Service (MaaS) has entered into our conscience as a very attractive way of taming the private car through offering better and seamless mobility services; however, a move to encourage use of a more sustainable model of mobility has not delivered the outcomes to the extent we had all hoped for. Lessons learnt have been financially draining and often behaviourally disappointing. This research identifies some of the reasons for this and why a paradigm change is required. We suggest the focus should be on a broader interpretation of transport services as an input into a wider activity-focussed product mix driven by the private sector, in a way that is also financially sustainable without necessarily requiring further subsidy from government. We call this Mobility as a Feature (MaaF).

Comparative Assessment of Zero and Low Emission and Pollutant Strategies for the Australian Truck Fleet
Various strategies worldwide have been introduced to cut emissions and pollutants in freight distribution, such as a low emission strategy mainly supported by low carbon fuel standards, shifting road freight to rail, and a zero-emission strategy to change from diesel to either battery-electric trucks or hydrogen fuel cell electric trucks. This research assesses emission and cost implications of a range of initiatives available, comparing and recommending actions that government and truck operators may take in the near term to longer term.

The Greening of the passenger car might not deliver such positive sustainability news – so what do we have to do?
As we promote the need to reduce emissions at the tailpipe for cars, trucks, and buses, we may be neglecting the full story on what this might mean for achieving a broad set of sustainability goals. While not denying the merits of reducing tailpipe emissions, there are many unresolved questions about the indirect emission impacts as well as other sustainability impacts such as traffic congestion. This research attempts to place the debate within a wider setting if only to achieve more than what we see government myopically focussing on.

***i*MOVE Co-operative Research Centre (CRC), 2021 -2022, Promoting Sustainable University Travel Choices (PSUTS) with Transport for NSW**
Journey to work patterns have been substantially reset as the result of COVID-19. The existing iMOVE project ("Working from Home (WFH) and implications for revision of metropolitan strategic transport models") led by ITLS in partnership with TMR, TfNSW and WADoT has shown that the influence of WFH is likely to be profound. Studying from home (SFH) has also become prevalent since March 2020, and while this has subsided in Australia for primary and secondary education, it largely remains in place for tertiary education, and in many instances international students are now studying from their home country. The physical

absence of tertiary students has had a significantly large impact on public transport (as well as on local suppliers of student accommodation, and other support industries and services). With the easing of restrictions, many students are showing a keen interest in hybrid modes of teaching and learning. TfNSW are interested in learning more about the emerging and intended commuting patterns of university staff and students post-pandemic and the implementation of return to campus plans of universities to further inform the development of their Travel Choices program. To realise this goal, this project will conduct a rapid review of the staff and student travel plan literature, the review of selected return to campus plans and sustainable travel plans and existing TfNSW Travel Plan Toolkit materials; conduct surveys of staff and students travel behaviour in the light of modified study and work modes across selected USYD campuses; and develop a University Travel Choices implementation plan for the USYD campus(es). This will enable us to provide robust recommendations for suggested initiatives to influence travel behaviours and demand in a university environment.

***i*MOVE Co-operative Research Centre (CRC), 2021 -2022, Design of a Regional Town and Rural Hinterland (RTRH) MaaS Blueprint with Transport for NSW**

Mobility as a Service (MaaS) is a centrepiece of the Future Transport Technology Roadmap of Transport for NSW (released in April 2021). Although we are accumulating a great deal of knowledge and experience in progressively introducing elements of MaaS into a metropolitan setting, there is a void in the context of Regional Towns and Rural Hinterlands (RTRH), with the generally accepted position that the metropolitan context is quite different to RTRH. MaaS in RTRH is unlikely to be built on a strong regular route-based public transport offer, and therefore car-based solutions are likely to be important in the mix with potentially more flexible forms of public transport services and possibly a different client customer base. In a RTRH setting, reducing social exclusion and improving well-being will come to the forefront as very important objectives that can be enhanced through a MaaS framework. The objective of this Project is to design a blueprint for future MaaS initiatives in a RTRH setting, drawing on experience in the Sydney MaaS trial, international evidence, and new data specifically collected with all stakeholders in the RTRH environment.

The influence of zero emission electric cars on car kilometres and emission reductions in the presence and absence of a distance-based charge: An application of MetroScan

We are told that electric vehicles, cars in particular, will be good for the environment. But what exactly might this mean? It is true that end use emissions will be significantly reduced when we move from fossil fuels to green energy sources. Assuming that the demand for such cars including battery electric vehicles (BEVs) is scalable and that we can expect over the next twenty years a significant number of such vehicles manufactured, and given the relatively lower cost (fewer moving parts) compared to the internal combustion engine vehicles (ICEVs) as well as significantly lower usage costs per kilometre, we should expect a level of uptake that will both impact on the performance of the road network (with increased congestion) but also a risk of reduced use of public transport. In this paper we apply the MetroScan system in the Greater Sydney Metropolitan Area (GSMA) over the period 2021-2056 to identify the likely impact that the growth in electric vehicle (EVs) ownership and use will have on the performance of the transport network including vehicle kilometres, modal shares, government revenues, levels of emissions and other impacts. Moreover, we investigate the introduction of an EV usage charge proposed in Australia to see what it might do to the key performance indicators and whether it can offset the adverse effects during EV uptake such as government revenue loss and increased congestion.

The Rational Economic Attraction of Risk in Infrastructure Investment, with David Johnstone

Private equity continues to be contributed to mega projects in the transport sector despite a patchy history with many failures ending in administration and sold off for basement prices. The world has many examples, notably in tolled roads. With the cost of debt capital at an all-time low and very large capital funds available, the equity markets continue to remain interested in transport infrastructure investment with long term payoffs. Focussing on tollroads and a setting typical of a public-private partnership where the greatest risk is patronage, we set out a theoretical model to show that equity investors prefer inherently larger riskier assets provided that they are priced accordingly. Our rational model provides insights into how risk is economically attractive to investors, clarifying why the demand for tollroad PPPs remains robust.

***i*MOVE Co-operative Research Centre (CRC), 2020-2022 Working for Home (WFH) and Implications for Revision of Metropolitan Strategic Transport Models, in partnership with Transport and Main Roads Queensland, TfNSW, and WA DoT, continuing research post grant completion period.**

See https://www.youtube.com/watch?v=qDNDox3oPhU&feature=youtu.be

The Covid-19 Pandemic has produced a number of unintended consequences for the transport network. At the height of the pandemic, we had a significant number of people working from home (WFH), in large measure due to government restrictions with travel allowed only where work was deemed 'essential'. With WFH we observed substantial reductions in travel by all modes, but especially shared modes – public transport and rideshare (taxi, Uber, Ola). With WFH during the pandemic phase, and plans as we transition out of Covid-19 to relax restrictions while still ensuring social (or physical) distancing in all public spaces including offices and common space in office buildings, the 'success' of flattening the pandemic curve has resulted in flattening the peak periods of travel (what we call 'killing off the camel and replacing it with a horse'). The unintended consequence of increased WFH arising from Covid-19, is a demonstration how WFH has the ability to tame traffic on the roads and crowding in public transport. The forced intervention of Covid-19 shows WFH as perhaps the most significant and available policy lever to manage the performance of the transport system, with an impact unlike any that has been had since perhaps the advent of the automobile itself. Such an opportunity should not be lost. This project tracks the travel activity and positions in relation to WFH of the Australian population through a longitudinal data plan (commencing in March 2020) and what this might mean as we get to understand responses from employers and employees to WFH until we reach some equilibrium, possibly when vaccination is widespread. This raises important questions as to what revisions will be required to strategic models used by State governments in respect of modal choice and frequency of weekly travel under various WFH futures. The research program develops revised post-Covid-19 travel choice models conditioned on WFH preferences.

Volvo Educational and Research Foundation Centre of Excellence in Bus Rapid Transit New Grant, 2017-2024
Together with the Pontifica de Catolica de Chile, MIT, EMBARQ Washington, Brasil and Mexico, ITLS and the University of Pretoria (South Africa) have won a competitive Volvo Centre of Excellence in Bus Rapid Transport grant renewal to continue develop new frameworks for the planning, design, financing, implementation and operation of BRT in different urban areas, giving clear guidelines to decision makers on when and how BRT projects can effectively enhance mobility and meet accessibility needs.

***i*MOVE Co-operative Research Centre (CRC), 2017-2026**
The Federal Government has granted a group of nearly fifty leading industry and research organisations known as the iMOVE Co-operative Research Centre (CRC), a total of $55 million over ten years to explore intelligent transport systems including self-drive vehicles. Key members of the iMOVE CRC include the University of Sydney Business School's internationally respected Institute of Transport and Logistics Studies (ITLS) and the University of Sydney's Faculty of Engineering and IT.

Redevelopment of Tresis (NEW TRESIS, METROSCAN_TI)
Beginning in late 2012, a major overhaul of the ITLS developed Transport and Environmental Strategic Impact Simulator (TRESIS) is in progress. The new version (N-TRESIS) will have new behavioural models for travel, location and vehicle choices, and will be linked to Omnitrans and TREDIS to enable the full suite of evaluation capabilities for demand forecasting to benefit-cost analysis and economic impact assessment. Freight and light commercial vehicle service models are integrated into new TRESIS with passenger models. The ultimate capability is an online leasing facility that can use local data, networks etc in any urban setting in any country.
ITLS has been successful in applying for significant High Performance Computing (HPC) resources in the Artemis Grand Challenge Scheme of the Deputy Vice-Chancellor (Research).
Team members: David Hensher, Chinh Ho, Wen Liu, and Edward Wei
Grant: 192 cores for 4 years ($336,000 in-kind support)
Project summary: There is a recognised need within government and industry for having a capability to undertake, in a timely manner, a quick scan of a large number of candidate transport, infrastructure, and land-use projects/policies and prioritise them based on passenger and freight demand forecasts, benefit-costs ratios and economy-wide outcomes. Such a framework would then be meaningful in the sense of offering outputs that are similar to those that are provided by analysis typically spread over many months, if not years. The MetroScan-TI project aims to deliver this capability to governments and other stakeholders by applying high performance computing techniques to provide the first fully integrated transport planning tool that can be used to deliver vital demand forecasts and a detailed assessment in a very short time frame. This is in stark contrast to existing tools that take months of work to fully implement and use and typically provide only a limited set of outputs related to transport specifically while completely ignoring the interaction with other decisions. This project includes substantial external collaboration with government and industry and has a significant potential to provide a transformational impact on a wide-range of policy decisions, both in Sydney and elsewhere. This grant recognizes our research excellence within the University and our engagement with government and industry in order to tackle challenging real-world problems. As the DVCR pointed out in his award letter, these HPC resources will be valuable in supporting further external grant applications. Listen to an interview linked to MetroScan https://soundcloud.com/drivenmedia/prof-david-hensher-shows-a-better-way-to-pick-transport-projects/s-LAjr0

Completed

A multi-task Transformer with mixture-of-experts for personalized periodic predictions of individual travel behavior in multimodal public transport, with Haoning Xi, Zhiqi Shao, David A Hensher, John D Nelson, Huaming Chen, Kasun Wijayaratnae
Integrated multimodal public transport (PT) systems are reshaping urban mobility by providing personalized travel experiences tailored to individual users. A critical challenge in realizing person- alized mobility is predicting users' periodic travel behaviors to capture each user's evolving travel preferences and patterns. Big data and AI have opened new opportunities to accurately predict individual travel behavior, which is a critical initial step toward effective planning of personalized mobility bundle subscriptions and improvement of mobility services. This study proposes a novel framework, PTBformer-MMoE, for personalized periodic prediction of individual travel behavior, specifically predicting each user's monthly mode-specific travel frequency class (classification tasks) and each user's monthly expected travel fare (regression task), using the user's most recent travel records. Within the multi-gate mixture-of-experts (MMoE) framework, each expert network is realized by a PTBformer, and each gate determines the weighted contributions of expert outputs relevant to a specific task tower. The PTBformer integrates two key modules, i.e., a Multi-mode Transformer employing multi-feature self-attention for continuous time-series travel data; and an OD Transformer capturing OD-specific travel features with multi-OD self-attention. Evaluated on a multimodal (bus, rail, ferry, and tram) dataset with over 0.96 billion travel records of 1.58 million users in Queensland, Australia, during 01/2021 01/2023, the proposed PTBformer-MMoE demonstrates state-of-the-art performance in predicting each user's monthly mode-specific travel frequency class and monthly expected travel fare compared to 9 baseline models, setting a new benchmark for individual travel behavior predictions. The predictive capabilities of PTBformer- MMoE demonstrate its significant potential for real-world applications such as personalized mobility subscriptions, targeted recommendations, and optimized demand management, ultimately paving
the way toward data-driven and user-centric multimodal PT systems.

A spatial-temporal dynamic attention-based Mamba model for multi-type passenger demand prediction in multimodal public transit systems, Shao, Z., Xi, H. Hensher, D.A., Wang, Z. and Gao, J
Predicting passenger demand across multiple socio-demographic groups, such as adults, seniors, pensioners, and students, is essential for improving the operational efficiency, equity, inclusivity, and sustainability of multimodal public transit (PT) systems. Traditional demand prediction models, however, often fail to effectively capture the complex spatial-temporal variability inherent

in heterogeneous socio-demographic groups. To bridge this gap, we propose a novel spatial- temporal dynamic attention-based state-space model, i.e., STDAtt-Mamba, tailored for multi-type passenger demand prediction in multimodal PT systems. The proposed STDAtt-Mamba model consists of three key components: an adaptive embedding layer that integrates station-level, passenger-type-specific, and temporal embeddings into a unified representation for efficient data processing; a spatial-temporal dynamic attention (*STDAtt*) module that employs sparse attention mechanisms to selectively capture crucial global spatial-temporal dynamics; and a spatial- temporal dynamic Mamba (*STDMamba*) module that extends state-space modeling framework to fuse spatial and temporal dependencies dynamically. We reformulate STDAtt-Mamba as a spatial-temporal dual-path attention mechanism and theoretically validate the complementarity of *STDMamba* and *STDAtt* in capturing local and global dependencies, thereby improving the interpretability of the proposed STDAtt-Mamba. Extensive experiments are conducted on a large-scale multimodal PT dataset, including over 1.58 million passengers across nine distinct passenger groups (i.e., adults, seniors, pensioners, tertiary students, children, job seekers, school passengers, youth, and Gold Repat passengers) using travel modes such as bus, rail, and ferry, in Queensland, Australia, from January 2021 to January 2023. Experimental results demonstrate that the prediction performance of the proposed STDAtt-Mamba is superior to the 19 baseline models with manageable computational costs, setting it as a state-of-the-art benchmark model for predicting the multi-type passenger demand in multimodal PT systems. This study offers an adaptive, scalable, robust, inclusive, and efficient predictive tool for transit authorities.

Peer review panel for the Brisbane Games Strategic Transport Model (GSTM)

A member of a review panel facilitated by M-prime consultants, the panel consisted of three subject matter experts, each of us providing independent technical assessment and advice for the ongoing modelling program. Sessions were held over 6-8 months in late 2024 onwards to mid 2025, with one onboarding and three review sessions, including to:

1. assess the range, inclusion, appropriateness and suitability of the model inputs and assumptions related to the 2032 Brisbane Games
2. identify gaps, limitations and areas of improvement in the modelling approach and methodology
3. assess the validity and accuracy of modelling results
4. define and test critical scenarios and sensitivities related to Games transport
5. provide guidance to fine tune the devolvement of the modelling work during the upcoming Games planning phases.

The peer review was limited to the Games Strategic Transport Model (GSTM) and associated inputs, assumptions and outputs for the 2032 Games. Given that the GSTM builds on, and interacts with, the South East Queensland Strategic Transport Model (SEQSTM), key elements of the SEQSTM were also reviewed, including some currently not embedded in the SEQSTM, that will have a bearing on the operation and robustness of Games-specific models.

Parking Preferences of Tourists in Sun Moon Lake Scenic Area

Sun Moon Lake is a famous tourist attraction in Taiwan and around the world. However, as Sun Moon Lake is surrounded by mountains and has limited land to develop, traffic congestion around the lake area is commonplace during peak holiday hours. This study focuses on the parking choices of visitors to Sun Moon Lake and develops a stated preference (SP) instrument with multiple scenarios to evaluate parking preferences under various financial and service level scenarios. We estimate Multinomial Logit (MNL) and Mixed Logit (ML) models, accounting for the panel nature of the data (PDML)to identify preferences for parking choices of visitors to Sun Moon Lake. The focus is on understanding how parking price, travel time, walking time, scenery, and transfers between public transport affect visitors' parking choices. Unlike the findings of studies in metropolitan areas, which often find that parking price was the deciding factor, visitors' parking decisions in the tourist area were more concerned with time factors, such as the time to search for places to park and traffic congestion, possibly due to the less frequent use of tourist venues. Although raising parking price can suppress parking demand in the scenic area, other parking management mechanisms work better, such as the construction of new and suitable outer parking lots with transfer buses to relieve the heavily congested traffic in the scenic area. In addition, we find that using the parking space in the area can be improved by beautifying the landscaping between the parking lots and the tourist spots, enhancing the pleasure of traveling along the routes, introducing multiple transfer modes, and providing real-time traffic information to tourists.

Strategising sustainability and profitability in electric Mobility-as-a-Service (e-MaaS) ecosystems with carbon incentives: A multi-leader multi-follower model (with Haoning Xi).

Electric Mobility-as-a-Service (e-MaaS) emerges as a promising solution to address future environmental and mobility challenges. We introduce a novel business model positioning carbon credit revenue from an emission reduction fund (ERF) as a significant revenue stream for MaaS companies by offering electric MaaS services to travellers contributing to reduced carbon emissions. We investigate a multi-service MaaS ecosystem where heterogeneous travellers can request either electric (E)-MaaS or traditional (T)-MaaS services. The MaaS platforms compete to prioritize the electric vehicle acquisition ratio, incentivize travelers with appealing price and reward credits for using E-MaaS services which can be then redeemed for non-mobility services. Furthermore, the platforms allocate E-MaaS and T-MaaS bundles to meet heterogeneous trip requests. We propose a multi-leader multi-follower game (MLMFG) model where each MaaS platform aims to maximize its profits by making strategic decisions such as pricing, an EV acquisition ratio, and E(T)-MaaS bundle allocation. Each traveller aims to minimize her travel costs by determining the participation levels for E-MaaS and T-MaaS services via different platforms. We develop an alternating direction method of multipliers (ADMM) algorithm to solve the proposed MLMFG model. Numerical experiments, drawing from the data in Sydney, Australia, were conducted to show the performance and convergence of the proposed ADMM algorithm. Further, the experimental results elucidate how factors such as the market scale,travel demand, government budget and subsidy rate, impact the profitability and operational strategies of different MaaS platforms. Overall, the proposed e-MaaS ecosystem model provides valuable insights for MaaS startups striving for profitability. By emphasizing environmental responsibility, it navigates a future where the goals of sustainability and profitability could converge.

Bus contracts under the transition to a green fleet in Australia, 2021

Bus operators in the public and private sector are increasingly subject to competitive tendering and a requirement to operate under a gross cost contract. This contract sets out in detail the requirements of the operator including the levels of service as well as infrastructure required to deliver the contracted services. Buses acquired by operators in many jurisdictions in Australia have until very recently been essentially diesel fuelled and available from a panel approved set of buses compliant with Euro 6 standards. The predictability of the cost profiles of vehicles and associated costs of maintenance and repairs is well known and used in tendered offers. With the growing requirement of switching to a green fleet with varying timetabled transition rates, the future costs of providing bus services are going to be subject to significant unknowns. These unknowns are associated not only with the fast changing vehicle technology associated with a range of fuel sources (notably standard battery and fuel cell battery (i.e., hydrogen)), but also the impact this will have of the top-to-bottom change in the operations of bus fleets affecting operating and capital expenditure including depot infrastructure, timetabling, maintenance, labour skills and access to efficient electricity charging or hydrogen facilities. With such great uncertainty, the challenge of how to structure future contracts to allow for such volatility in cost commitments becomes of paramount importance to both the regulator and the bus operator. In this research, I set out a preferred way forward to ensure that the transition to a totally green fleet is achieved without throwing the industry in chaotic uncertainty and financial ruin.

Aviation Market Development in the New Normal post COVID-19 Pandemic:An Analysis of Air Connectivity and Travel Behavior, funded by the Economic Research Institute for ASEAN and East Asia (ERIA) with Xiaowen Fu, Hong Kong Polytechnic University

This study quantifies the effects introduced by the COVID-19 pandemic on air connectivity and passenger travel behavior. Our analysis suggests that the pandemic has led to significant connectivity loss in all airports, especially at large hubs or tourism destinations. Low cost carriers' operations at these airports, whose main targets are price-sensitive non-business travelers, have been significantly reduced too. There is preliminary evidence that network carriers at hub airports played more important roles amid the pandemic, likely due to the benefits associated with their hub-and-spoke networks. Connectivity losses at the smallest airports tend to be temporary and limited. These airports had limited aviation services to start with, and thus not too costly to maintain the minimum connectivity. Empirical results obtained from passenger preference study indicate that there are different traveler subgroups. When there is no online meeting option, nearly 80% of the respondents prefer and are willing to pay for pandemic control measures. These "pro-control" passengers perceive such measures, and the associated high cost/fare, as valuable and necessary to lower health related risks during air travel. When there is an online meeting option, the share of such passengers decreases to 44.5%, with the remaining 55.5% exhibiting disutility for the increased price and time associated with pandemic control measures. The average willingness-to-pay for pandemic control measures decrease significantly, whereas the value of time saved at health check points increase significantly. The aviation industry thus faces a "double-hit" problem: operation costs will increase due to pandemic control measures. Meanwhile, the resultant inconvenience, extra time and costs will further reduce travel demand. Unlike previous short pandemics, business travel is likely to suffer from extended decline until the pandemic is fully controlled. These results call for financial and operational supports to aviation services, especially those at major airports or tourism destinations. Because these large airports are expected to be profitable post pandemic, they may resort to low cost finance from the capital market in the short term. Because the value of time saved at check points is very high, it is more important for government agencies to make the pandemic control and health measures efficient and smooth. For operations such as vaccination records, stakeholders in different countries should cooperate to facilitate seamless control and pleasant air travel experiences.

VKT Stabilisation Policy Exploration Project: Review of Future Transport Strategy Model outputs and key strategic questions for ongoing research and application

Transport for NSW (TfNSW) has invited the Institute of Transport and Logistics Studies (ITLS) at The University of Sydney Business School to undertake two tasks as part of an independent review, both of which will be of immediate value in assessing research outputs to date and for future-proofing ongoing research to refine the understanding of benefits associated with stabilising vehicle kilometre travelled (VKT).

***i*MOVE Co-operative Research Centre (CRC), 2019-2021 Mobility as service (MaaS) trial: user behaviour analytics, in partnership with IAG and Skedgo**

Research on identifying preferences for multi-modal mobility services has provided an important reference point for signalling those features of mobility as a service (MaaS) subscription plans that show very positive signs of market appeal. Using the available research evidence on the key drivers of user preferences for MaaS plans for specific socioeconomic segments, this project designs, undertakes and assesses the impact of a real market trial in Sydney over 6 months to identify the extent of real commitment to what otherwise would remain a research-informed MaaS opportunity. Lessons learnt will advise future developments of Maas offerings. See https://imovecrc.com/project/maas-trial-sydney/

Oceanian Perspectives on Transport Pricing and Financing, with John Stanley

In Australia and New Zealand, as in many other countries, transport pricing has primarily been something to discuss, rather than an agenda for actually delivering improved resource allocation and/or larger governmental revenue flows. Road pricing reform (often referred to as road user charges), in particular, has generated a huge Australian literature over many years but with very little to show in terms of changing pricing systems. There has, however, been some innovative work on public transport fare settings, particularly in New South Wales. Transport financing is another area where Australia can also lay claim to innovation in delivery, particularly through its early and long-standing engagement with public private partnerships, mainly on tollroad concessions. We examine current transport pricing and financing practice in Oceania, focussing mainly on examples of what we see as international good practice (humility prevents us calling it international best practice!). The primary focus is Australia, but the chapter also draws attention to some practice in New Zealand, a country well known for punching above its weight.

Place-based disadvantage, social exclusion and the value of mobility, with John and Janet Stanley

Connections between mobility, wellbeing and social exclusion have been of interest to transport planners and policy makers for the past two decades, partly stimulated by the innovative work of the UK Social Exclusion Unit (SEU, 2003; Mollenkopf et al. 2005; Currie 2011; Lucas 2012; Klijs et al. 2017). In a recent paper by Stanley et al. (2021), monetary values were imputed to changes in trips, a range of wellbeing and social capital variables, together with sense of community, as these influence the risk of social exclusion. The derivation of those values extends back a decade or so (Stanley et al. 2011a, b; Currie 2011) but it appears to be only in recent times that the resulting value of additional trip making has been used in major government project appraisal. For example, the KPMG assessment of the Victorian Government's proposed Suburban Rail Loop through middle Melbourne, the largest infrastructure project ever proposed in Victoria, recognised the potential importance of this initiative for social inclusion and included trip values from Stanley et al. (2011a) for imputing inclusion benefits to the project (KPMG 2021). Stanley et al. (2021a) accounted for the impacts of major transport initiatives on reducing risks that people will be socially excluded because of poor mobility opportunities and find significant benefits for public transport investments compared to road improvements. The primary intent of this research is to explore the association between neighbourhood disadvantage and risk of social exclusion. In the event that an association is identified, the research then explores what impact the inclusion of this association has on the monetised values of trip making and of other influencing factors, as they relate to the personal risk of social exclusion, as estimated in Stanley et al. (2021). In particular, might those monetised values be substantially changed if neighbourhood disadvantage is included as a potential contributor to risk of social exclusion?

Designing Multimodal Mobility Plans to inform MaaS Subscription Bundles, with Daniel Reck (ETH) and Chin Ho

Multimodal mobility plans (i.e., mobile phone plans for mobility) have become a topic of particular interest both for transportation scholars and practitioners (e.g., WHIM), mainly due to their centrality to business models and trial designs. Despite an increasing number and variety of proposed mobility plans (in terms of content, terminology and features), there is a surprising dearth of information on how to design them. This leaves interested scholars and practitioners at a loss when planning future trials to test business models and impact on travel behaviour. This research aims to close this gap. We first review the literature on *MaaS*, revisit the origins of *bundling* in Marketing and discuss most recent developments in *MaaS bundling* to substantiate the research gap. We then identify and define the main design components of MaaS bundles drawing from previous studies and trials, and elucidate approaches for mobility plan design. As many design decisions are interconnected and depend on the research objective or provider's strategy behind offering mobility plans as well as local context, we choose to present the approaches through three detailed case studies. Finally, we synthesize our findings towards a strategic approach to mobility plan design and close with a summary and discussion of the implications for transportation policy.

Business location decisions with Camila Balbontin

This ARC-DP grant (2017-2019) project aims to develop a forecasting model system for economic planning that integrates business (re-) location and co-location choices. Improved transport infrastructure connects places and can influence the location of businesses. This project will use forecasting models to quantify the drivers of firm location decisions linked to an integrated strategic transport and land use modelling system. This project expects to provide guidance for transport investment that brings gains in productivity to industry and the economy and wellbeing to individuals and society.

Comparative Assessment of Emissions associated with the Bus Fleets of Victorian Bus Operation under diesel, hybrid and electric futures, funded by BusVic, 2021-2022

The increasing urgency to respond to climate change needs a response from Australia's transport sector, the second largest greenhouse gas (CHG) emissions source. Urban public transport is a sector that is well suited to low emission electric vehicle (EV) technologies and EVs are starting to be seen in increasing numbers in urban fleets around the world, with some initial trials in Australia. Victoria could become a leader in this field by accelerating the rollout of EV and transitional hybrid vehicle technologies. The State's extensive history in bus manufacturing suggests that the potential benefits from such involvement could be comprehensive, and hence there is a real opportunity for local bus manufacturing/assembly of electric buses, given that Volgren, in particular, has been part of Melbourne's manufacturing community for a long time. This project focusses on a project to identify the savings in GHG emissions and emissions of local air pollutants that such leadership can deliver, recognising associated flow-on benefits (e.g., improved health outcomes from lower PM emissions). BusVic is interested in evaluating the benefits that could be expected from the innovative rollout of EVs (including transitional Hybrids) in Victoria, and possibly hydrogen bus options into the future. This proposal focusses on the estimation of emission benefits from EV innovation in the entire State-wide (Victorian) route bus fleet.

Regulatory Frameworks in Public Transport including Tendering

This research paper provides an overview of the main economic theories of regulation such as public and private interest theories and how they relate to the public transport sector in general in terms of ownership, economic deregulation, competitive regulation through tendered bidding and negotiation linked to actionable yardstick benchmarking. The paper reviews various models used in the provision of bus services and summarises some of the main lessons learnt over the last 30 years, drawing on experiences in competition and ownership

Understanding Mobility as a Service (MaaS) - past, present and future

Mobility as a Service (MaaS) is a hot topic in transportation. With developments in digital platforms and intelligent communications, we are now increasingly able to package together ways in which travellers can avail themselves of a one-stop app based way of choosing what modes are suitable for specific trips. This book, published by Elervier in July 2020, looks all facets of MaaS and assesses how it might or might not be positioned in the evolution of improved travel opportunities.

The Role of Experiential Information on Ambiguity Attitudes: Evidence from Real-market Choice

Decision making associated with natural events is often under uncertainty, without known probabilities. Using real decisions between two natural sources of uncertainty, this study presents the empirical evidence on relative ambiguity seeking in the mode choice context with uncertain travel time, while accounting for the influence of experiential information on ambiguity attitudes. The findings suggest that the gain in information would (1) result in stronger ambiguity-seeking behaviour in this type of decision-making context; (2) correct for the lack of sensitivity to regular travel scenarios (i.e., likelihood insensitivity); and (3) lead to changes in willingness to pay for travel time savings, implying reductions in the psychological burden induced by ambiguity.

What are the prospects for switching out of conventional transport services to mobility as a service (MaaS) packages? With Chinh Ho, Yale Wong and Corinne Mulley

Mobility as a Service (MaaS), which brings all modes of travel into a single mobility package, has received great attention from interested parties, including transport authorities, transport providers (public transport, car-sharing, bike-sharing, taxi, car rental), software developers, brokers, engineers, academics and environmental groups. Different business models have emerged in which interested parties work together in order to provide integrated mobility services to MaaS subscribers, who pay a subscription fee for the use of mobility services packaged in a MaaS plan. With such a smorgasbord of potential offerings, there is value in investigating how the potential market of MaaS would change preferences for travel when they are offered a one-stop access to a range of mobility services, and how much potential users value each item included in a MaaS plan. To this end, this research reviews the literature on the various MaaS models and synthesises their features into a choice experiment in which different mobility services are packaged into a plan for respondents to select as a way of revealing their take-up and preferences for MaaS. An online survey is conducted in Sydney, Australia with mixed logit models estimated to obtain willingness to pay estimates for each item packaged in a MaaS plan. We also investigate the extent to which MaaS would change the way Sydney residents travel in the future, including the impact on car ownership, modal shift and induced travel activity.

Development of Method to obtain relevant tyre based and cost-related performance models for the Bridgestone-FCL Project, 2018-19

The main focus of this research study is to identify ways in which a bus business (i.e., Forest Coach Lines) can improve its operations in order to increase its cost efficiency (defined as total cost per service kilometre). Specifically, we are interested in seeing how the maintenance plan might be changed so as to improve the contribution of the maintenance cost and correlated inputs such as fuel consumption. An input of special interest is the tyres and the regime adopted by FCL in maintaining and replacing tyres, and how this can impact on maintenance costs, and associated other costs such as fuel costs, and hence on overall total cost.

R-Tresis Transport Demand Model – NSW Fast Rail Strategy

In December 2018 the NSW Government announced the development of a Fast Rail Network Strategy (FRNS) for NSW to guide the future development of a fast rail network connecting Sydney and regional NSW cities. The strategy will consider the 2021 to 2056 time period. The objectives of the FRNS for NSW will reflect a 20-Year Economic Vision for Regional NSW and is the first time that a comprehensive assessment of a regional NSW fast rail network has been undertaken. The strategy is scheduled to be completed by the end of 2019. Four corridors have been identified as the starting point for investigation. Each corridor will connect regional centres with the Sydney CBD: Northern Corridor – Newcastle and Port Macquarie, Western Corridor – Lithgow, Bathurst and, Orange/Parkes (final destination tbc), Southern Inland Corridor – Goulburn and Canberra and Southern Coastal Corridor – Wollongong and Nowra. Using R-Tresis we were engaged by the Department of Premier and Cabinet to assess the patronage impacts of rail journey time improvement under 4 options: **Option A:** Minimum improvement – stewardship on existing tracks; **Option B:** Faster Rail – Improvement of existing tracks (e.g. passing loops).; **Option C:** Fast Rail – considerable new track with target speed achieved and **Option D:** Very Fast Rail – completely new track for majority of line.

Future bus transport contracts under mobility as a service regime in the digital age: are they likely to change?

The digital age has opened up new opportunities to improve the customer experience in using public transport. Specifically, we see the role of smart technology in the hands of customers as the new rubric to deliver services that are individualised to the needs and preferences of current and future public transport users. This frontline of service delivery has become known as mobility as a service whereby an individual can book a service delivered through a range of possible modes of transport. At one extreme we have point-to-point car based services such as Uber, Lyft, BlaBla Car and RydHero (for children), with futuristic suggestions of these gravitating to driverless vehicles. Variations around this future are bus-based options that include smart bookable 'point-via-point-to-point' services that offer up options on travel times and fares (with the extreme converting to the point-to-point car service, possible also operated by a bus business); as well as the continuation of conventional bus services (with larger buses) where the market for smart mobility as a service is difficult or inappropriate to provide (e.g., contracted. school bus services). This research lays out a number of scenarios that could represent future contexts in which bus services might be offered, recognising that a hybrid multi-modal state of affairs may be the most appealing new contract setting, enabling the design of contracts to be driven by the customer experience and the growing opportunity to focus on mobility as a service. We suggest that the adrenal rush for mobility services, however, may not deliver the full solution that supporters are suggesting.

Bus Industry Confederation (BIC) Review of bus rapid transit and branded bus services in Australia and future opportunities

The Bus Industry Confederation (BIC) has commissioned the Institute of Transport and Logistics Studies (ITLS) to undertake a review of bus rapid transit (BRT) in Australia. Given the limited implementation of fully-fledged BRT schemes to date, our scope was extended to encompass a range of premium (non-standard) services, commonly referred to as BRT-lite, branded bus services (BBS) or buses with a higher level of service. Whilst BRT is typically defined by its right-of-way quality, BBS is distinguished by its brand identity within the broader network structure, often operated with a dedicated fleet, and usually complemented with

some level of bus priority consistent with the premium brand. Both constitute high frequency, trunk services which serve more of a mass transit (patronage) than a social service (coverage) function. We consider both BRT and BBS in this study.

Bus Industry Confederation (BIC) Update on Bus and coach Fact Sheet to 2017
ITLS developed the original Fact Sheets up to 2003, and BIC wishes to update the statistical material as well as the profile of key policy issues associated with the Australian Bus and Coach industry. Drawing on data available from many sources we are revisiting all the key performance and contextual data items that are requited for an informative Fact Sheet.

Choice modelling with time-varying attributes, with an application to train crowding with Andrew Collins
When estimating discrete choice models, the attributes of the choice alternatives are a key component of most model specifications. Measures of time or duration are common types of attributes investigated by analysts. Examples include travel time in the field of transportation, life expectancy in health economics, and product life in marketing. Other attributes are linked to time, in that they are a measure of the quality of the alternative either at some *point* in time, or for some *length* of time. For example, travel time when driving is sometimes broken down into time in one of several driving conditions, such as free flow, slowed down and stop-start (e.g., Hensher 2001). Essentially, the aggregate time attribute is decomposed, such that it represents the sum of time spent in various conditions. Other possible applications include time in various crowding conditions when travelling by train (the focus of this study), the quality of cycling infrastructure along a route, the deterioration of health over a life expectancy, and the degradation of performance of a phone over the length of its life. This research is an investigation of these types of attributes, which we refer to as time-varying attributes (TVAs). This research will consider motivations for the use of TVAs, the additional insights that may be gained, the various challenges such as the representation of risk, the elicitation of values in a revealed preference context, and the presentation of TVAs in discrete choice experiments (DCEs). Empirical results from a study into train crowding will be presented. In addition to discussing various considerations around TVAs, this research will present empirical evidence from a train crowding study conducted in Sydney in late 2016. In the study, commuters who travel to work by train must conduct an elicitation exercise, which provides information on the variability of crowding that they experience. Respondents also complete three types of DCE, each with a different type of presentation of crowding. In one format, a single crowding level is presented per choice alternative. In another format, each alternative includes the amount of time spent travelling in up to five crowding conditions. In the final format, three crowding experiences are presented per alternative, each with times for up to five crowding conditions, and an associated probability of occurrence. We leverage the TVA approach to provide insight into train crowding through the specification of non-linearities, thresholds, and the handling of risk. In doing so, we will also address one of the criticisms made by Wardman and Whelan (2011) of the crowding literature: that use of a single crowding condition is unrealistic and implausible. The TVA approach makes the choice exercise more credible in this context, and could do so in other literatures that use DCEs as well, in particular health and marketing.

Tackling road congestion – what might it look like in the future under a collaborative and connected mobility model?
Traffic congestion continues to be the bane of many metropolitan areas and has exercised the minds of experts for at least the last 60 years. With the advent of smart (intelligent) mobility, aligned with digital disruption and future connected and collaborative transport including extensions to autonomous vehicles, the question of whether we have a new window of opportunity to tame congestion is now high on the list of possibilities. It is however very unclear what the future will look like in respect of congestion on the roads, especially if we rely on 'smart' technology and continue to reject reform of road user charging and new opportunities to fund the sharing model. This research looks at a number of themes as a way of highlighting possibilities and challenges and promotes a position that congestion may not be reduced, especially without a significant switch to the sharing economy and relinquishing of private car ownership; the urgent need for government to define the institutional setting within which smart mobility can deliver reductions in congestion; and the crucial role that road pricing reform must play to ensure that those who benefit (suppliers and travellers) contribute to pay for the infrastructure (in particular) that they gain benefit from.

Commodity-based heavy vehicle model for Greater Sydney – with Richard Ellison and Collins Teye
Almost without exception, the design, planning and management of the road network is determined by travel demand largely derived from passenger travel models. The neglect of freight modelling or development of analysis tools in the past was typically justified on the assumption that freight constitutes a very small fraction of the daily road traffic. The difficulty and the cost of collecting freight data has also contributed in large measure to the general absence of freight model systems that are sophisticated and behaviourally appropriate. However, with the growing acknowledgment of the importance of freight to both the local and national economies and also the disproportionate impacts of trucks on congestion, pollution, accidents and other road hazards, there is stronger call for a better understanding of the freight system. Network planners or managers are also keen to understand freight movements and their impacts on road capacity so as to better manage congestion and plan for the future. To achieve this, we need innovative freight models capable of capturing all the key behavioural responses and the interaction of actors within the freight system. Freight models are critical to assessing national, regional and local road capacities, economic development initiatives, and for informing the transport planning process. Freight is however difficult to model due to several factors, among them the non-availability of data on commodities, shipments, demand and production cycles; the lack of understanding about the actors and how they interact on the supply and logistics corridors, and the broad economic influences on local freight movements. These limitations mean that in the short to medium term modellers may not have the resources needed to develop a freight model system with the level of detail and richness similar to the current state of the art in passenger modelling (e.g., activity-based models) to answer policy questions of interest. The current practice in freight modelling is therefore based on the efficacy of building models using existing data sources to answer as many important policy questions as possible. Drawing on existing commodity-based freight models that have incorporated the generation and attraction of commodities into freight models and models that incorporate interaction between agents in the supply chain this research presents a novel approach, implemented for the Sydney metropolitan area, of combining diverse pieces of data from various sources on commodity flows, vehicle usage, and distribution of freight by time of day, trip length distribution by commodity type and other relevant information, to construct a model framework of linked logit models suitable for explaining the main interactions between the key stakeholders (shipper-carrier-consumer) in the freight system, and how changes in land-use and transport network conditions affect commodity

productions and distributions. To achieve this, the Greater Sydney Metropolitan Area (SGMA) is divided into commodity production and consumption areas where commodities can be seen as being produced and transported to their consumption areas for consumption. The key models in the framework include a commodity generation chain model (CGCM) model at the national level, a commodity generation model (CGM) at the zonal level of the study area, a commodity distribution model (CDM), a vehicle class model (VCM), and a time of day (TOD) distribution model. The framework also involves other sub-routines including an empty trips model (ETM), conversion of commodities to vehicle trips, and preparing matrices of trips for assignment.

Demand Elasticity Study for Sydney Public Transport, Independent Pricing and Regulatory Tribunal (IPART), 2018 (Together with Cambridge Economic Policy Associates Ltd.), 2018
Given the new information and data available following introduction of the Opal card it is now feasible to conduct a direct study of demand elasticities. This research is a study of demand elasticities for public transport in Sydney and the surrounding areas, which will be used as an input into the next review of fares. In particular, IPART requires recommended values or range of values for own and cross price elasticity by time of travel (peak, weekday off-peak and weekend) for each mode of public transport.

How much is too much for tolled road users: toll saturation and the implications for travel demand forecasting? (with Chinh H and Wen Liu)

The current practice of forecasting the demand for new tolled roads typically assumes that car users are prepared to pay a higher toll for a shorter journey, and they will keep doing so as long as the toll cost is not higher than their current value of travel time savings (VTTS). This assumption may be valid in networks where the addition of a new toll road does not result in a binding budget constraint that car users may have for using toll roads. In a road network like Sydney's which offers a growing number of tolled roads, the binding budget constraint may be invoked and hence including additional toll links might in turn reduce the car users' willingness to pay for toll roads to save the same amount of travel time. When this occurs, car users are said to reach a toll saturation point (or threshold) and begin to consider avoiding one or more toll roads. Whist toll saturation has important implications for demand forecasting and planning of toll roads, this type of behaviour has not been explored in the literature. We investigate the influence that increasing toll outlays has on preferences of car commuters to use one or more tolled roads as the number of tolled roads increases. The Sydney metropolitan area offers a unique laboratory to test this phenomenon, with seven tolled roads currently in place and another two in planning. An on line consumer panel and face to face interviews have been conducted and contrasted.

Integrating attribute decision heuristics into travel choice models that accommodate risk attitude and perceptual conditioning – with Chinh Ho and Camila Balbontin
This ARC-DP grant (2014-2016) project has the specific objective of integrating two disconnected literatures that are having a major influence on the behavioural and statistical performance of discrete choice models in travel choice modelling. These fields are attribute processing strategies and the conditioning of the marginal utility of attributes by risk attitude and perceptual conditioning. These two major developments have not been jointly integrated into a behaviourally richer representation of choice making. Given the encouraging evidence from both literatures, the research will determine more precisely the benefits in terms of improved estimates of willingness to pay for specific attributes and also increased predictive power.

Modelling the location of firms (with Jia Yan and Richard Ellison)
In this research, we combine the modelling approaches in Industrial Organization with the theory in Urban Economics to develop a model of firm location choice. We outline a simple theory on firm location choice and the theory is well based on the literature of Urban Economics. We then outline the econometric model of firm location choice based on the theory and the data that we have.

Identifying resident preferences for bus-based and rail-based investments as a complementary buy in perspective to inform project planning prioritisation (with Chinh Ho and Corinne Mulley)
Much of the debate associated with the development of new public transport infrastructure appears to have an emotional bias with communities in favour of one mode, especially rail. This in turn carries much sway at the political level as if there is no budget constraint or consideration of value for money and coverage. This research presents a stated choice experiment to investigate this context as two unlabelled options described by 20 potential drivers of community preferences for improved public transport. Each choice scenario is conditioned on a given route length but with different costs, reflecting different modal investment options for the same route length. To establish whether a modal bias exists within and between geographical jurisdictions, the choice scenario is followed by a labelling of each investment option to reveal whether the option is bus rapid transit (BRT) or light rail transit (LRT). Data from all eight capital cities of Australia, collected in mid 2014, form the empirical setting. Mixed logit random regret models provide new evidence on the nature and extent of community modal bias in this choice setting. The paper also proposes a complementary tool to benefit-cost analysis that uses the residence preferences model to show, through scenario analysis, the potential gains in public support for BRT over LRT. The results suggest that BRT should be in the mix of candidate projects if more than one mode is considered and not ignored as is so often the case in developed economies.

Recognising the wider economy impacts of bus rapid transit – a case study in Sydney, Australia (with Glen Weisbrod and Corinne Mulley)
This research presents an extended evaluation analysis using Economic Impact Analysis (EIA) in addition to the welfare based Cost Benefit analysis (CBA) to provide a more holistic view of the benefits of the investment in public transport, with a specific focus on a bus rapid transit (BRT) proposal in Sydney. EIA focuses on the short and long-run changes which arise from the investment to the economy, measured in terms of jobs, business output, value added or compensation. These changes are measured at the industry level so the economic impacts identify which industries benefit, how business output changes, what is changed with value added and compensation. CBA focuses on societal change, it captures economic efficiency, externalities (environmental and

safety aspects) and the value of personal welfare. The two analysis tools are complementary, rather than additive, although the presence of wider economy benefits will contribute properly to both a CBA and EIA analyses.

Application of irrelevance of state-wise dominated alternatives (ISDA) for identifying candidate processing strategies and behavioural choice rules adopted in best-worst stated preference studies (with Chinh Ho)

Stated preference (SP) experiments have increasingly used best-worst responses to obtain a partial or full preference ranking of alternatives presented in a choice task. A typical best-worst choice experiment asks a respondent to indicate the best and the worst alternatives amongst those presented. For more than three alternatives, some studies remove from the choice set the alternatives indicated as best and worst and repeat the process until the full ranking is obtained. This contrasts to the traditional choice task experiment in which a respondent is asked to choose the most preferred or to rank all alternatives in one go. While the information collected from a ranking and a best-worst response is the same under a sequential best-worst response task, the latter is argued to be less difficult for respondents to answer than the former since they only need to consider the most extreme options in the best-worst experiment. In analysis, best-worst responses may also aid analysts in deciding an appropriate way to create additional pseudo observations for model estimation if the best-worst questions are designed to appear in a certain sequence such as best first then worst or vice versa. Most SP experiments using best-worst responses, however, do not control for the way in which respondents process information. As a result, analysts have to assume a processing strategy that respondents may adopt to create pseudo observations and obtain more robust parameter estimates. Different candidate processing strategies (CPS) may be assumed to provide pseudo observations, but the analyst has to choose one that is mostly likely to be adopted by all respondents. This decision is usually based on a comparison of goodness of fit measures such as pseudo-R^2, a point estimator with unknown limiting values for a given dataset, and thus caution is warranted in using goodness of fit measures in identifying a CPS that is most likely to be adopted by individuals (see Collins and Rose, 2013). In addition, best-worst models usually assume the behavioural rule that individuals act as if they are utility maximisers in revealing their preference rankings of alternatives; however other behavioural choice assumptions such as random regret minimisation are promoted in the broader literature but are less explored. This paper compares various methods and uses the axiom of irrelevance of state-wise dominated alternatives (ISDA) as a theoretical benchmark to establish the compliance of a number of CPSs with the behavioural conditions that define ISDA under random utility (RU) maximisation and random regret (RR) minimisation. The axiom of ISDA, proposed by Quiggin states that the preference ranking of alternatives in a choice set is not affected by adding or removing a state-wise dominated alternative that is inferior to other alternatives in each state of the world. In the current application, analysing best-worst data, states of the world are defined by all choice tasks offered to each individual, and the state-wise dominated alternative in each choice task can be identified from observed data as an alternative that is ranked worst by that individual. For an empirical experiment with three alternatives used in this research, we implement three CPS's that satisfy the conditions of ISDA in which the state-wise dominated alternative is removed from the choice set:

1. A best-worst processing strategy: this assumes that respondents evaluate all alternatives presented and first select the best alternative, and then they evaluate the remaining alternatives to select the worst alternative.
2. A worst-best processing strategy: this assumes that respondents evaluate all alternatives presented and first select the worst alternative, and then they evaluate the remaining alternatives to select the best alternative.
3. A repeated worst processing strategy: this assumes that respondents evaluate all alternatives presented and initially select the worst alternative, and then they evaluate the remaining alternatives to select the next worst. The best alternative is therefore the remaining alternative in the 3-alternative case.

Using a dataset on road pricing options, we investigate the role of each CPS under both RU maximisation and RR minimisation (as fixed and random parameters) in the setting of best-worst experiments, and identify which processing strategy and behavioural choice rule complies best with the ISDA axiom. That is, a CPS associated with either RU or RR is said to fully comply with the ISDA axiom if the preference rankings of the remaining alternatives (expressed in terms of choice probability) are preserved for each of the choice tasks after the state-wise dominated alternative is removed from the choice set. The incidence of compliance with the ISDA axiom suggests that the best-worst processing strategy is less likely to be adopted than the worst-best and repeated worst, with the difference being indistinguishable between the latter two processing strategies. Regardless of the CPS adopted, the evidence suggests that respondents seem to minimise regret as opposed to maximise utility when responding to best-worst experiments, a finding that may support the use of the RR minimisation for modelling exploded best-worst data if this finding can be reproduced with other data sets.

Volvo Educational and Research Foundation Centre of Excellence in Bus Rapid Transit

Together with the Pontifica de Catolica de Chile, MIT, IST Portugal, EMBARQ Washington, Brasil and Mexico, ITLS and the other four partners have won a competitive Volvo Centre of Excellence in Bus Rapid Transport (2010-2014) grant to develop a new framework for the planning, design, financing, implementation and operation of BRT in different urban areas, giving clear guidelines to decision makers on when and how BRT projects can effectively enhance mobility and meet accessibility needs. These guidelines will be a major milestone to change the way decision makers address investment and design decisions in configuring urban mobility systems. An essential goal is to make the knowledge developed through the CoE widely available to support more successful BRT deployment, and in particular to identify elements which are transferable between existing and prospective BRT systems and elements that are project site specific. Our focus will not only be at the BRT project level, but also on how BRT projects interact with other elements of the urban system so that the total urban mobility system is transformed and the city becomes a more attractive place to live, work and visit. The proposed approach recognizes that, while integrated networks and not just corridors must be the focus, corridors are a structural element to the connectivity and effectiveness of hierarchical networks.

A simplified and practical alternative way to recognise the role of household characteristics in determining an individual's preferences (with Matthew Beck and Chinh Ho)

It is common practice in choice modelling to include the socioeconomic characteristics of other members of a household in the utility expressions associated with the preferences of a particular individual. By including household descriptors, the analyst is

assuming that other household members can influence the choices made by the household as if the preference weights (or marginal utilities) are reflective of equal influence of all members of a household. In reality it is likely that there is a power relationship that underlies the contribution of the individual whose preferences are being studied and the contribution of other household members, typically proxied by a number of socioeconomic descriptors. In this research we condition the individual and the household explanatory variables on an additional parameter that represents the influence or power that each agent has in the revelation of the preferences of a sampled individual. Using a data set of the stated choice of automobile fuel type (petrol, diesel, hybrid), we estimate a nonlinear model to identify the strength of the power relationship, and find that the power contribution of the household members to the individuals choice vary across alternatives. The model with the power relationship is found to be a statistical improvement and delivers substantially different elasticities than the traditional model with household characteristics.

Laboratory experiments in transport policies and planning (with Michiel Bliemer, Travis Waller, Vinayak Dixit, Elizabeth Rutstrom, Stephane Hess, and Hans Van Lint)
This is an ARC-DP grant (2015-2018) project. Since large monetary investments are involved in infrastructure decisions, it is of utmost importance that impacts of transport policies can be accurately predicted. The recent failures to forecast usage and revenues of toll tunnels in Australia illustrate this well. This project aims to contribute by producing improved practical behavioural models to predict responses to such transport policies to assist in better decision making. Further, the project is expected to make several methodological contributions by for the first time merging methods from stated choice surveys, experimental economics, and naturalistic driving simulators in order to better investigate travel choice behaviour in realistic environments.

Disruption costs in bus contract transitions (with Chinh Ho and Corinne Mulley)
In a world where there are increasing numbers of jurisdictions moving to competitive tendering for their land based public transport, there is an increased incidence of a change in operator when the term of the contract comes to an end. In many jurisdictions, the anecdotal evidence on the disruption caused by this change in operator is growing. This paper investigates the role that particular assessment criteria have in assisting members of a review committee to choose a preferred operator, be it the incumbent or a new operator. Whilst the role of key performance indicators (KPIs) is critical in contract monitoring, and are identifiable for pre and post contract transitions, the KPIs are often not measured in the same way in the different contract rounds and therefore provide little information on the factors taken into account by governments (both implicitly and explicitly) in awarding contracts. Is there a danger that Government decides to stay with a bad outcome because previous experience with transition was bad? Or conversely, might Government opt for a transition simply on the basis of the bid price without taking account of the transaction (especially disruption) costs involved for government, operator and the travelling public? How are the costs of disruption to the regulator from a transition from an old to a new operator taken account of in the decision making process? An examination of the KPIs pre- and post- contract award does not shed light on this. To examine these important questions we develop a stated choice experiment in which we present respondents with a series of alternative operator bids that include, *ex ante*, a measure of the transition costs identified as a proportion of the lowest offer for the contract and two proxy descriptors of operator reputation. The experiment will be undertaken by a sample of participants involved in assessing tenders for bus contracts in a number of countries around the world. This information is used in a non-linear random regret minimisation mixed logit choice model to identify the role that the transition costs play in influencing the preferences of tender committee members, providing evidence for the first time on the extent to which the often unreported role of such transition costs, perceived or real, appear to play in the minds of assessors.

The role of perceptual acceptability of alternatives in identifying and assessing choice set processing strategies under random regret minimisation (with Chinh Ho)
Stated choice experiments are increasingly used to study travel choices. In designing choice experiments, it is common to present a fixed number of alternatives to a respondent and have them rank these alternatives or choose the most preferred alternative. However, the offered alternatives, including the one that is ranked as most preferred, may not always be acceptable; it may simply be the best of a poor set on offer. Although the acceptability of an alternative may influence the processing strategies used by the respondents in revealing their preferences, there has been a limited amount of inquiry into the overall relevance of specific alternatives in choice making, in contrast to the relevance of attributes. This theme is explored in this research using additional knowledge on the reported acceptability of each alternative presented. We set out a random regret mixed logit model in which the endogenous response on acceptability is used to identify the probability of a specific choice set being assessed. An application on road pricing reform is used to identify the role of contextual and attribute specific influences on the relevance of particular alternatives, extending attribute processing heuristics to accommodate the relevance of an entire alternative in forming behaviourally relevant choice sets for model estimation and application.

Recognising the irrelevance of statewise–dominated alternatives in defining a behaviourally relevant choice set identified from state choice data (with Chinh Ho)

Stated Choice (SC) and Stated Preference (SP) experiments are designed optimally in a statistical sense but not necessarily in a behavioural choice making sense. Statistical designs, and consequently model estimation, assume that the set of alternatives offered in the experiment are processed by respondents with a specific processing strategy. Much has been studied about attribute processing using discrete choice methods in travel choice studies, but this paper focuses more broadly on processing of alternatives in the choice set offered in the experiment. This research is motivated by the primary idea that the distribution of choice probabilities associated with a set of alternatives defining a given choice set might provide strong evidence on the strategies that agents appear to use when choosing a preferred alternative. Four candidate processing strategies are considered including a full rank order of alternatives and three variants of a best – worst regime. Using the Axiom of Irrelevance of Statewise Dominated Alternatives proposed by Quiggin as a theoretical basis and SP data of road pricing reform, the empirical analysis examines which processing strategy delivers the most accurate prediction of the chosen alternative.

Valuation of service reliability and crowding under risk and uncertainty: neglected drivers of demand for public

transport – with John Rose and Alejandro Tirachini
ARC-DP grant (2012-2014). The reliability of public transport services, and the amount of crowding at stations and also on trains and on buses, have come under strong criticism. This study identifies the role that improved service reliability and reduced crowding play in influencing the switch from car to public transport for the commute.

Sustainable Urban Public Passenger Transport: Is rail really cleaner and greener than bus? (with Corinne Mulley and David Cosgrove)
The popular consensus is that urban passenger rail is more environmentally friendly than urban passenger bus. This position is largely associated with the key energy source for each mode, respectively electricity and diesel. Surveys of community perceptions reflect this sentiment; however the relationship between the source of energy and its resultant emissions (as contributions to local air pollution and enhanced greenhouse gas emissions) is not something that many citizens fully understand. What is especially significant is a general lack of awareness of the resource base of much of electricity generation in some countries (for example, from coal-fired power stations in Australia), and the improvements in processing that delivers clean (or low-sulphur) diesel. Supporters of alternative fuels such as compressed natural gas (CNG) and hybrid technologies (mixtures of diesel and electricity) as alternatives to clean diesel focus on the future supply of fossil-fuels, an argument which has merit; however the arguments in support of such alternative fuels are often confounded with environmental qualities related to local air pollution and enhanced greenhouse gas emissions. This research takes a close look at the emissions that are associated with urban rail (heavy and light) and bus in Australia. Estimated intensities, when presented in the context of effective service delivery (defined in terms of emissions per passenger, per vehicle kilometre and per passenger kilometre), raise questions about the distortions that are present in the widespread promotion in Australia (at least) of rail as a more environmentally friendly and hence a sustainable mode of urban passenger transport than bus, irrespective of location.

Experience Conditioning in Choice Modelling – Does it Make a Difference? (with Chinh Ho)
It is often suggested that real experience counts when making choices and that choice responses are likely to be different after an individual has experienced specific alternatives. This has links with hypothetical bias associated with stated choice (SC) experiments as well as with the concerns over the reliability of revealed preference (RP) data obtained on alternatives that individuals have had little if any exposure to through use or consumption. If we had a way of identifying experience with each alternative in a choice set of alternatives, be it an RP or SC constructed choice set, might we obtain different estimates of key behavioural outputs such as willingness to pay and elasticity? What if we weighted each alternative associated with each observation by some measure of overt experience? A reason why this might be important is that it enables us to recognise that as more individuals use particular alternatives, especially new infrastructure such as toll roads and public transport, the forecasts of benefits are likely to converge closer to estimates of utility in which the parameter estimates (and hence implied willingness to pay and elasticities) are conditioned on experience, on the reasonable hypothesis that future predictions reflect growing levels of exposure and hence experience with specific alternatives. We use an RP data set collected in Sydney on commuter mode choice to investigate this phenomenon, comparing the value of travel time savings, and cost and travel time elasticities associated with car and public transport under a model in which we do not condition the time and cost parameters on experience, and a model in which we do, using frequency of use as a proxy indicator of overt experience. The differences are very marked, and suggest, albeit from a single study, that this topic appears to have great merit as a candidate source of potential errors in forecasts.

Fiji Household Travel Survey and Transport Database Research Audit (with Michael Bell and Adrian Ellison) August 2015-March 2016.

The Fijian Ministry of Infrastructure and Transport (MoIT) through the Transport Planning Unit (TPU) has engaged ITLS together with Predict Consulting, IPSOS and a number of independent consultants to undertake an audit of the travel data and transport planning modelling needs across all modal sectors.

Applied Discrete Choice Analysis (second edition) –with John Rose and William Greene
There are many discussion topics that are ignored in most books on choice analysis, yet are issues which students have pointed out in class, and researchers in general, as important in giving them a better understanding of what is happening in choice modelling. The lament that too many books on discrete choice analysis are written for the well informed is common, and was sufficient incentive to write the 1st edition of this book and a subsequent need to revise the book to include the many new developments since 2004 (when the 1st edition was completed), as well as to clarify points presented in the 1st edition that the many readers sought further advice on. The new topics, in addition to a complete rewrite of many previous chapters, are ordered choice, scaled MNL, generalised mixed logit, latent class models, statistical tests (including partial effects), group decision making, heuristics and attribute processing strategies, expected utility theory, prospect theoretic applications, and extensions to allow for nonlinearity in parameters. The single case study has been replaced by a number of case studies, each chosen as an example of data that best illustrates the application of one or more choice models. This second edition is published by Cambridge University Press in June 2015.

Efficient Contracting and Incentive Agreements between Regulators and Bus Operators: The Influence of Risk Preferences of Contracting Agents on Contract Choice (with Chinh Ho)
Transportation researchers have shown increasing interest in the type of contracts that govern transactions between regulators and public transit operators. This research reviews the literature on efficient contracting, and identifies a number of limitations. In particular, little evidence is found supporting the influence of risk preferences of contracting agents on contract choice, a fundamental premise of classical contracting theory. Taking the existing literature as a point of reference that can be applied to the transportation context, the paper develops a choice experiment in which respondents involved in the public transport industry in Australia are offered two hypothetical contracts and asked to choose between Contracts A and B, packages that include a margin as well as (at the current and additional level of effort) a revealed chance of incurring a given financial penalty and a

revealed chance of achieving a particular financial bonus. A non-linear scaled multinomial logit model will be estimated to establish the influence of risk preferences on contract choice role and to identify the degree of risk aversion of bus operators.

Cost Efficiency under Negotiated Performance-Based Contracts and Benchmarking – Are there gains through Competitive Tendering in the absence of an Incumbent Public Monopolist?

A lot is happening in bus contracting in Australia. Metropolitan Sydney has moved, unexpectedly, in late 2012 from negotiated performance based contracts (NPBCs) with some exceptions, to competitive tendering (CT); tendered contracts in Adelaide are showing serious signs of patronage decline and media criticism, and bus services in the central areas of Melbourne are going through a consolidation of contracts into one competitively tendered contract and away from the current NPBC. Perth remains committed to CT whilst Brisbane is staying at present with NPBCs. This research uses data obtained from numerous official and unofficial sources to assess the extent to which a NPBC with actionable benchmarking can achieve as good as, or better, improvement in cost efficiency (without the potential risk of service loss attributable to repeated rounds of CT) when incumbents are not public operators.

Risk Sharing in Public-Private-Partnerships: Contractual Economics Perspective (with Demi Chung)

Public-private-partnerships (PPP) are an innovative way of government contracting in which the private sector is responsible for the delivery of infrastructure and related services, in exchange for a stream of payments. Typically, the private sector partner designs, builds, finances and operates a significant capital asset, such as a prison, a road, a hospital or a school, ensuring the availability of the asset during the contract period and providing related services of an acceptable standard. In PPP tollroad contracts, for example, the private sector partner retains a high level of managerial autonomy from the daily management activities of the road to customer service and billing, and derives payments from the end users of the service. The public sector partner engages primarily in monitoring and enforcement functions – verifying private sector partner's adherence to contractual obligations such as investment, pricing, and service quality. Theories of contract associated with PPPs are principally derived from agency theory; the theory of incomplete contracts and transaction cost economics. In this research, we investigate from the contractual economics perspective, how the PPP contracting model incentivises risk-sharing between parties of divergent interests and objectives. Our attention is to explore the link between the cognition of risk perceptions and attributes of PPPs encompassing transacting parties, the transaction, and the transaction environment. Building on insights from contract theories, we propose a number of relationships between contracting parties' risk perceptions and i) sources of risk; ii) contracting parties' characteristics; iii) contract designs and controls; and iv) the institutional context. We also examine the case of the M4 motorway PPP in Sydney. The M4 is the first PPP that has successfully reverted back to government ownership. It thus provides a unique opportunity to empirically test the hypothesised predictions about contracting party's behaviours and designs of contract in response to these behavioural concerns, identified in the contracting paradigm.

Accommodating Degrees of Belief in Traveller Behaviour Research*:* A Review of Subjective Probability Theory, Dempster-Shafer Theory and Possibility Theory

To identify and quantify degrees of belief associated with behavioural responses is important in adding to our understanding of decision making in real-world contexts that are associated with inevitable uncertainty. This research reviews three major theories developed to accommodate belief: Subjective Probability Theory, Dempster-Shafer Theory and Possibility Theory. We focus on how degrees of belief are measured in these theories. The key elements of each theoretical approach are compared, including their mathematical properties and evidence patterns. The review is designed to promote the relevance of accounting for degrees of belief in travel choice analysis.

Random Regret Minimisation and Random Utility Maximisation in the Presence of Preference Heterogeneity: An Empirical Contrast (with William Greene and Chinh Ho)

Random regret minimisation (RRM) interpretations of discrete choices are growing in popularity as an alternative to random utility maximisation (RUM). While behaviourally very appealing in the sense of accommodating the regret of not choosing the 'best' alternative, the question of whether this behavioural form delivers different willingness to pay estimates, choice elasticities and choice probabilities compared to RUM, remains an open question. Studies to date suggest that the differences are small and not of any practical consequence, but the evidence is largely based on a fixed parameter multinomial logit form of the RRM model. In this paper we revisit this behavioural contrast and move beyond the multinomial logit model to incorporate random parameters, revealing the presence of preference heterogeneity. Although there are two studies that have previously investigated random preference heterogeneity in random regret minimisation models, one study focussed on a single attribute and a regret threshold in which the former was not statistically significant, while the other study was unable to reveal the presence of preference heterogeneity. The current research has identified a statistically richer improvement in fit of mixed logit compared to multinomial logit under RRM (and RUM) but found small differences overall between the empirical outputs of RUM and RRM, with no basis of an improved model fit on the Vuong test between these two non-nested model forms. There is a growing sense that RRM is curiously interesting, but is not a panacea to replace the RUM form.

Management controls on agent's risk-taking incentive: The organizational architecture of Public-Private-Partnerships – with Demi Chung and David Hensher

This research investigates the extent to which the three pillars of management controls, namely allocation of decision rights, performance measures, and rewards and punishments, affect an agent's risk-taking incentive. This is identified by analysing the organizational architecture of public-private-partnerships (PPPs) in a framework that draws on ideas embodied in transaction cost economics, agency theory and social contract theory. Using a sample of partners in PPP roads and a computer-assisted-personal-instrument survey that includes a stated choice experiment and a record of prior PPP experience, we test the direct effects of management controls on the agent's risk preferences. The research is designed to provide new evidence that the incentive effect of right to pricing decision must be supported by social expectations. Performance evaluation based on noisy measures and the fixed-price reward weakens the agent's risk-taking incentive. The double moral hazard has resulted in the strengthening effect of

financial penalty. Surplus-sharing to curtail the management control problem of decision right misuse weakens the risk-taking incentive, whilst long contract duration to mitigate effort aversion strengthens the effect.

Transport Costs and the Structure of Cities: A Laboratory Experiment – with Michiel Bliemer, Laurent Denant Boemont, Sabrina Hammiche and Corinne Mulley
Location choices within cities clearly depend on transport costs that firms and households could face in order to respectively produce an output or to commute to their workplace. In particular, interaction between firms and workers that faces different transport costs could give rise to different structures for cities, either monocentric (all jobs being located in the Centre Business District) or polycentric (several workplaces within the city). The aim of this research is to study how such transport costs influence city structure by using a laboratory economic experiment.

The Effects of Passenger Crowding on Public Transport Demand and Supply with Alejandro Tirachini and John Rose
High passenger density at bus stops, at rail stations, on buses and trains is becoming a major concern to service providers as they struggle to cope with increased public transport demand. This research examines several effects of passenger crowding on public transport demand and supply, including impacts on operating speed, waiting time, travel time reliability, passengers' wellbeing, valuation of travel time savings, route and bus choice, and optimal levels of frequency, vehicle size and fare. Secondly, crowding externalities are estimated for rail and bus services in Sydney, in order to show the impact of crowding on the estimated value of in-vehicle time savings and demand prediction. By using a multinomial logit model, we will show that if demand for a public transport service is estimated without explicit consideration of crowding as a source of disutility for passengers, demand will be overestimated if the service is designed to have a number of standees beyond a threshold. The generalisability of this finding is subject to scrutiny.

Assessment of the Commuter's Willingness to Pay a Congestion Charge under Alternative Pricing Regimes and Revenue Disbursement Plans
ARC-DP grant 2011-2013. Congestion charging is a pivotal element of road pricing reform. What is critical in establishing the extent of economic benefits is knowing which congestion charging scheme (defined by price level, charging regime and revenue stream allocation) will gain the greatest support, and hence the maximum potential benefit stream. This comparative assessment has not been undertaken to date, making commentary on the likely impacts speculative at best. This project has the specific objective of identifying the willingness to pay of commuters for each component of a charging scheme using new survey data from choice experiments and advanced discrete choice models.

Accounting for Travel Time Reliability in the Optimal Pricing of Cars and Buses – with Alejandro Tirachini and Michiel Bliemer

This research addresses the problem of optimal pricing of both cars and buses in a multimodal transport corridor including externalities of congestion, bus crowding and travel time variability. A social welfare maximisation approach is implemented and applied to Sydney, Australia. To characterise travel time variability, a mean-variance model is embedded in the model and a relationship between mean and standard deviation of travel times is empirically estimated. First, we find that as the sensitivity of users to travel time variability increases, the optimal car toll increases approximately linearly, whereas the optimal bus fare remains almost constant, explained by the fact that even though both car and bus users contribute to increased travel time (and bus headway) variability, the contribution of car users is much higher and that is reflected in the socially optimal bimodal pricing structure. Including travel time variability produces substantial increases in toll revenue. Second, if bus headway is variable, the optimal headway is shorter when the users' valuation of savings in travel time variability is large. This result may not hold when headway is constant but travel time is not, in which case both optimal bus size and headway are adjusted according to travel time variability and crowding costs.

Job Stress of Transportation Bureau Employees: Evidence from Taiwan with Jou Rong-Chang
The relationship between job stress, turnover intentions, job satisfaction, and job performance of Taiwan transportation bureau employees is investigated. A structural equation model (SEM) is used to construct a complete job stress model, incorporating personality traits, job characteristics, and socio-economic characteristics as moderators in order to understand whether these factors interfere with and affect the turnover intentions of bureau employees. Analysis of the overall structural relationships shows that the greater the job stress, the stronger the turnover intention, with decreased job satisfaction. Furthermore, a positive correlation between job satisfaction and job performance is found. Job stress was not found to affect turnover intentions through job performance or job satisfaction. The results related to the moderators suggest that no personality traits, job characteristics, or even socio-economic characteristics have an interference effect.

Demand for Taxi Services: New Elasticity Evidence for a Neglected Mode – with John Rose

This research investigates the factors that influence the choice of, and hence demand for taxis services, a relatively neglected mode in the urban travel task. Given the importance of positioning preferences for taxi services within the broader set of modal options, we develop a modal choice model for all available modes of transport for trips undertaken by individuals or groups of individuals in a number of market segments. A sample of recent trips in Melbourne in 2012 was used to develop segment-specific mode choice models to obtain direct (and cross) elasticities of interest for cost and service level attributes. Given the nonlinear functional form of the way attributes of interest are included in the modal choice models, a simple set of mean elasticity estimates are not behaviourally meaningful; hence a decision support system is developed to enable the calculation of mean elasticity estimates under specific future service and pricing levels. Some specific direct elasticity estimates are provided as the basis of illustrating the magnitudes of elasticity estimates under likely policy settings.

Direct and Cross Elasticities for Freight Distribution Access Charges – with John Rose and Andrew Collins
Empirical evidence by vehicle class, vehicle kilometres and tonne vehicle kilometres
This research uses data collected in Australia in 2010-11 on alternative access charge regimes for freight transport, obtained from a stated choice experiment, which is used in estimation of mixed logit models calibrated on vehicle market shares, to derive matrices of direct and cross access charging elasticities that represent the relationship between an access charge (defined by combinations of distance, mass, and location), vehicle class choice, total kilometres, and tonne-kilometres carried in the *vehicle class* segments. The elasticities can be used to estimate the response of heavy vehicle operators (and shippers) to price signals under the different access charging schemes.

Understanding Mode Choice Decisions: A Study of Australian Freight Shippers – with Mary Brooks and Sean Puckett

This research examines the Australian domestic freight transport market, focusing on the decision-making process by which cargo interests and their agents make mode choice allocation decisions between land-based transport and coastal shipping. It evaluates the willingness to pay for various attributes of modal options on specific transport corridors. Such understanding lays the groundwork for being able to assess the likely impact of changes to transport prices arising from the introduction of carbon pricing or other regulatory factors. Reporting the results of a stated choice experiment, this paper identifies and quantifies freight shippers' preferences for components of services offered by freight transport providers across modes with distinct characteristics (i.e., mixes of speed (transit time), frequency of departure, reliability (two measures) and cost) in three corridors. There are seven variables examined: frequency, transit time, freight distance, direction (headhaul/backhaul), reliability as measured by delivery window, reliability as measured by delay, and price offered by the operator. The paper concludes by providing guidance on what trade-offs are relevant in shippers' choice of mode on the specific corridors under investigation in a more complex mode choice model than explored in previous research. It also examines what will likely happen if price rises as a result of carbon pricing regulation.

Accounting for Attribute Non-Attendance and Common-Metric Aggregation in a Probabilistic Decision Process Mixed Multinomial Logit Model: A Warning on Potential Confounding – with William Greene and Andrew Collins

Latent class models offer an alternative perspective to the popular mixed logit form, replacing the continuous distribution with a discrete distribution in which preference heterogeneity is captured by membership of distinct classes of utility description. Within each class, preference homogeneity is usually assumed, although interactions with observed contextual effects are permissible. A natural extension of the fixed parameter latent class model is a random parameter latent class model which allows for another layer of preference heterogeneity within each class. A further extension is to overlay attribute processing rules such as attribute non-attendance (ANA) and aggregation of common-metric attributes (ACMA). This research sets out the random parameter latent class model with ANA and ACMA, and illustrates its application using a stated choice data set in the context of car commuters and non-commuters choosing amongst alternative packages of travel times and costs pivoted around a recent trip in Australia. What we find is that for the particular data set analysed, in the presence of attribute processing together with the discrete distributions defined by latent classes, that adding an additional layer of heterogeneity through random parameters within a latent class only very marginally improves on the statistical contribution of the model. Nearly all of the additional fit over the fixed parameter latent class model is added by the account for attribute processing. This is an important finding that might suggest the role that attribute processing rules play in accommodating attribute heterogeneity, and that random parameters within class are essentially a potentially confounding effect. An interesting finding, however, is that the introduction of random parameters increases the probability of membership to full attribute attendance classes, which may suggest that some individuals assign a very low marginal disutility (but not zero) to specific attributes or that there are very small differences in the marginal disutility of common-metric attributes, and this is being accommodated by random parameters, but not observed under fixed parameter latent class model.

Assessing the Wider Economy and Social Impacts of High Speed Rail in Eastern Australia

There is growing interest in establishing evidence under the umbrella of the wider economy economic impacts of transport infrastructure projects, especially public transport projects that struggle to obtain benefit-cost ratios sufficient to gain the support of financial agencies. This research focuses on the element of wider economy impacts, often referred to as effective economic (employment) density, and another, less usually identified, wider social impact which we refer to as effective social density, which in broad terms provide, correspondingly, evidence of the potential gains in work-related output (often referred to as productivity gains) and potential gains in non-work-related outputs. Effective social density might also be understood, to some degree, as induced private accessibility benefits. Both are associated with gains in individual and household benefit attributable to improved accessibility to services linked with populations and particular locations. Using the proposed high speed rail project between Sydney and Melbourne as the empirical setting, we identify economic and social agglomeration benefits for work and non-work related activity respectively. We find the former to be relatively small compared to the significant gains associated with non-work related travel activity suggesting the greatest benefits associated with high speed rail, especially for those residents outside of the major metropolitan areas, will be non-work related travel activity.

The Impact of High Speed Rail on Land and Property Values: A Review of Marketing and Monitoring evidence from Eight countries – with Corinne Mulley and Zheng Li
This research reviews evidence on the reported impact of improved accessibility delivered through high speed rail (HSR) on land and property values. Market monitoring evidence was collected from eight countries, using published sources to compare the evidence within and between countries. The evidence is variable, suggesting that improved accessibility associated with the introduction of HSR can affect land values to varying degrees, including price premiums for improved accessibility and price reductions associated with noise or congestion. The paper puts forward a view that although there is a relationship between the introduction of HSR and enhancement of location values, it is necessary to be much more transparent in the methods used to separate out this relationship from other potentially confounding effects..

Does the Choice Model Method and/or the Data Matter? – with John Rose and Zheng Li

The opportunity to have seven data sets associated with a stated choice experiment that are very similar in content and design is rare, and provides an opportunity to look in detail at the empirical evidence within and between each data set in the context of a range of discrete choice estimation methods, from multinomial logit to latent class to scale multinomial logit to mixed logit, and the most general model, generalized mixed multinomial logit that accounts for preference and scale heterogeneity. Given the problems associated with data from different countries and time periods, we estimate separate models for each data set, obtaining values of travel time savings that are then updated post estimation to a common dollar for comparative purposes. We also pooled all data sets for a scaled MNL model, treating each data set as a set of three separate utility expressions, but linked to the other data sets through scale heterogeneity. This is not behaviourally appropriate with MNL, latent class or mixed logit. The main question investigated is whether there exists greater synergy in the willingness to pay evidence within model form across data sets compared to across model forms within data sets. The evidence suggests that there is a relatively greater convergence of evidence across the choice models, with the exception of generalized mixed logit, after controlling for data set differences; and there is strong evidence to suggest that differences between data sets do matter.

The impact of strategic management and fleet planning on airline efficiency – A random effects Tobit model based on DEA efficiency scores – with Rico Merkert

As a result of the liberalisation of airline markets, the strong growth of low cost carriers, the high volatility in fuel prices and the recent global financial crisis, the cost pressure that airlines face is very substantial. In order to survive in these very competitive environments, airline managers need to make the right strategic and operational decisions. To evaluate key determinants of airlines efficiency, this research applies a two stage data envelope analysis (DEA) approach, with random effect Tobit regressions in the second stage based on the partially bootstrapped first stage DEA efficiency scores. Our initial results suggest that the effects of route optimisation, in the sense of average stage length of the fleet, are limited to airline technical efficiency. We show that airline size and key fleet mix characteristics such as the average aircraft size and the average number of different types/families of aircraft in the fleet are more relevant to successful cost management of airlines since they have significant impacts on all three types of airlines efficiency - technical, allocative and ultimately cost efficiency.

Accounting for endogeneity of attribute non-attendance in willingness to pay: a note and a warning for stated choice experiment design – with John Rose and William Greene

There is a growing interest in exploring alternative processing strategies adopted by individuals when assessing packages of attributes describing alternatives in a choice set and making a choice. One popular processing rule relates to attributes not being considered, for all manner of reason, or what is referred to in the literature as attribute non-attendance. Researchers have used a mix of methods to study the role of attribute non-attendance, including supplementary questions on whether each attribute is ignored or not, and methods in which the functional form of the utility expressions defining an alternative can recognise the possibility, up to a probability, of an attribute being ignored. Although supplementary questions are worthy of further consideration, despite the controversy as to the reliability of the response, recent interest has focused on ways to establish the incidence of attribute non-attendance without recourse to such supplementary evidence. In this research we evaluate the role that mixtures of attribute non-attendance play as a 2^K matrix of possible attendance circumstances, where K is the number of offered attributes. We use an existing data set of choice amongst four attributes describing alternative car non-commuting trips, to illustrate the method, and to contrast values of travel time savings under each non-attendance schema and relative to a model in which all attributes are assumed to be fully attended to. The research is designed to reveal a major concern with the way that attribute levels and ranges are selected in the design of choice experiments, that can induce non-attendance situations where willingness to pay estimates cannot be obtained.

The Relationship between Bus Contract Costs, User Perceived Service Quality and Performance Assessment

In contract tendering or negotiation there is a growing interest in identifying and integrating user perceptions of service quality into the determination of contract costs; be they total cost or cost per service vehicle kilometre. Despite the progress in measuring service quality, there appears to be an absence of any structured mechanism for determining the relationship between costs and user perceptions of service quality after accounting for other influences on costs, and in determining what elements of service quality are under the control of the operator, and those that are influenced by factors outside the operator's control. Furthermore, having identified the relationship between costs and service quality elements under the control of the operator, a mechanism is needed to identify the extent of cost inefficiency associated with service quality performance that is below an agreed set of performance standards. This research develops a framework within which a cost-service quality relationship is quantified, and then implemented to identify benchmark targets for cost efficiency improvements required to achieve a pre-defined service quality performance target. We use data from metropolitan and non-metropolitan bus operators in New South Wales to demonstrate the way the method can be used in contract negotiation and ex-post monitoring of performance leading up to contract renegotiation or tendering.

The Influence of Choice Response Certainty, Alternative Acceptability, and Attribute Thresholds on Automobile Purchase Preferences - with John Rose

Choice studies can be characterised by attributes, alternatives, and choice responses. In recent years, an increasing number of analysts have highlighted a concern with the assumption that all attributes are traded in a fully compensatory manner and are by implication all relevant, and that each attribute and its trade is treated by the individual decision maker as totally certain. Two issues that reflect much of how individuals make choices in real settings are the relevance of attribute levels, especially the perceptual thresholds that individuals use to define whether an attribute is in or out of an acceptance (or consideration) range, the consequent reported overall acceptability of an alternative as described by a package of attribute levels, and the extent to which the respondent is certain of actually choosing the alternative that they indicated was their preferred alternative. This research studies the influence of choice response certainty, acceptability of each alternative, and attribute thresholds, on automobile purchase preferences, beginning with the standard MNL and mixed models, then moving on to choice certainty weighted MNL and mixed logit, and finishing with heteroscedastic MNL (H-MNL) and the extension to heteroscedastic Gumbel scale MNL (HG-

SMNL). A comparison of the models shows the significant improvement in predictive power of H-MNL and HG-SMNL, due in large measure to the 'scaling' of the standard utility expression by a function that accounts for binary acceptability of each alternative and perceived attribute thresholds, as well as accounting for scale heterogeneity. The inferred direct elasticities are also substantially different. The evidence to date suggests that alternative acceptance is far more influential than response certainty in improving the predictive performance of a choice model.

Understanding Mode Choice Decisions: A Study of Australian Freight Shippers – with Mary Brookes and Sean Puckett
This research examines the Australian domestic freight transport market, focusing on the decision-making process by which cargo interests and their agents make mode choice allocation decisions between land-based transport and sea. It evaluates the willingness to pay for various attributes of modal options on specific transport corridors. Such understanding lays the groundwork for being able to assess the likely impact of changes to transport prices arising from the introduction of carbon pricing or other regulatory factors. This research reports the results of a stated choice experiment and its subsequent analysis. The experiment is administered to managers in charge of shipping goods between Australian cities in three corridors. It is designed to gauge managers' preferred allocations of their cargo across modal alternatives, including road freight, rail freight and short sea shipping (both domestic and foreign carrier). The study identifies and quantifies freight shippers' preferences for components of services offered by freight transport providers across modes with distinct characteristics (i.e., mixes of speed (transit time), frequency of departure, reliability (two measures) and cost) in three corridors where there is or could be competition between the modes. This will help to identify corridors over which more environmentally-friendly modes (i.e., rail and sea) may be competitive with road freight, informing transport policy and investment decisions that currently lack this information.

Cost thresholds, cut-offs and sensitivities in stated choice analysis: identification and implications - with Danny Campbell and Riccardo Scarpa

Within the discrete choice literature, there is growing recognition that some respondents do not process all attributes when evaluating their choice outcomes. Worryingly, the cost attribute is often among those attributes that are likely to be ignored by respondents. We use probabilistic decision process models (similar in form to latent class models, but where we define the classes to describe specific heuristics) to facilitate situations where respondents adopt cost thresholds and cut-offs. We further develop this model to address the potential confounding between preference heterogeneity and processing heterogeneity by simultaneously allowing for a segmentation of respondents based on their sensitivities to cost. Results, based on an empirical dataset on the existence value of rare fish species in Ireland, provide further confirmation that a share of respondents did not attended to cost. Importantly, however, when heterogeneity to cost levels is accounted for the inferred incidence of complete non-attendance is markedly lower, to the extent that when cost thresholds and cut-offs are also accommodated it almost disappears. This modelling approach leads to significant gains in model fit and has important implications for welfare analysis.

Is there a simplified generic payment formula for bus contracts – with Corinne Mulley
The burgeoning commitment to contracting the delivery of bus services through competitive tendering or negotiated performance-based contracts has been accompanied by as many contract payments schemes as there are contracts. With the accumulation of experiences throughout the world, are we in a position to identify a few key features of the diverse suit of payment formulae to establish a simplified and generic payment formula that can capture the great majority of 'desirable' characteristics? This reseaech documents the range of payment formulae as a basis of seeing in there are some common elements, and also looks at the myriad of caveats and variations that are set out in existing contracts that dilute the efforts to implement a simplified contract. We draw on contract experience from a number of countries regardless of whether the contracts were provided through competitive tendering or negotiation.

Monitoring community views on transport confidence over time: the quarterly Transport Opinion Survey (TOPS) – with Rhonda Daniels

Consumer confidence and sentiment studies have an important role in forecasting and planning economic activity, with well-established regular surveys about community confidence about the economy. The paper reports results from the first 6 quarters of the Institute of Transport and Logistics Studies-Interfleet Transport Opinion Survey (TOPS), which is a quarterly survey of 1,000 Australians to monitor changes in the community's transport opinions, and transport confidence and sentiment over time. Key indicators include transport as a national priority, highest priority issues in transport, transport in the local area, transport in Australia, government responsibility for transport, and private sector involvement in public transport. Based on responses on whether transport is getting better or worse, the TOPS index of transport confidence is reported. The research analyses how consumer confidence towards transport getting better or worse changes over time, and analyses variations by location and demographic characteristics.

Crowding and public transport: A review of willingness to pay evidence – with Zheng Li
This research reviews public transport crowding valuation research, using a number of primary studies conducted in the UK, USA, Australia and Israel. We identify three measures used to value crowding (a time multiplier, a monetary value per time unit, and a monetary value per trip), and associated ways of representing crowding in stated preference experiments. Although a number of different types of crowding in terms of location are identified, namely in-vehicle, access-way, entrance and platform/station, the majority of reviewed studies investigate only in-vehicle crowding. Despite the different characteristics of the reviewed studies, they all report that crowding would increase the value of travel time savings, which can be viewed as an additional component of generalised time. This research also suggests some important avenues for future public transport crowding valuation research.

A comparative investigation of the effects of the design dimensions of choice experiments on car commuters' route choice behaviour and valuation of time in Taiwan and Australia – with Rong-Chang Jou, John M. Rose, Zheng Li, Gui-Lang Huang

This research uses an attribute-based stated choice experiment with a design adopted from Hensher's Design of Designs study, originally implemented in Australia, to investigate the role, in Taiwan, of the numbers of alternatives, choice sets, attributes, attribute levels, and the range of attribute levels, on choice response and implied willingness to pay for specific attributes in the context of car commuter choice of route. Computer-assisted personal interviews were conducted in Taichung City, Taiwan, to solicit data on commuter route choices. A series of multinomial logit models were estimated to investigate the effects of design dimensions on car commuters' willingness to pay (WTP) for travel time savings and reduced time variability. A comparison is also made between the findings from Taichung, Taiwan and Sydney, Australia, providing insights into differences in the role of each design dimension and consequent WTP estimates between Taichung City and Sydney.

Freight transport distance and weight as utility conditioning effects on a stated choice experiment – with Lorenzo Masiero
Within a freight transport context, the origin-destination distance and the weight of the shipment play an important role in the decision of the most preferred transport service and in the way logistics managers evaluate the transport service's attributes. In particular, the attributes commonly used in order to describe a freight transport service in a stated choice framework are cost, time, punctuality and risk of damages, respectively. This research investigates the role of origin-destination distance and weight of freight transport services introducing a conditioning effect, where the standard utility function is conditioned on the freight transport distance. The particular model proposed is a heteroskedastic panel multinomial logit (panel H-MNL) model where the heteroskedastic influence that conditions each 'traditional' utility expression is captured through a dummy variable distinguishing between short-distance and long-distance freight transport services. Results show that the heteroskedastic effect conditioned on long-distance transports has a negative impact on the marginal utility for a hypothetical alternative describing a freight transport service. The reduction in the marginal utility experienced for long-distance transport is moderated by the weight of the transported goods as well as by the interaction of the conditioning effect with time, punctuality and damages attributes. The two models proposed outperform the underlying basic model.

Random Regret Minimisation or Random Utility Maximisation: An Exploratory Analysis in the Context of Automobile Choice – with William H. Greene and Caspar Chorus
Interest in alternative behavioural paradigms to random utility maximisation (RUM) has existed ever since the dominance of the RUM formulation. One appealing alternative is known as random regret minimisation (RRM), which suggests that when choosing between alternatives, decision-makers aim to minimise anticipated regret. Although the idea of regret is not new, its incorporation into the same discrete choice framework of RUM is recent. This research uses the RUM and RRM models to obtain direct elasticities from multinomial logit models in a stated choice context of choosing amongst petrol, diesel and hybrid fuelled vehicles (associated with specific levels of fuel efficiency and engine capacity) when faced with a mix of vehicle prices, fuel prices, fixed annual registration fees, annual emission surcharge and vehicle kilometre emission surcharges. We assess the elasticity estimates of the majority of direct elasticities for RRM compared with RUM models. The behavioural response associated with choosing or not a particular alternative, given an attribute's contribution to utility, is not the same as that associated with the potential contribution of an attribute to the regret associated with an alternative. Clearly, these are two different elasticity measures, with challenges on how the regret elasticities might be used in practical applications.

Measuring and Valuing Reliability and Trip Time Variability – with Zheng Li and John Rose
This research program is designed to investigate the role of travel time reliability in a car travel context in comparison to travel time savings. We review the existing literature in the context of random utility and expected utility theory, and develop extensions within expected utility theory as well as prospect and cumulative prospect theory (and rank dependent utility theory) to take into account risk and uncertainty as well as the perceptual process used to integrate the probability of an event or attribute level occurring. The evidence will be used to construct a number of preferred ways of incorporating trip time reliability as well as travel time savings. We postulate that the two measures of willingness to pay (WTP) can be extracted from a single analysis of the distribution of WTP that recognises the incidence of travel being on-time, early and late.

Impacts of travel time reliability on the design of a congestion pricing policy – with Alejandro Tirachini
A road pricing scheme (RPS) is constituted by three elements: the regime implemented (e.g., cordon, area based, link based, flat or time-dependent, static or dynamic), the actual charge level, and the revenue allocation policy (within or outside the transport sector). This paper will focus on the allocation of the revenue raised by pricing congestion using a social welfare maximisation framework with elastic demand over a corridor with multiple modes, periods and categories of users (personal income groups). The use of revenue is crucial when setting up a RPS as it affects the success or failure of the scheme in terms of the acceptability of the policy, the economic efficiency gained through its application, and the equity outcome. Revenue allocation policies to be analysed include (i) fare reduction for public transport (buses and/or trains), (ii) increase in frequency (buses and/or trains), (iii) infrastructure provision (new traffic lanes, railways, busways), and (iv) tax reduction (income and/or fuel tax). This research will consider the impact of improved travel time reliability on the value of travel time savings in the presence of a specific RPS, and hence on the determination of optimal charge levels, revenue allocation policies and estimation of benefits from a RPS.

Attribute Processing, Heuristics, and Preference Construction in Choice Analysis
It has long been recognized that humans draw from a large pool of processing aids to help manage the everyday challenges of life. It is not uncommon to observe individual's adopting simplifying strategies when faced with ever increasing amounts of information to process, and especially for decisions where the chosen outcome will have a very marginal impact on their well being. The transactions costs associated with processing all new information often exceed the benefits from such a comprehensive review. The accumulating life experiences of individuals are also often brought to bear as reference points to assist in selectively evaluating information placed in front of them. These features of human processing and cognition are not new to the broad literature on judgment and decision making, where heuristics are offered up as deliberative analytic procedures intentionally designed to simplify choice. What is surprising is the limited recognition of heuristics that individuals use to process the attributes in stated choice experiments. In this research we present a case for a utility-based framework within which some appealing processing strategies are embedded (without the aid of supplementary self-stated intentions), as well as models conditioned on

self-stated intentions represented as single items of process advice, and illustrate the implications on willingness to pay for travel time savings of embedding each heuristic in the choice process. Given the controversy surrounding the reliability of self-stated intentions, we introduce a framework in which mixtures of process advice embedded within a belief function might be used in future empirical studies to condition choice, as a way of increasingly judging the strength of the evidence.

ARC-DP grant 2007-09: Development of a behavioural system of stated choice models: modelling behavioural, pricing and technological opportunities to reduce automobile energy levels - with John Rose and Matthew Beck
Automobile use is attributed with over 70% of CO2 emissions from the transport sector. This project delivers a new framework to assess the impact of policies to reduce CO2 and other energy sources associated with existing ICE fuel sources and a range of scenarios that involve futures with alternative fuels. The proposed framework will radically change the approach used by practitioners in prediction, and provide a way of capturing behavioural responses of car users to new environmental futures, in which price, performance, distribution and maintenance play a crucial role in adopting environmentally friendly fuels and vehicle designs. Australia lacks this behavioural capability. The focus is on vehicle type choice and use, implementing ideas in discrete-continuous choice modelling, attribute processing, group decision making and prospect theory.

R-Tresis: Developing a Demand and Supply Modelling Capability for an Integrated Transport and Land Use Model System for Regional New South Wales - with Stuart Bain and Zheng Li
This research sets out a demand modelling framework for the development of a regional transport and land use model system (R-Tresis), to be implemented for New South Wales (Australia). Traditionally, the focus of such a model system has been major metropolitan areas such as Sydney, where we have developed Tresis (Hensher 2002). Given the growing concern about regional accessibility to many service classes, there is a need for a modelling capability that can be used to prioritise and guide policy decisions in regions that are often described as remote, rural, low density and small town. In developing a framework that is capable of integrating both demand and supply elements of transportation and land use activity, we recognized the challenges in developing primary data sources, and the high likelihood of a reliance on secondary data sources. This suggested an alternative approach to demand modelling that was not dependent on choice models; namely a suite of continuous choice models in which we capture the actual activities undertaken by each mode on both the demand and supply side.

Congestion and Variable User Charging as an Effective Travel Demand Management Instrument
Interest at the political level in congestion charging is gaining pace as cities struggle with ways to reduce the effects of growing traffic congestion on the liveability of cities. Despite a long history of promotion of a wide array of travel demand management (TDM) initiatives, very few have had a noticeable impact on the levels of traffic on the road networks of metropolitan areas. TDM success in this context has almost become 'band-aid' in the absence of a pricing strategy that not one promotes efficient use of the system but also hypothecates revenues to support essential complementary infrastructure and services such as public transport. This research takes a look at the stream of pricing consciousness that is surfacing around the world. Although very few jurisdictions have implemented congestion charging, or any form of efficient variable car and truck user charging, the winds of change are well in place. The adage "it is not a matter of if but of when' seems to be the prevailing view.

Assessing sources of variation in travel demand elasticities: a Meta analysis – with Zheng Li
Ongoing since 2003, this project is documenting studies that have established empirical estimates of direct and cross elasticities for public transport service and cost, and freight. The aim is to explain differences in the estimates as way of understanding the influence on methods, data paradigms and context in influencing variations in estimates.

Direct Price Elasticities of Freight Demand: A Meta-Analysis – with Zheng Li and John Rose
Freight demand elasticity studies vary significantly in terms of the demand measure, data type, estimation method, commodity type, etc. This wide variation makes it difficult to compare empirical estimates when the differences may arise in part from the methods and data used. This research involves a meta-analysis to identify systematic sources of influence on elasticity estimates in the context of freight transport, distinguishing between road transport and all transport (i.e., road, rail, sea) using published direct price elasticities from elasticity-derivative studies that report elasticity values. Systematic sources that explain differences in direct price elasticities investigated will include mode type, data type, demand measure, estimation method, and commodity type. Analysts can utilise the meta analytic findings to adjust the empirical evidence from specific studies to control for differences that impact on the behavioural implications of the evidence.

Sources of Preference Heterogeneity in Random Parameter Latent Class Models – with Bill Greene
Latent class models offer an alternative perspective to the popular mixed logit form, replacing the continuous distribution with a discrete distribution in which preference heterogeneity is captured by membership on distinct classes of utility description. Within each class, preference homogeneity is usually assumed (i.e., fixed parameters), although interactions with observed contextual effects are permissible. A natural extension of the fixed parameter latent class model is a random parameter latent class model which allows for another layer of preference heterogeneity within a class. This research sets out the random parameter latent class model (RPLCM), building on the fixed parameter latent class model (FPLCM). We show formally the conditions under which the model is identified and illustrate its applications using an unlabelled stated choice data set on alternative car trip attribute packages pivoted around a recent trip in Australia.

Accounting for scale heterogeneity within and between pooled data sets

A popular practice in joint estimation of discrete choice models that use stated preference (SP) and revealed preference (RP) data is the nested logit 'trick' presented in Bradley and Daly (1992, 1997) and Hensher and Bradley (1993). It has been widely used to accommodate scale differences associated with the IID condition for two data sets. This modelling strategy has always assumed that the observations are independent, a condition which is not valid within an SP experiment with repeated choice sets. In response, some authors (e.g., Bhat and Castelar 2002, and Hensher et al. 2008) have allowed for the non-independence of

observations as well as state dependence in recognition of the role the RP choice plays, within a random parameter framework. This research builds on the state of the art by incorporating scale heterogeneity across a number of pooled data sets as well as accounting for the data-set specific scale heterogeneity. An example of choice amongst three fuel types for cars (petrol, diesel and hybrid) is used to illustrate the empirical difference in model fit and direct elasticity estimates for vehicle price, fuel price, an annual emissions surcharge, a variable emissions surcharge, fuel efficiency, registration charges and seating capacity.

Valuation of Travel Time Savings in WTP and Preference Space in the Presence of Taste and Scale Heterogeneity
A major concern with the empirical derivation of willingness to pay (WTP) distributions from mixed logit models is the incidence of values over a range that are deemed 'behaviourally questionable', with respect to the sign and magnitude. Recent research in redefining the 'space' within which a choice model is estimated as WTP space, instead of preference-space, has offered encouraging evidence in reducing the range of behavioural implausibility, without having to impose constraints on the analytical distribution selected for each random parameter. Recent extensions of choice analysis to establish the role of heterogeneity aligned with preferences as well as scale, offers further insights into the possible sources of empirical divergence between the two approaches to estimating WTP distributions and associated moments. This research develops three models to compare the empirical evidence when a mixed logit model is estimated with unconstrained distributions on random parameters in WTP and preference space, taking into account the correlation between the attributes. The main finding supports previous evidence that estimates of WTP in WTP space have behaviourally more plausible ranges; however new evidence suggests that the gap between the evidence in WTP and preference space narrows significantly when both scale and preference heterogeneity are identified. This suggests that failure to account for scale heterogeneity may have contributed to the divergence, to some extent, between the two sources of evidence. Furthermore, we find a strong equivalence between the evidence when imposing a constrained distribution (e.g., constrained triangular) in preference space and that obtained in WTP space with an unconstrained distribution. Is this a coincidence, or does it suggest that an appropriate constraining of distributions in preference space may be a sensible approximation in line with the behaviourally appealing evidence in WTP space?

Social Exclusion and the Value of Mobility – with John Stanley, Janet Stanley and Graham Currie
This research investigates factors likely to increase an adult person's risk of social exclusion, drawing on a detailed household survey in Melbourne, Australia, and uses the findings to impute the value of additional trips. The survey included questions related to personal well-being, travel patterns, household income, social capital and community strength, as well as various indicators of risk of social exclusion. We use a generalised ordered logit (GOL) model that accounts for observed and unobserved heterogeneity through the random parameterisation of thresholds, and derive the marginal effects for each influencing attribute, taking into account the various ways in which each influence contributes to the likelihood of a person being at risk of social exclusion. The major finding is that people are less likely to be at risk of social exclusion if they have regular contact with significant others, have a sense of community, are not poor, are mobile. The research implies that the value of an additional trip in Melbourne is just under $20 for a household at the average income level, implying considerable benefit for mobility enhancing initiatives. Values are higher for people from lower income households, supporting initiatives to reduce exclusion.

Toll Roads in Australia – with Zheng Li
This research provides key information (e.g., length, toll rates, year opened, operator(s) and payment alternatives) on the fully interoperable toll roads in Australia that are present in Sydney (e.g., the M2, M4, M5, etc.), Melbourne (CityLink and EastLink) and Brisbane (the Gateway Bridge, the Logan Motorway and the Gateway Extension). A primary motivation of this paper is to draw together, in one source, information on the nature, extent and performance of Australia's evolving toll road network which is currently spread across many disparate published and unpublished sources. Where available, we compare and discuss actual traffic levels and forecasts, revealing the sizeable gap or 'error' in forecasts, especially during the first year of operation. Ordinary regression and panel random effects regression models are developed to identify potential sources of explanation of differences in error forecasts between the Australian toll roads at various points post the opening date. The evidence suggest that the capacity of a toll road, the elapsed time that the toll road has been in place, the specific period of time in which a tolled road is introduced into the network (which influences the complexity of route options including multiple tolled routes and hence toll saturation), the length of the tolled route, the presence of cash payment, and the charging regime (i.e., fixed vs. distance-based or variable user tolls) are key influences on errors in forecasts

Incompleteness in Bus Contracts: Identifying the Nature of the *Ex ante* and *Ex post* Perceptual Divide
In the transport sector, many types of contracts exist. Some are very precise, and strive for completeness; others are very 'light-weight' and are incomplete. Bus and coach contracts, won through competitive tendering or negotiation, are typically incomplete in the sense of an inability to verify all the relevant obligations, as articulated through a set of deliverables. This research draws on recent experiences in contract negotiation, and subsequent commitment, to identify what elements of the contracting regime have exposed ambiguity and significant gaps in what the principal expected, and what the agent believed they were obliged to deliver. Using a generalized ordered choice model, in which the order defines agent perceptions of the extent of discrepancy between the principal and the agents 'understanding' of contract obligations, we identify the extent of perceived incompleteness across a sample of bus contracts.

Dimensionality of Stated Choice Designs – with John Rose and Zheng Li
Stated choice (SC) methods are now a widely accepted data paradigm in the study of behavioural response of agents (be they individuals, households, or other organizations). Their popularity since the pioneering contributions of Louviere and Woodworth (1983) and Louviere and Hensher (1983) has spawned an industry of applications in fields as diverse as transportation, environmental science, health economics and policy, marketing, political science and econometrics. With rare exception, empirical studies have used a single SC design, in which the numbers of attributes, alternatives, choice sets, attribute levels and ranges have been fixed across the entire design. As a consequence the opportunity to investigate the influence of design dimensionality on behavioural response has been denied. Accumulated wisdom has promoted a large number of positions on what design features are specifically challenging for respondents (e.g., the number of choice sets to evaluate); and although a number of studies have

assessed the influence of subsets of design dimensions (e.g., varying the range of attribute levels), there exists no single study (that we are aware of) that has systematically varied all of the main dimensions of SC experiments. This research uses a Design of Designs (DoD) SC experiment in which the 'attributes' of the design are the design dimensions themselves including the attributes of each alternative in a choice set. The design dimensions that are varied are the number of choice sets presented, the number of alternatives in each choice set, the number of attributes per alternative, the number of levels of each attribute and the range of attribute levels. We investigate how different designs impact on willingness to pay (i.e., attribute valuation), using a sample of respondents in Sydney choosing amongst trip attribute bundles for their commuting trip.

Shift of reference point and implications on behavioural reaction to gains and losses – with Lorenzo Masiero
It is widely recognized that individual decision making is subject to the evaluation of gains and losses around a reference point. The estimation of discrete choice models increasingly use data from stated choice experiments which are pivoted around a reference alternative. However, to date, the specification of a reference alternative in transport studies is fixed, whereas it is common to observe individuals adjusting their preferences according to a change in their reference point. This research focuses on individual reactions, in a freight choice context, to a negative change in the reference alternative values, identifying the behavioural implications in terms of loss aversion and diminishing sensitivity. The results show a significant adjustment in the valuation of gains and losses around a shifted reference alternative. In particular, we find an average increase in loss aversion for cost and time attributes, and a substantial decrease for punctuality. These findings are translated to significant differences in the willingness to pay and willingness to accept measures, providing supporting evidence of respondents' behavioural reaction.

ARC-DP grant 2007-09: Integrating Accident and Travel Delay Externalities in an Urban Speed Reduction Context.
The recognition that accident externalities are not independent of travel delays, and hence travel time savings and losses will promote a serious policy rethink about strategies designed to reduce the risk of exposure to accidents. The evidence is designed to identify that additional externality that has to be factored into the accident costs to recognise the other sources of externality typically ignored in accident costing and speed restriction studies. The implication on the development of a national program of road safety is likely to be profound. New surveys using stated choice methods are being developed and data collected to identify the willingness to pay to avoid fatalities and severe injuries.

Road Transport and Climate Change: Stepping off the Greenhouse Gas - with John Stanley
Transport is Australia's third largest and second fastest growing source of greenhouse gas (GHG) emissions. The road transport sector makes up 88 percent of total transport emissions and the projected emissions increase from 1990 to 2020 is 64 percent. Achieving prospective emission reduction targets will pose major challenges for the road transport sector. This research investigates two targets for reducing Australian road transport greenhouse gas emissions, and what they might mean for the sector: emissions in 2020 being 20 percent below 2000 levels; and emissions in 2050 80 percent below 2000 levels. Six ways in which emissions might be reduced to achieve these targets are considered. The analysis suggests that major behavioural and technological changes will be required to deliver significant emission reductions, with very substantial reductions in vehicle emission intensity being absolutely vital to making major inroads in road transport GHG emissions.

Examining regional transport policy instruments in the context of an aging population – with Stuart Bain and Corinne Mulley

Many countries now find that they are facing a demographic shift towards a higher percentage of older persons. This demographic shift is particularly noticeable in rural and regional areas. In the case of Australia, new migrants exhibit a tendency to settle in major metropolitan areas, although this phenomenon is not limited to Australia. Furthermore, youth in rural and regional areas often find that it is necessary to relocate to metropolitan centres in order to obtain employment. The end result of these and other factors is the aging of the rural/regional demographic and moreover, an increased rate of aging of the rural/regional demographic with respect to metropolitan centres. In order to assess the impact of transport policy decisions, particularly as to how such decisions affect the accessibility of transportation, we have developed R-TRESIS - a Regional Transport & Environment Strategy Impact Simulator. R-TRESIS has been developed for New South Wales and the Australian Capital Territory, an area covering some 810,000 square kilometers. The geography used in R-TRESIS considers 119 separate zones and four long-distance transportation modes: private vehicle, long distance coach, air and train. R-TRESIS permits the evaluation of a wide variety of transport policy instruments, such as service availability and pricing, taxes and subsidies. As a model, the advantage of R-TRESIS is that it also incorporates extensive demographic and supply-, and demand-side information about the zones that compose the R-TRESIS network. This permits an extensive evaluation of the impact of transport policy decisions on rural and regional areas in light of an aging population demographic. This research begins with a description of the R-TRESIS model system. A detailed evaluation of a range of policy instruments is then undertaken using R-TRESIS. The impact of these policy alternatives are then compared, both with reference to the *status quo* and also the considered policy alternatives.

Infrastructure Asset Reporting Options: A Stated Preference Experiment - with Stewart Jones and John Rose

This research develops of a stated preference experiment conducted on representatives from government trading enterprises, general government entities (such as government departments) and local councils in Australia. The experiment was administered via a CAPI (computer aided personal interview). Using a Bayesian D-error efficient experimental design and a generalized mixed ordered logit model for estimation, the aim is to identify a number of statistically significant influences on infrastructure asset reporting alternatives. These include prevailing government attitudes to the funding of public infrastructure; the physical condition of public infrastructure; the total value or investment of public infrastructure under the agency's control (as a percentage of total assets); and the amount of annual budget expenditure required to maintain public infrastructure (as a percentage of total own-source expenditure). The findings are designed to test the contention that accounting reports should be supplemented by additional information about the condition of existing infrastructure.

ARC-Linkage Grant 2007-09 with AAMI: Approved Exploring Behavioural Responses of Motorists to Exposure-Based Charging Mechanisms – with Stephen Greaves and Peter Stopher

Our continued reliance on cars is estimated to cost the Australian economy around $50 billion per year in accidents, congestion and air pollution. This project delivers a new approach to reduce these externalities, in which charges are levied on drivers based on their accident history, the kilometres driven and the circumstances under which these kilometres are driven. In addition to the safety and congestion benefits, the outcomes of the project will be of importance to those charged with raising revenue to support infrastructure maintenance and development, and the insurance industry as a basis for reducing risks in driving and making premiums more equitable.

What does it cost to travel in Sydney? Spatial and Equity contrasts across the metropolitan region – with Xiaofen Chen

There is a strong belief, often perceptual, that residents in the outer suburbs of Sydney are at a transport disadvantage in terms of the generalised cost of daily travel in absolute terms, and in relation to the percentage of income, personal and household, spent each day on travel. This research investigates this claim using the Sydney Household Travel Survey, an annual survey of randomly selected individuals, from June 1997 to June 2008, a total of 92,413 respondents. We pool the entire data set, adjusting costs for different years, and undertake a spatial interrogation of the data, initially for 13 sub-regions, and then drill down to postcodes to identify sources of systematic variation in the daily generalised cost of travel for individuals and households. In assessing the evidence, we compare public transport outlays with car outlays, where the latter is defined in terms of marginal outlays (i.e., fuel and parking) and all costs (i.e., marginal outlay plus car ownership costs). Given the cost of using public transport (i.e., fares) we speculate that the provision of improved public transport services (and switching from car to some extent) is likely to result in a lower monetary cost of travel, but only if individuals and/or households dispose of vehicles. This seems to apply even where public transport offers a lower travel time, which is not sufficient to compensate for retention of the car. If they retain their cars, then given the lower marginal cost of car use compared to public transport, the contribution of improve public transport translated into a switch of usage from car to public transport may have little impact on accessibility and equity. Hence the entire argument hinges on what response will be made to car ownership in the presence of a non-marginal injection of investment in public transport.

Contracting regimes for bus services: what have we learnt after 20 years? – with John Stanley

This research reviews a number of themes that have played a crucial role in the debate on alternative contracting regimes for the provision of urban bus services. We have selected four crucial issues to reflect on: (i) contractual regimes (in particular competitive tendering as compared to negotiated performance based contracts, as means to award the rights to provide service; (ii) contract completeness (focussing on *ex ante* and *ex post* elements); (iii) building trust through partnership; and (iv) tactical or system level planning for bus services. Experience in these areas suggests that competitive tendering has frequently not lived up to expectations and that negotiation is likely in many circumstances to deliver better value for money.

An analytical framework for joint vs. separate decisions by couple in choice experiments - with Nesha Barry and Ric Scarpa

As part of ongoing research into group decision making, this research develops an analytical framework for analyzing joint and separate decisions by couples in the context of choice experiments for nonmarket valuation. It reports results from an attribute-based stated preference study in which members of couples are asked to conduct a choice-experiment, first individually and then jointly. The choice context was the selection of which beach to visit while on vacation in Tobago. Available alternatives differed

in attributes related to coastal water and beach quality such as level of coastal development and fish abundance. Tests of preference equality are reported and structured so as to identify the intra-couple decision-making patterns under taste heterogeneity with both finite and continuous mixed logit. Results from the latter suggest that women's preferences are found to be predominant in the joint choice-experiment. Results suggest caution in using individual choice rather than joint couple choice when valuing quality changes impacting on couple activities, such as water and beach quality in Tobago, and call for further research on the topic.

Road pricing acceptance: analysis of survey results for Kyoto and Taichung -with Rong-Chang JouPing-Hwa Wu and Satoshi Fujii

Road pricing is being introduced in a number of countries to mitigate traffic congestion. It is suggested in the literature that a contributing influence to the success of road pricing is the attitudes of road users to that strategy before it is implemented. Given a general absence of evidence in an Asian setting, we undertook attitudinal surveys in Taichung (Taiwan) and Kyoto (Japan), and estimate a Bivariate ordered probit model to explore the influences on respondents´ attitude towards road pricing (Attitude) and their willingness to vote for road pricing in a fictitious election (Vote). The results confirm that there is a complementary relationship between road pricing acceptance attitudes and voting attitudes before implementation. A seemingly uncorrelated regression model is also developed for the respondents' intentions to reduce car use (Self) and expectations of others' car use reduction (Others) in response to the introduction of road user pricing. The evidence suggests that there is a complementary relationship between one's own usage expectations and that of others after implementation.

Non-Attendance and Dual Processing of Common-Metric Attributes in Choice Analysis: A Latent Class Specification - with Bill Greene

There is a growing literature that promotes the presence of process heterogeneity in the way that individuals evaluate packages of attributes in real or hypothetical markets and make choices. A centrepiece of current research is the identification of rules that individuals invoke when processing information in stated choice experiments. These rules may be heuristics used in everyday choice making as well as manifestations of ways of coping with the amount of information shown in choice experiment scenarios. In this research, using the latent class framework, we define classes based on rules that recognise the non-attendance of one or more attributes, as well as on the addition and the parameter transfer of common-metric attributes. These processing strategies are postulated to be used in real markets as a form of cognitive rationalization. We use a stated choice data set, where car driving individuals choose between tolled and non-tolled routes, to translate this new evidence into a willingness to pay (WTP) for travel time savings, and contrast it with the results from a model specification in which all attributes are assumed to be attended to and are not added up with parameter preservation. We find that the WTP is significantly higher, on average, than the estimate obtained from the commonly used full relevance and attribute preservation specification.

Toward the Betterment of Risk Allocation: Investigating Risk Perceptions of Australian Stakeholder Groups to Public-Private-Partnership Tollroad Projects - with Demi Chung

This research presents a qualitative assessment of the risk perceptions of key stakeholder groups in the context of tollroads operated under the Public Private Partnerships (PPPs) model. This study is the first phase of ongoing research that examines quantitatively, in the context of road infrastructure, the multidimensional nature of risk and the experiences in recent years that can guide an appropriate strategy to 'optimise' risk sharing amongst the relevant parties. The knowledge acquired through in-depth interviews with stakeholders engaged in PPP tollroads has enabled a deeper understanding of the contexts in which risks are negotiated and assigned before the financial close. Contracting parties share a common view that equitable risk-sharing is the vital ingredient of value for money. The arguments support the position that the private sector is better equipped to manage commercial risks involving economic decision, while risks that have embedded unquantifiable social and public values and those in the governance domain are best left with government. Public perception is a malleable concept and should be managed by both sectors.

Regional Airports and Opportunities for Low Cost Carriers in Australia - with Andrew Collins and Zheng Li

Australia is vitally dependent on aviation services for delivering passenger accessibility to many rural and remote locations. The majority of airports in Australia are regional airports. There are real opportunities for a number of regional airports to improve their services for the region through the introduction of low cost carriers (LCCs). The aim of this research is to investigate this potential, through a formal model system of the entire aviation network in Australia, focusing on identifying influences on passenger demand and flights offered, and the role of air fares and number of competitors on each route.

What if Petrol increased to $10 per litre? Implications on Travel Behaviour and Public Transport Demand - with John Stanley and Zheng Li

Petrol prices are increasing at a formidable rate. In July 2007 unleaded regular petrol in the typical Australian capital city was about $A1.20/litre and 12 months later the price was over $A1.60/litre. Pundits predict that the price will be $A2/litre by the end of 2008, and long-term forecasts by the CSIRO[1] suggest a price as high as $A8/litre in 2020. Given these recent hikes in petrol prices, we are seeing almost daily commentary on what this will mean for the future of mobility and accessibility. Commentary ranges from fear mongering using analogues from theology, such as 'the war on mobility has finally arrived' and 'the end of western life styles as we know them', through to views that we must not allow this to happen and government must act by reducing fuel excise. Others express elation that finally we have pricing signals that might encourage earlier investment in substitutes that include public transport, more fuel efficient cars as well as lower polluting vehicles. This research uses TRESIS, an integrated transport, land use and environmental strategy impact simulation program, to assess the influence of higher fuel prices on short run and long run passenger travel activity in Melbourne. We evaluate petrol prices in the range $A2 to $A10 over the period 2009-2017, to establish likely impacts on car use, modal share, greenhouse gas emissions, public transport revenue, and consumer surplus.

[1] Commonwealth Scientific Research Organisation

Assessing willingness to pay for urban water, wastewater, gas and electricity delivery service standards
This ARC-Linkage project (with ANU and ActewAGL) over 2006-2009 aims to develop understanding of the nature of willingness to pay (WTP) for utility services standards and the appropriate role of WTP in regulating prices and service quality. Given the current prevalence of service failure in Australia and the pressure on governments and utilities to invest in maintaining and improving infrastructure, this research is necessary to assess the level of investment required and the extent to which customers should pay. The research will be directly applicable to all gas, electricity, water and wastewater utilities and regulators in Australia. Results will also be crucial in developing regulation policy relating to the use of S-factors and regulation of service quality in Australia.

Hypothetical Bias, Stated Choice Studies and Willingness to Pay
There is growing interest in establishing the extent of differences in willingness to pay (WTP) for attributes, such as travel time savings, that are derived from real choice settings and hypothetical (to varying degrees) settings. Non-experiment external validity tests involving observation of choice activity in a natural environment where the individuals do not know they are in an experiment are rare. In contrast the majority of tests are a test of external validity between hypothetical and actual experiments. Deviation from real market evidence is referred to in the literature broadly as hypothetical bias. The challenge is to identify such bias, and to the extent to which it exists, establishing possible ways to minimise it. This research reviews the efforts to date to identify and 'calibrate' WTP derived from one or more methods that involve assessment of hypothetical settings, be they (i) contingent valuation methods, (ii) choice experiments involving trading attributes between multiple alternatives, with or without referencing, or (iii) methods involving salient or non-salient incentives linked to actual behaviour. Despite progress in identifying possible contributions to differences in marginal WTP, there is no solid evidence, although plenty of speculation, to explain the differences between all manner of hypothetical experiments and non-experimental evidence. The absence of non-experimental evidence from natural field experiments remains a major barrier to confirmation of under or over-estimation. Initial findings suggest, however, that the role of referencing of an experiment relative to a real experience, in the design of choice experiments, appears to offer great promise in the derivation of estimates of WTP that have a meaningful link to real market activity.

Ordered Choices and Heterogeneity in Attribute Processing - with William H. Greene
A growing number of empirical studies involve the assessment of influences on a choice amongst ordered discrete alternatives. Ordered logit and probit models are well known, including extensions to accommodate random parameters and heteroscedasticity in unobserved variance. This research extends the ordered choice random parameter model to permit random parameterization of thresholds and decomposition to establish observed sources of systematic variation in the threshold parameter distribution. We will illustrate the empirical gains of this model in the context of an individual's choice amongst unlabelled attribute packages of alternative tolled and non-tolled routes for the commuting trip, and the role that each attribute plays, in the sense of being ignored or not. The ordering represents the number of attributes attended to from the full fixed set. Preliminary evidence suggests that there is significant heterogeneity associated with the thresholds that can be connected to systematic sources associated with the respondent (i.e., gender) and the choice experiment (i.e., aggregation treatment of components of travel time).

Climate Change, Enhanced Greenhouse Gas Emissions and Passenger Transport – What can we do to make a difference?
Climate change, global warming and enhanced greenhouse gas emissions (GGEs) are hot topics for many reasons, including scientific and speculative. The transportation sector, led by the automobile, has been cited constantly as a major contributor through human intervention to climate change. The media and lobby groups have, for many years escalated the case for finding ways to reduce the impact that people movement has on enhanced GGEs. Governments have ramped up the rhetoric to gain political support. Short of banning car use, the challenge remains one of understanding better what mix of actions might contribute in non-marginal ways to reducing the growth of GGEs (primarily CO_2) and even reduce the absolute amount of CO_2 produced by automobility. This research evaluates potentially effective instruments that are aimed at a number of policy objectives linked to the triple bottom line – efficiency, sustainability and equity – focussing on social surplus gains in addition to cost effectiveness; but in particular the ability to reduce CO_2. We use TRESIS, an integrated transport, land use and environmental strategy impact simulation program, developed by the author, to assess the influence on CO_2 of a number of 'at source' and 'mitigation' instruments such as improvements in fuel efficiency, a carbon tax, congestion charging, variable user charges, and improvements in public transit. We apply TRESIS to the Sydney metropolitan area with instruments enacted in 2010 up to 2015. There are some instruments that can reduce CO_2 in the passenger transport sector by 5 percent over the next 8 years, with some more politically palatable, although requiring a greater amount of investment outlay by government. A mix of technological improvement linked to fuel efficiency and pricing of car use offer the most balanced way forward in terms of impacts on all stakeholders, especially in preserving government revenue sources and the opportunity to re-invest back into the transport sector through improved multi-modal infrastructure.

Asymmetrical Preference Formation in Willingness to Pay Estimates in Discrete Choice Models - with S.Hess and J. Rose
Individuals when faced with choices amongst a number of alternatives often adopt a variety of processing rules, ranging from simple linear to complex non-linear treatment of each attribute defining the offer of each alternative. In recent years, there has been a growing interest in the choice process as a basis of understanding how best to represent attributes in choice outcome models. In this paper, in the context of choice amongst tolled and non-tolled routes, we investigate the presence of asymmetry in preferences, drawing on ideas from prospect theory to test for framing effects and differential willingness to pay according to whether we are valuing gains or losses. The findings offer clear evidence of an asymmetrical response to increases and decreases in attributes when compared to the corresponding values for a reference alternative. The degree of asymmetry varies across attributes and population segments, but crucially is independent of the inclusion or otherwise of an additional constant for the reference alternative, contrary to earlier findings.

Sustainable Public Transport Systems: Moving Towards a Value for Money and Network-Based Approach and away from Blind Commitment

Growing public transport patronage in the presence of a strong demand for car ownership and use remains a high agenda challenge for many developed and developing economies. While some countries are losing public transport modal share, other nations are gearing up for a loss, as the wealth profile makes the car a more affordable means of transport as well as conferring elements of status and imagery of "success". Some countries however have begun successfully to reverse the decline in market share, primarily through infrastructure-based investment in bus systems, commonly referred to as bus rapid transit (BRT). BRT gives affordable public transport greater visibility and independence from other modes of transport, enabling it to deliver levels of service that compete sufficiently well with the car to attract and retain a market segmented clientele. BRT is growing in popularity throughout the world, notably in Asia, Europe and South America, in contrast to other forms of mass transit (such as light and heavy rail). This is in large measure due to its value for money, service capacity, affordability, relative flexibility, and network coverage. This paper takes stock of its performance and success as an attractive system supporting the ideals of sustainable transport.

Route choice behaviour of freeway travellers under real-time traffic information provision–application of the best route and the habitual route choice mechanisms – with Rong-Chang Jou

The route choice behaviour on freeways between Taipei and Taichung in Taiwan under the provision of real-time traffic information is investigated. Two types of route choice selection rules (the best-route and habitual-route) are analysed using ordered probit models to identify the major influences on freeway travellers' route choice behaviour. The level of service associated with each route is defined as a generalized cost saving and specified non-linearly with a threshold inherent to travellers. The marginal (dis)utility thresholds in the 'best' and 'habitual' behaviour models are identified through a goodness of fit grid. The results to date confirm that the thresholds for changing the inertia behaviour of drivers should be larger than the ones for choosing the best routes. In addition, the drivers are more likely to choose either the best or the habitual routes once the generalized cost savings are greater than threshold values.

Valuation of car passenger's travel time savings: treatment of passengers in cars using tollroads

All studies that develop estimates of the value of travel time savings (VTTS) for car travel, assume that the VTTS of the driver is the only relevant measure of the worth of time savings. If a car has multiple occupants, the passengers are typically excluded in the valuation. The literature has singularly failed to address this important issue other than with rare exception, to establish VTTS for the driver given the number of passengers. This research investigates the role that the passenger plays in the VTTS of the vehicle trip, identifying the extent to which time-cost trade-offs is a driver or a group decision. The implications on travel time benefits ignored in previous studies and hence impact on infrastructure justification, may be profound.

Valuation of travel time savings – practical lessons in estimation and application – with J. Rose

Recent developments in willingness to pay (WTP) methods have focussed extensively on accounting for preference heterogeneity through judicious selection of analytical distributions in random parameter logit models. In the context of valuing travel time savings, there is now an accumulated body of evidence and experience on what happens to the WTP distribution when we impose specific distributional assumptions in unconstrained and constrained forms. The evaluation of various distributions has in large part been motivated by the desire to avoid long tails and sign changes on WTP that are often deemed behaviourally implausible. Recent research has raised a more fundamental concern about the focus on alternative distributions which may be looking in the wrong place for resolving some empirically identified behavioural inconsistencies. In this research we take a close look at a range of issues that we believe will support greater behavioural realism without having to exercise analytical gymnastics to establish behavioural compliance. The issues investigated include the heterogeneity of attribute processing strategies adopted by individuals; a two-stage estimation method that first identifies anomalies in choice outcomes and then re-estimates on the remaining data set; and specific treatments of the numerator and denominator in WTP calculations.

Selective Developments in Choice Analysis – with J. Rose

Developments in data and modelling paradigms in choice analysis are developing at a fast pace. This research takes a selective view of some of these developments, especially four broad themes – information processing strategies, especially in the context of stated choice studies; agency interdependency (with a strong applied focus), developments in the design of choice experiments, and a smorgasbord of themes centred on expanding the behavioural capabilities (and longer term forecasting accuracy) of discrete choice models.

Establishing Signals of Firm Distress: A Stated Perception Assessment of Firm Profiles – with S. Jones, J. Rose, A. Collins.

Recent developments in data paradigms designed to assess preferences for packages of attributes that may or may not exist in real markets opens up opportunities to identify the signals that experts believe are being sent about the distress level of a firm with that condition. Although revealed preference data itself has inherent merit in the sense of defining a current distress state, the ability to develop a model to predict the distress outcome relies of the pooling of observations to create between-firm variability. An alternative methodology within the discrete outcome model setting involves a data paradigm centred on experimental design in which we design future firm profiles described by packages of financial factors. By varying these profiles and offering CFO's at least two of the packages to assess and indicate the ranking of them on a scale (from best to worse) that can be mapped into a distress index, we provide a new capability in the accounting and finance literature to predict the likelihood of a firm's profile being perceived by CFO's as a candidate for a specific distress classification. Specifically, given a list of financial factors identified through in depth interviews with CFO's and evidence sourced from the published literature, we can design a stated perception experiment based on combinations of levels of each financial attribute. We use state of the art D- and S-optimal designs with priors on attribute parameters (in contrast to sub-optimal orthogonal designs- except when we have no priors) to design an experiment used to reveal CFO's ranking of attribute profiles. If we assume a ranking of three constructed profiles, pivoted around each CFO's current firm's profile on these same attributes, we can use the rank order (1,2,3,4) together with the attribute levels across the four ordered alternatives to estimate an ordered mixed logit model. This model (see Jones and Hensher 2004) can be used to identify

the probability of a specific distress level for each CFO, given their mapping of each rank against a distress level scale. The estimated model can be validated with a hold out sample, drawn from the surveyed sample of CFO's. In addition to financial factors, we recognise the influence that macroeconomic variables have on the assessment of financial performance. We propose, in the stated perception ranking design, to overlay an additional experimental design in which we vary the levels of a set of macroeconomic variables (e.g., interest rate increases, volatility in exchange rates), pivoted around levels reported by each CFO as current exposure. The survey will also collect contextual data on firm specific characteristics, financial systems in place within the CFO's firm, the quality of management, corporate governance conditions and other factors.

Variable Road User Charging: Future Regimes

Charging users of the roads for the costs they impose on the system is not new. Economists have been promoting its virtues for as long as arguments about economic efficiency have been in print. What is different today is that a growing number (but by no means all) of decision makers are showing a greater interest and commitment to finding ways to improve the efficiency of the road system, be it through infrastructure expansion and/or other means. Of special interest is the growing level of traffic congestion, and a feeling of almost helplessness, that we seem to have failed in finding a way forward to maintain traffic congestion at levels that are acceptable to the public, and are consistent with principles of good economic practice. The literature abounds with suggestions on how this might be achieved, focused primarily on various pricing regimes that say as much as about levels of charges as they do about the role of the revenue raised, the latter as controversial as the former. The current state of technology provides a capability to introduce sophisticated charging mechanisms. We are at a stage in the evolution of 'solutions' to dealing with inefficient road use and provision of road funds that offers real prospects of delivering outcomes that can align with political, social and user demands and expectations. This research provides a global perspective on the road to efficiency.

Integrating Accident and Travel Delay Externalities in an Urban Context

Accident externality costs remain controversial in terms of their costing and valuation and in terms of their extent. Public policy in many countries adopts an accident elasticity of zero which implies that no significant accident externality exists. This is questionable and research in economics in particular has argued since William Vickrey's pioneering research published in 1968 that this elasticity is likely to be in the range 0.25 (Newbury 1988) to 1.5 (Vickrey 1968). Much of the literature on externalities treats each source as mutually exclusive and additive, yet commonsense suggests that interdependencies prevail. One example of this is the recognition that accident externalities are not independent of travel delays and hence travel time savings and losses are influenced by policy designed to reduce the risk of exposure to accidents. Reduced maximum speed limit restrictions designed to reduce such risk add costs in terms of travel time (and increased speed limits produce travel time benefits). This project takes a close look at the relationship between accident externalities and travel delay externalities in an urban setting, accounting for the risk compensating behaviour (i.e. more careful or defensive driving) under conditions of greater accident risk. Recognising that levels of risk in an urban setting are a function of traffic densities and that the latter can be approximated by the mix of free flow and non-free flow travel time (for a given total travel time), we derive the aggregate marginal externality cost function and empirically quantify the elements in the context of a driver's choice between a free and a tolled route in Sydney. This discrete choice context is sufficient, given an externally established relationship between speed and traffic density (Truong and Hensher 2004), to empirically quantify the marginal externality accident and travel time delay costs together with the quality bonus effect delivered by a tolled route. We show what additional externality has to be factored into the accident costs to recognise the other sources of externality typically ignored in accident costing studies.

Spatial Alliances of Public Transit Operators:

Establishing operator preferences for area management contracts with Government – with Louise Knowles

Scheduled transit services in many countries are provided by operators within geographical jurisdictions protected from competition with other public transit operators, although unprotected from the competition by other modes, especially the car. This increased competition in many developed economies has led to a loss of market share of urban transit and contributed to the growing crisis in escalating costs of service provision (leading to pressure for increasing subsidy support). The response to this throughout the 1990s has seen governments progressively introducing market reforms centred on competitive tendering and economic deregulation. In more recent years, performance-based contracts have become popular variants, with an increasing number of incentive payment criteria introduced to not only promote cost efficiency but also aimed at growing patronage. Where such reform has involved area wide contracts, the boundaries of the contract areas have been essentially preserved. In recognition of the growing support for bus-based transit systems (variously referred to as bus rapid transit, busways and transitways), which offer increasing promise in growing public transit patronage, the NSW government in Australia has introduced reforms that require existing operators in the Sydney metropolitan area each currently holding an area contract (87 contracts) to work together under fifteen new spatial contracts. These new contracts overlay the existing contract areas and give incumbent operators the first option to participate. In this project we assess ways in which operators might coalesce to deliver ongoing and new 'regional' services. Operator business preferences and potential barriers to cooperation are identified through stated preference experiments.

Reducing Sign Violation for VTTS Distributions through Recognition of an Individual's Attribute Processing Strategy

A number of authors have recently argued that the selection of the distributional assumptions in mixed logit models used in deriving distributions of valuation of travel time savings (VTTS) to capture taste heterogeneity has a significant impact on the empirical evidence. A recent paper by Hess *et al.* (2005) points out that constraining a specific distribution by some bounding rule to ensure that the 'wrong' sign is not permissible is problematic in that it ignores the impact of data or model imperfections. The stream of research by Hensher and his colleagues on accounting for the attribute processing strategy in stated choice studies (the main data source of VTTS) suggest that the existence of intuitively implausible signs for a subset of the sampled population is due, to some extent, to the manner in which the information in the stated choice experiment is actually input into the estimation of the choice model, and that searching for analytical distributions that appear to deliver more acceptable VTTS across the specific distribution may be looking substantively in the wrong place for the explanation. In this research we show evidence of what happens when we take into account the attribute processing strategy in contrast to assuming, as is common practice, that all attributes are relevant as

presented. The findings produce the remarkable result of significantly reducing the incidence of intuitively implausible VTTS, even with unconstrained distributions.

Carrots and Sticks: Finding Ways to Grow Public Transport Use and Investment in Outer Metropolitan Areas in Sydney
New housing in the outer urban areas of Sydney is being constructed at a rapid pace, with housing approvals exceeding 100 per week. At the same time the investment in new public transport infrastructure and service levels is occurring at a snail's pace, if at all. Meanwhile new residents are settling in, adapting to their car-dependent environment and enjoying the accessibility delivered by automobility as they seek out new networks of activity locations spread throughout the Sydney network in a growing circumferential style. The new tollroads have added to the accessibility gain with impressive time savings out of peaks. In the peaks the story is different with a road network straining to cope (e.g. Windsor Road in the North-West) and increasing delays in accessing local amenities. What can be done? Government appears to be short of funds for public transport, the private sector has limited interest unless there is a road involved and/or substantial government subsidy support and meanwhile the system ultimate customer is suffering (so we are told). But are they? It may appear bad but is it? This research takes a closer look at the main issues that have been raised to support more investment in public transport infrastructure and services before new housing is occupied and residents adapt to the lack of public transportability.

Buying speed: A reassessment of the characterisation of congestion on an urban road network – some theoretical suggestions and illustrative experiments - with Truong Truong
An investment or pricing decision affecting a particular link of a network is expected to have repercussions throughout the network. It is thus important to consider the issue of 'capacity' and 'congestion' in a network as a matter of interconnections between substitutable and/or complementary links within the network. To do this, we must clarify the important concepts of capacity and congestion in the context of a general economic equilibrium between the interconnected links. Once these concepts are properly defined, we can then consider the issues of supply and demand for transport activities conducted through these links and analyse the problem of congestion as a process of balancing the forces of supply and demand. The short run issue of inter-connected tolls or congestion pricing for the network as a whole to relieve congestion at specific points in the network can then be considered as well as the long term investment to increase capacity at specific links (or nodes) in the transport network. We show how the theoretical approach can be applied within the Sydney transport network. Importantly the approach promotes the emergence of speed - or its inverse, travel time - as the overriding determinant of a congestion index and its role in establishing optimal congestion charges.

The Mobility and Accessibility Expectations of Seniors in an Aging Population
Populations of post-industrial nations are aging. With a growing number of people living well into their 80's and maintaining active lives, the transportation system will have to start focussing more closely on understanding their mobility and accessibility needs, so as to ensure that specific requirements of this large segment are not being ignored through the promotion of traditional 'solutions' and historical assumptions. This research takes a close look at the evidence on the mobility needs and travel patterns of individuals over 64, distinguishing between the "young" elderly (aged 65 to 75 years) and the "old" elderly (over 75 years). This distinction is particularly useful in recognising the threshold of health change that impacts in a non-marginal way on mobility needs. This distinction also focuses transport planning and policy on a commitment to understanding the different needs of these subgroups of the population, identifying services and facilities that better cater for these groups. We review the evidence, in particular, on the mobility characteristics of the over 75 age group, including how they secure support through migration and settlement patterns. We use the empirical evidence from a number of western nations to identify the role of conventional and specialised public transport as an alternative to the automobile in meeting mobility and accessibility needs. In addition to the review study above, I have a three year project (2004-06) funded by the ARC Discovery Program.
Seniors in an ageing population (SAPS) are a significant and growing segment of the population. As (relatively) cash rich and time poor, they have very high expectations in respect of levels of accessibility and mobility required from the transport system, as well as from other supporting networks. We currently lack policy-rich travel demand models to assist in understanding the complex dynamics that influence the travel activities of SAPS. Using ideas from stated choice methods, interactive agency choice experiments, panel econometrics and behavioural discrete choice models we propose a research program designed to understand these demands. Special focus is given to support networks and the ways in which these impact on the demand for car and public transport use, as well as meeting the access needs to health-support and leisure facilities and to supporting networks of family and friends.

Predicting Financial Distress Using Reported Cash Flows: an Ordered Mixed (Random Parameter) Logit Model – initially 2004 with Stewart Jones
Previous research examining the incremental information content of operating cash flows (CFO) and traditional accrual measures in financial distress prediction has been inconclusive. Many studies have employed some estimate of CFO, rather than reported CFO of firms. In most cases modelling has been confined to a simple binary logistic analysis, discriminant analysis or a rudimentary multinomial approach. Using a more robust four-state random parameter (ordered) logit design, ratios based on reported CFO were found to have higher predictive value than estimated CFO, including a cohort of traditional accrual ratio measures. The advantages of using advanced discrete choice models by researchers in this field, including their econometric implications, are discussed.

Taking advantage of priors in estimation and posteriors in application to reveal individual-specific parameter estimates – with William Greene and John Rose
A number of papers have recently contrasted classical inference estimation methods for logit models with Bayesian methods and suggested that the latter are more appealing on grounds of relative simplicity in estimation and in producing individual observation parameter estimates instead of population distributions. It is argued that one particularly appealing feature of the Bayesian approach is the ability to derive individual-specific willingness to pay measures that are claimed to be less problematic than the classical approaches in terms of extreme values and signs. This research takes a close look at this claim by deriving both population derived WTP measures and individual-specific values based on the classical 'mixed logit' model. We show that the population approach

may undervalue the willingness to pay substantially; however individual parameters derived using conditional distributions can be obtained from classical inference methods, offering the same posterior information associated with the Bayesian view. The technique is no more difficult to apply than the Bayesian approach – indeed the individual specific estimates are a by-product of the parameter estimation process. Our results suggest that while extreme values and unexpected signs cannot be ruled out (nor can they in the Bayesian framework), the overall superiority of the Bayesian method is overstated.

Contract Areas and Service Quality Issues in Public Transit
The introduction of contract regimes for the provision of bus services such as competitive tendering and performance-based contracts is usually premised on a prior assumption that the size of the physical contract area is given and that any policies related to interactions between contract areas such as integrated ticketing and fares are agreed to. This research reviews the evolving arguments that promote a review of contract area sizes before re-contracting and the positions supporting the benefits of service quality-related issues such as an integrated fares policy. Given that a number of analysts (in Sydney) are promoting the appeal of increasing physical contract area size to facilitate, amongst other reasons, an integrated fare regime, it is timely to set out the pros and cons for such reform to ensure that they are not counter-productive to the desired outcomes of the reform process. The arguments herein caution the support for too small a number of large contract areas on grounds of internal efficiency losses and limited gains in network economies (but support amalgamating very small contract areas). The existing empirical evidence tends to support contract areas currently services by fleet sizes in the range 30-100 regardless of urban development profile. Alternative ways of delivering cross-regional and broad-based network benefits are proposed.

Applied Discrete Choice Analysis – a Primer - with John Rose and William Greene
Over the last 30 years (at least) there has been a steadily growing interest in the development and application of quantitative statistical methods to study choices made by individuals (and to a lesser extent, groups of individuals). With an emphasis on both understanding how choices are made and forecasting future choice responses, a healthy literature has evolved. Recent reference works by Louviere, Hensher and Swait (2000) and Train (2003) synthesise the contributions. However while these two sources represent the state of the art (and practice), they are technically advanced and often a challenge for the beginner. Discussions with colleagues over the last few years have revealed a gap in the literature of choice analysis – a book that assumes very little background and offers an entry point for individuals interested in the study of choice regardless of their background. It is often more difficult to explain complex ideas in very simple language than to protect ones knowledge-base with complicated deliberations. This project is such a book, to be published by Cambridge University Press in February 2005.

Urban Freight Models: Establishing Supply Chain Models –with Sean Puckett and ongoing
As part of a five-year ARC Discovery Program (2002-06), the aim is to develop new approach to modelling the key travel choices associated with the movement of urban freight. A central focus is on understanding the interactive agency aspect of the supply chain within which freight movement decisions are made. Thus the decision on choice of supply chain alliance and structure precedes the specification and modelling on trip decisions such a routing and chaining. The long term goal is to have a suite of choice models that can be used to evaluate the impact of transport policies such as congestion pricing on freight movements.

Urban Public Transport Delivery in Australia: Issues and Challenges in Retaining and Growing Patronage -2004
Urban public transport continues to be a high priority social obligation of governments throughout the world. In some jurisdictions it is the prime responsibility of national governments, while in other localities it is a state or local responsibility. To varying degrees, public and private organizations deliver the services within a regulatory framework that has responsibility for the performance of suppliers in a wide range of market settings. Increasingly government subsidy support is being aligned to the patronage levels and market share of public transport. This research focuses on the challenges involved in retaining and growing patronage in the presence of the dominant automobile. We focus primarily on bus and rail services but recognise the valuable role of ferries and taxis in the delivery of public transport.

A Latent Class Model for Discrete Choice Analysis: Contrasts with Mixed Logit
The multinomial logit model (MNL) has for many years provided the fundamental platform for the analysis of discrete choice. The basic model's several shortcomings, most notably its inherent assumption of independence from irrelevant alternatives (IIA) have motivated researchers to develop a variety of alternative formulations. The mixed logit model stands as one of the most significant of these extensions. This research proposes a semi-parametric extension of the MNL, based on the latent class formulation, which resembles the mixed logit model but which relaxes its requirement that the analyst makes specific assumptions about the distributions of parameters across individuals. An application of the model to the choice of long distance travel by three road types (2-lane, 4-lane without a median and 4-lane with a median) by car in New Zealand is used to compare the MNL latent class model with mixed logit.

Models of Organisational and Agency Choices for Passenger and Freight-Related Travel Choices: Notions of Inter-Activity and Influence
The study of traveller behaviour has in the main treated each agent in a decision-network as an independent decision maker conditioned typically (and exogenously) on the socio-economic and demographic characteristics of other agents and at best on a set of exogenous variables representing the (perceived 'equilibrium') influence of other agents. In many literatures it has long been recognised that agency interaction plays a (potentially) significant role in the actions of individuals. Examples at the household, community and business level abound. McFadden (2001a,b) recently stated that a high priority research agenda for choice modellers is the recognition of the role of social and psychological interactions between decision makers in the formation of preferences. Manski (2000) came to a similar conclusion and offered a plea for better data to assist in understanding the role of interactions between social agents (promoting the role of experimental choice data). While the interest in (endogenous) interactions between agents involved in passenger travel activity is generally neglected, the absence is particularly notable and of greater concern with the renewed interest in the study of (urban) freight travel activity where a supply chain of decision-makers have varying degrees of influence and power over the freight distribution task. This research reviews the broad literature on interactive

decision making with a specific focus on choices made by interactive agents and the role of individuals in networks. A number of modelling perspectives are presented that use well established discrete choice paradigms. We highlight the challenges in designing data collection paradigms that are comprehensive, relevant and comprehendable by participating agents and suggest an agenda for ongoing research.

Congestion Pricing and the Optimal Provision of Public Infrastructure Goods: With Reference to Toll Roads
The research provides a theoretical framework for analysing the effects of public infrastructure provision on private sector productivity using the example of a transport network. Public infrastructure such as a transport network is assumed to be a (congested) public good. When the provision of this good is at the long run equilibrium level, consumers pay a price which reflects the (individually-determined) marginal productivity of the good and the supplier is also recovering all its opportunity costs. In practice, the determination of the optimal level of provision of a public infrastructure good is not always an easy matter because of the (semi) public good nature of the infrastructure good. The set of 'Lindahl prices' which are supposed to be levied on each individual user to reflect the individualised marginal productivity of the public good are not easily determined or observed. Fortunately, in the case of a 'congested' public good such as a tolled road, it can be shown that congestion can act as though a kind of implicit tax, or 'Lindahl prices' which will help to reveal the individual user's true willingness-to-pay for the public good. If we can estimate the level of these implicit taxes from the level of congestion and the aggregate level of demand associated with this level of congestion, then we can use these to estimate the (*aggregated*) Lindahl prices which will help in determining the optimal level of provision of the public good. Congestion thus can act as though a kind of 'invisible hand' which helps to restore equilibrium in the case of a congested public good. We illustrate this with an empirical calculation for an actual road network.

Respondent Burden in Choice Experiments: Does Temporal Burden-Spreading Help?
A feature of choice experiments that continues to concern many analysts is the impact of the choice task itself on choice responses. As we show the behavioural merits of increasingly more demanding choice tasks to evaluate, we impose additional burdens on respondents. While in reality individuals seem able to make decisions by evaluating alternatives in complex (often sub-conscious) ways, we still struggle with how best to replicate that process in a way that captures the data necessary to formally model the choice process. This research investigates the variability in choice response when we offer choice experiments under a number of alternative data collection paradigms. The alternatives are based on the number of choice experiments and the elapsed time between requests for data response. Holding the actual design alternatives and attributes fixed, we compare a 32 choice set in which we offer all 32 at one time, 16 sets over two sittings, and 8 sets over four sittings. We space the sequenced interviews apart by 7, 14 and 21 days. The main hypothesis is the impact on variability of choice response and a range of valuation outputs of exposure to a specific number of choice sets over a period of time ranging from all at once to a spread of 21 days. We use a convenience sample of 90 respondents (yielding 960 observations per setting or 2880 in total) and a toll vs free road trade off on toll cost, travel time, and travel time variability (ie reliability) for three unlabelled alternatives.

Performance-Based Quality Contracts for the Bus Sector: Delivering Social and Commercial Value for Money
Reform of the bus sector has been occurring in many countries. One matter central to these reform initiatives is the establishment of a value for money (VM) regime to ensure that operators deliver to the market the best possible service levels consistent with stakeholder needs and especially the objectives of government. A key underlying feature of 'value for money' (VM) is identifying the benefit to society associated with each dollar of subsidy support from government. This research reviews the elements of a VM regime within the setting of an incentive-based performance contract and develops a formal framework for establishing optimum subsidy based on system-wide maximisation of social surplus. The maximisation of social surplus is subject to a number of constraints including the commercial imperative of the operator, minimum service levels under community service obligations and a fare and subsidy budget cap. An important feature of the performance-based contract (PBC) regime is a passenger trip-based incentive payment scheme linked to user and environmental externality benefits incorporating a subsidy per additional passenger trip above the patronage delivered under minimum service and fare levels. In this way, rewards to operators are revealed through the fare box, through increased consumer surplus and through reductions in negative externalities associated with car use. PBCs can be designed to accommodate both transition from an existing regime and post-transition growth strategies. The implementation of performance-based contracts is illustrated using data from private operators in the Sydney Metropolitan Area

Performance-Based Quality Contracts in Bus Service Provision
Institutional reform of the bus sector in Australia is a topical discussion item at present. A specific focus is on ensuring a value for money (VM) regime to identify the benefit to society associated with each dollar of subsidy support from government. This research argues that a Performance Based Contracting (PBC) regime offers the best prospects of achieving a systemwide value for money outcome. It proposes a reward system for bus operators that combines payment for delivering a minimum level of service (MSL), that meets government community service obligations, plus an incentive regime that rewards operators for patronage increases (above MSL patronage levels). The patronage incentive is based on expected user and environmental benefits deriving from service improvements and patronage increases. Cost benchmarking at relevant best practice levels is proposed to ensure remuneration is based on efficient cost levels. The research argues that a PBC approach is consistent with maximising social surplus from public transport provision across a geographic area, for any given budget constraint. The main alternative, Competitive Tendering, is argued to be less efficient than PBC's in terms of securing the maximum social surplus to the community given the total amount of subsidy support available.

Mixed Logit Models: the State of Practice
The mixed logit model is considered to be the most promising state of the art discrete choice model currently available. Increasingly researchers and a few practitioners are estimating mixed logit models of various degrees of sophistication with mixtures of revealed preference and stated preference data. It is timely to review progress in model estimation since the learning curve is steep and the unwary are likely to fall into a chasm if not careful. These chasms are very deep indeed given the complexity of the mixed logit model. Although the theory is relatively clear, estimation and data issues are far from clear and indeed there is a great deal of potential mis-inference consequent on trying to extract increased behavioural realism from data that is often not able to comply

with the demands of mixed logit models. Possibly for the first time we now have an estimation method that requires extremely high quality data *if* the analyst wishes to take advantage of the extended behavioural capabilities of such models. This research focuses on the new opportunities offered by mixed logit models and some issues to be aware of to avoid misuse of such advanced discrete choice methods by the practitioner

Valuation of Travel Time Savings: A New Sydney Study
The valuation of travel time savings estimates used in Sydney have been updated for many years from relatively old data sources and methods. Commissioned by Transfield, we developed a state of the art laptop based stated choice experiment in which a sample of car commuters, car non-commuters, and organizations using light commercial and heavy vehicles for goods and services distribution were interviewed to identify willingness to pay for various toll charges and collection/payment mechanisms. The setting is the current and future tollroads in Sydney.

SQI: A Service Quality Indicator for Urban Bus Operations – Development Phase
Building on the 1999 pilot study that identified the potential for a new service quality index for urban bus operations, this development phase involved the State Transit Authority of NSW and Busways in further detailed refinement of the SQI measure. We divided each operator into a number of route-based segments and surveyed a sample of passengers in each segment using a stratified random sample. As a benchmarking exercise we developed a joint discrete choice model (using a nested logit trick) with the capability of scaling each segments parameter estimates in recognition of the data being drawn from different sampled populations. Ignoring such scaling leads to a notable reordering of the SQI performance of each segment. Suggested mechanisms for introducing SQI into contract specification are presented.

TRESIS: Transport and Environment Strategy Impact Simulator
The Institute of Transport Studies has recently released Transportation and Environment Strategy Impact Simulator (TRESIS) as a decision support system to assist planners to predict the impact of transport strategies and to make recommendations based on those predictions. A key focus of the simulator is the richness of policy instruments such as new public transport, new toll roads, congestion pricing, gas guzzler taxes, changing residential densities, introducing designated bus lanes, implementing fare changes, altering parking policy, introducing more flexible work practices, and the introduction of more fuel efficient vehicles. The appropriateness of mixtures of policy instruments is gauged in terms of a series of performance indicators such as impacts on greenhouse gas emissions, accessibility, equity, air quality and household consumer surplus.

TRESIS Version 1.0 is provided exclusively to the Bureau of Transport Economics. This version is the 1995 ITS-BTCE source code, extensively edited and restructured to increase the performance of the code. The software can be applied on six capital cities in Australia (Sydney, Brisbane, Melbourne, Canberra, Perth and Adelaide). A user friendly input and output interface has also been added using the latest map objects and Boolean tools. In 1995 a typical run for one policy instrument for the years 1993-2017 took up to 12 hours. The combination of a streamlined code and faster computers has reduced this time to minutes. For example, a single policy evaluation for Canberra for 1993-2017 on a Pentium III with 128 MB of ram and 32 bit virtual memory (under Windows 98) takes about 9 minutes. TRESIS version 1.4, a major upgrade of version 1.0 (with intermediate test versions 1.2, 1.3) was released in early 2003 and updated base year to 1998 as well as adding new features to select the number of synthetic households and a new joint departure-mode choice model for commuters and is specialised at this stage to Sydney. TRESIS version 2 is in progress and is a major overhaul including extensive new networks for highway and public transport modes (bus, ferry, rail, busways, light rail). It replaces the 14-zone system of version 1.4 with 904 zones and has placed the entire architecture on a built-in GIS platform. No additional support software is required.

Tolled Cross City Tunnel in Sydney
Transfield, Multiplex and a major Warburg Dillon commissioned me to provide expert advice in the preparation of a bid to build, finance and operate a proposed tolled tunnel under the central business district of Sydney. The main focus was on appointment of sub-consultants and directing the travel demand research.

Evaluating the Value of Four Lane Roads in New Zealand
For Transit New Zealand, we developed a stated choice experiment in which car and truck drivers were asked to trade-off various attributes of three alternative road specifications (one lane each way and no median, 2 lanes each way and no median and two lanes each way with a grass median). Particular focus is on the benefits to users in respect of minimising tail gating and reducing subjective risk.

Evaluation of an Inland Freight Rail way between Melbourne and Brisbane
The Australian Transport Energy Corridor (ATEC) Pty Ltd engaged me to provide expert advice and sit on the executive board as part of a pre-feasibility study into the commercial base for an inland rail freight system. I had the additional road of advising the Deputy Prime Minister and Federal Minister of Transport on the merits of the infrastructure project. Advice was provided to Maunsell McIntyre, Macquarie Bank and Access Economics.

Commuter Coping Strategies during the Sydney Olympics
The Olympics Road and Traffic Authority has provided partial funding for a four-wave survey of Sydney commuters, designed to monitor their intentions leading up to the Olympics and to observe actual plans during the Olympics in respect of how they will cope with the increased traffic and disruption. Through a four wave panel we can identify how reliable stated intentions are prior to the Olympics. We specifically focus on the range of coping strategies of commuters, the support they get from their employers as well as employer constraints that limit the options. As well we have investigated how effective the marketing campaigns have been in reducing the amount of commuting travel during the Olympics.

Freight Strategy 2010 for NSW

The Road and Traffic Authority commissioned me to design and facilitate a consultative workshop on the NSW Freight Strategy 2010, held on 25 February 2000. A report was prepared following the workshop that integrated all of the discussion. Key themes developed included the broadening of the freight task to recognise the complexities of the entire logistics chain, the growing emphasis on a multi modal perspective and the move away from the unproductive debate on road vs. rail, the need for more research to gain a better understanding of the industry and opportunities for change, and the major constraints on the freight task due to badly located of inefficient terminals and hubs. Follow one work integrating this workshop information into the Freight Strategy document was also undertaken.

Developing a Parking Demand Capability for Parramatta City Council
Parramatta City Council engaged ITS to undertake a Stated preference and revealed preference survey of commuters and non-commuters travelling to/from Parramatta city centre by car and public transport. A series of SP-RP surveys were undertaken and the data used in the estimation of nested logit models that produce utility expressions for parking off-street, on-street and using bus and train.

Modelling of induced demand
Prepared for the Roads and Traffic Authority of NSW (Traffic Technology Division),the objective of this study was to identify an appropriate mechanism for empirically estimating the magnitude of induced traffic demand in the presence of new road infrastructure. There were three key elements to the review process: 1. the establishment of an appropriate functional form for a generative model of travel demand that explicitly accounts for changes in levels of service (typically represented by an index of generalised cost), 2. the nature of data required to estimate such a model to reveal appropriate elasticities of demand, and 3. in the absence of an ability to estimate the generative model locally, to source elasticities from the extant literature that represent the range over which local evidence is most likely to reside.

Determining the demand for regional air services in Samoa
The Government of Samoa and the Samoa Airport Authority (SAA) have received an infrastructure related loan from the World Bank to undertake a study titled ' Minor Airports Economic, Financial and Policy Study'. As part of this larger study, a passenger market survey is to be undertaken. The Institute of Transport Studies (ITS) was engaged by Aviation and Tourism Management Pty Ltd to develop a series of survey questions and a survey instrument for implementation at the key airports in Samoa. Discrete choice models were estimated to obtain estimates of values of travel time savings for used in a benefit-cost study to evaluate the closure on the airport at Fagalii.

Identifying Passenger Flows at a City-Pair level for a Regional Airlines New Hub
For the ACT Government and Canberra Airport, developed a route choice model at a city pair level based on existing service connectivity and applied the model to a new hubbing configuration to establish potential gains in passengers.

Design and Implementation of a Vehicle Replacement System
To enable bus and coach operators to optimise on their fleet replacement, we developed a software capability to plan the replacement of vehicles subject to cost minimisation and constraints on budget available, maximum average fleet age, compliance with accessible transport (DDA) codes. Operators can use the software to undertake vehicle replacement over a s many years as required, with options to select the amount of money to spend each year.

Development of a Quality of Service Indicator for Urban Bus Services
As part of a review of the proposed amendments to the NSW 1990 Passenger Transport Act that will require a greater focus on performance assessment, ITS undertook a major survey of 32 bus operators in Sydney seeking data on their financial position as well as data from a sample of passengers. A Stated choice experiment was developed based on attributes of importance to users of bus services, and used to obtain a customer-based indicator of service satisfaction. This indicator was used in a cost model to identify the incremental cost to an operator of improving service levels in accordance with compliance with a performance assessment regime based on benchmarking best practice.

Valuation of Travel Time Savings for Car Drivers in New Zealand
For Transfund New Zealand in conjunction with Booz Allen, developed a computerised stated choice experiment to evaluate the trade-offs in travel time decomposed into free flow, congested circumstances, uncertainty of arrival time, operating costs and other road user charges. The data collected we used to estimate a series of discrete choice models to obtain new estimates of values of time for each trip purpose for urban and long distance settings, distinguishing mean estimates and variances due to the distribution of reliability and congestion.

Review of the Proposed Amendments to Parking Policy in Sydney CDB
For Secure Parking and World Square, reviewed the proposed Amendment No 9 Public Car Parking documents of Sydney City Council and identified the weakness of inverse pricing as a generic policy. We identified the benefits of a pricing scheme that allowed for the time of day that parking commenced in order to minimise the impact of parkers on traffic during periods of high congestion.

Estimation of the Sydney Travel Model System –Stages 1 and 2
In partnership with Hague Consulting Group (HCG) estimated the new suite of travel demand models for commuting behaviour as input into the updated STM system, being implemented for the Transport Data Centre of the NSW Department of Transport.

Evaluating the Impact of Alternative Pricing and Curfew Strategies on the Demand for Casual Parking in the Sydney CBD
For Secure Parking, a major supplier of parking in Sydney, designed a stated choice experiment and administered it to individuals parking in the CBD as well as accessing the CBD by public transport. The experiment was defined as a combination parking tariffs,

curfew hours and location. Direct and cross price and curfew elasticities were identified as well as scenarios of parking prices and curfew hours to identify changes in modal shares.

Forecasting the Demand for a Transit Way between Liverpool and Parramatta and on to Rouse Hill in Sydney
For the NSW Roads and Traffic Authority, undertook a pre-feasibility evaluation of the potential patronage and revenue from the introduction of a dedicated transitway. Applied a joint departure time and mode choice model estimated on revealed and stated preference data, capable of handling the new alternative 'busway' system.

Evaluation of the Attorney General's Draft Regulator Impact Statement on Accessible Transport
Reviewed the cost and revenue estimates associated with the requirements for full compliance by the bus sector with the Disability Discrimination Act. Specific issue is the additional costs and possible revenue associated with compliance over the time frame permitted.

Scoping Study for the Prioritising of Energy/Emissions and Waste Management Projects for the Bus and Coach Sector
For the Greenhouse Challenge Unit, ITS was engaged to consult with the key stakeholders in the bus and coach sector (operators, body builders, chassis manufacturers, regulators and industry associations) to identify a series of demonstration projects which might assist in reducing greenhouse gas emissions at one of more phases in the supply chain.

M2 Motorway Patronage Study
For The Hills Motorway Company and TollAust, ITS undertook a very large survey of current and potential users of the M2 tollroad to identify current origin-destination patterns and in particular what marketing strategy should be put in place to attract more heavy vehicle usage.

The 1997 ABCA Fact Sheet
The bus and coach industry requests ITS to update its fact sheet from time to time which is used as an information and marketing tool to highlight the contribution and importance of the bus and coach industry to the transport task.

Distributed Work and the Prospects or Telecommuting to Reduce Traffic
ITS has commenced a major study of the role that alternative work practices might have in contributing to reductions in vehicle use and hence traffic congestion as well as the impacts on global warming and air quality. Together with Ann Brewer, I am developing a number of new analytical tools centred on game theory and interactive choice experiments, to gain a better understanding of the constraints associated with employer's and employee's support or otherwise for alternative work practices

Development of Marketing Flyer for the Opening of the M2 Tollroad in Sydney
As part of the overall promotion of the M2 Tollroad, developed a marketing brochure to highlight the potential time savings for trips between various origin as and destinations by the M2 compared to the existing road system in the presence of the M2, which opens on May 19. We undertook a time trial study to obtain accurate travel times on existing routes.

Redesign of the Sydney Travel Model System
For the Transport Data Centre/NSW Department of Transport, together with Hague Consulting Group, redesign of the urban passenger model system which has been in place in its current form since 1981. The major tasks are stakeholder workshops to establish the policy and application agenda to ensure that the new model system is policy useful, to review the existing model system and data requirements, to review world practice and to develop a detailed set of specifications for a new model system.

Industry Inputs into the Freight Transport Strategy for NSW
For the Roads and Traffic Authority of NSW, discussion sessions and telephone survey with key industry organisations involved in logistics, freight forwarder activities, manufacturing, haulage etc; to establish their specific concerns about existing road and rail infrastructure, and to comment on future infrastructure plans. A key feature was the identification of the strategic plans of industry in respect of consolidation, decentralisation etc.

High-Speed Rail between Sydney and Canberra
For the Speedrail Joint Venture, a market feasibility study to evaluate the revenue and passenger potential from diverted, induced and growth sources within the corridor up to the year 2000. Switching mode choice models were estimated using data collected on the choice between a current mode and high speed rail, distinguishing fare classes for air and high speed rail. Ongoing advice over period 1994 to current.

Roads in the Urban Community
For Austroads, a review of the broader role of roads in the urban context, emphasising urban design, multi-modal provision and institutional environment. Roads provide the major infrastructure for moving passengers and freight in urban areas, yet are constantly subject to criticism from various communities of interest. This study is designed to provide a more balanced set of arguments in the debate on the role that roads have played and are likely to play in the future, beyond their role as means for enhancing movement. Performance criteria are developed as a way of measuring success in achieving the main outcomes of growth, equity and sustainability.

Review of Empirical Evidence on Public Transport Fare Cross Elasticities
For the NSW Government Pricing Tribunal, undertook a review of the empirical evidence associated with fare levels and fare structures for bus, rail and ferry modes. The study is a precursor to a formal empirical study to obtain Sydney-specific elasticities associated with alternative regimes of fare structures and levels. In addition GPT subsequently hired ITS to develop a new set of direct and cross fare elasticities for commuters and non-commuters for train, bus, ferry, jet cat and car for Sydney. The fares were

distinguished by ticket type to generate a rich 15 by 15 elasticity matrix. The study was repeated to evaluate the role of timed fares for Newcastle Buses.

Development of a Three Year Strategic Travel Model for Sydney
For the Transport Study Group NSW and The Department of Transport, to review international best practice and the state of the art in travel demand modelling, network analysis and land use - transport model systems within a framework which provides outputs relevant to the client base. The project proposed a strategic implementation plan for the TSG NSW.

Urban Crash Rates and Road Stereotypes
For the NSW Road Safety Bureau, using a rich data set on location-specific characteristics of intersections and mid-blocks, to develop a statistical procedure to identify the influences of crash rates, and to classify roads on a number of criteria so that indicative crash rates can be identified under particular road geometry, adjacent land use and other characteristics of a particular road location.

Identification of Traffic Switching to a Tolled Tunnel and Determination of Behavioural Values of Travel Time Savings
For the Roads and Traffic Authority (NSW), to identify the diversion of traffic in the presence of a proposed tunnel at Taylor Square (Sydney), as part of a study of private financing of public infrastructure. A stated choice experiment was designed to establish trade-offs amongst alternative toll and travel time levels. Probabilistic diversion curves for 5 trip purposes were developed.

Greenhouse Gas Emissions and Urban Passenger Transport
A two-year research study commissioned by the Bureau of Transport and Communications Economics, designed to develop a strategic simulator to evaluate the impact of a large number of transport strategies on greenhouse gas emissions. Technological, behavioural and locational strategies will be investigated, using a new data base collected for each of Australia'a capital cities.

Air Quality and the Demand for Alternative Fuelled Passenger Vehicles
Working with the Institute of Transportation Studies at the University of California (Irvine), I participated in an advisory role in the specification of the vehicle choice modelling system. This project is designed to identify the potential market for electric vehicles, and the take up rate.

The Proposed New Passenger Transport Act in Queensland
For the Passenger Transport Review of Queensland Transport, a critique of the proposed new policy was undertaken, giving particular attention to the minimum levels of service proposed, the predicted patronage take up, and the financial implications for commercial operations. The report was used in the finalisation of the new policy.

Identifying the Social Value of the Sydney Passenger Rail System
For Cityrail, developed and implemented a procedure to evaluate the social value of the Sydney passenger rail system. The key emphasis was on the impact that a substantial fare increase would have on the saving in subsidy and the change in social surplus. The evaluation of complete closure of the system was investigated. Software was developed to evaluate the options.

Performance Measurement in the Urban Bus Sector

For the Industry Commission Inquiry into Urban Transport, a survey of a sample of private bus operators in Sydney, Melbourne and Brisbane and all Public Transit operators was undertaken to obtain data for identification of total factor productivity (TFP). The aim of the study is to establish benchmarks of relative performance and to identify the role of institutional and regulatory constraints on productivity

Aggregate Measures of Performance in the Road Sector

The National Road Transport Commission (NRTC) has the function of providing assistance to road authorities in the development of indicators for assessing the performance of the road system, as well as the relative efficiency and effectiveness of the authorities in managing the road system. This study, commissioned by NRTC, overviews aggregate measures of performance, the alternative methods available for quantifying these measures, and the data required to empirically determine relative efficiency and effectiveness.

Monitoring of the Shellharbour Demand-Responsive Bus System

For the Shellharbour Shire Council, an 18-month monitoring program has been developed to evaluate the benefits and costs of a demand-responsive local bus service which incorporates phone-booked route-deviation services in the context of conventional route services. The German IBIS system is used to provide real time communication with the driver to enable immediate advice to the person requesting a pick up as to the expected arrival time. The project involves monitoring patronage and revenue, undertaking on-board bus surveys and non-user surveys, a financial assessment, a formal cost-benefit analysis, and in documenting the experiences from the overall approach adopted to execute a demonstration program.

Competitive Tendering of Service Contracts in the Public and Private Sectors

As an activity under an ARC grant jointly with Simon Domberger, this study was concerned with measuring the performance of service contracts in the public and private sectors. The project builds on research concerned with establishing the efficiency gains from competitive tendering. An important issue is the identification and control of quality in contract execution. Detailed surveys of organisations in NSW, with reference to cleaning and waste management contracts have enabled us to identify the conditions under which contract performance is improved.

PIMMS - Pricing and Investment Multi-Modal Urban Transport System

ARC grant. This study is a long-term inquiry into the development and application of an improved way of evaluating transport infrastructure investments in major urban areas. Particular features of the study include the valuation of a wider range of environmental and social impacts, a set of alternative travel choice decisions driving travel demand and hence aggregate flows, more detail on the composition of locations in order to evaluate a wider set of urban spatial scenarios associated with density, form and service provision. The major output will be enhanced evaluation software to link in with general transport planning tools such as EMME/2.

Development of a Strategic Framework for Bus Priority Systems

For the NSW Department of Transport, a strategy paper was prepared to assess the role of bus priority systems in urban areas. The debate on the role of light rail in contrast to bus priority is assessed, and guidelines developed to assist in establishing the context in which bus priority systems are an appropriate public transport strategy.

Development of a User Route Evaluation Kit for the M4 Tollroad

Undertaken for Statewide Roads Pty Ltd, this project involved the design of a route choice evaluation kit to enable potential users of the Tollroad to compare the times and costs with the existing non-tolled route. An important feature of this study was the establishment of vehicle operating costs for particular road sections as well as travel times. Time trials were undertaken using a carefully designed sampling strategy to measure peak and off-peak directional travel times and costs. Brochures for car and truck users was designed and marketed.

Evaluating Alternative Strategies to Improve the Fuel Efficiency of Passenger Vehicles in Australia: 1988 - 2005

Nelson English, Loxton and Andrews, and Ecologically Sustainable Development Transport Working Group. The central focus of this project was on forecasting household automobile energy demand. The objective was to outline the way in which the household based automobile demand modelling system can be used to evaluate the fuel consumption and energy demand implications of technology possibilities and a number of policy instruments including higher sales tax for fuel inefficient vehicles and higher fuel taxes overall.

Productivity of Australian Railway Systems

ARC Grant. A database on Australia's railway systems has been developed to calculate productivity measures to determine performance of the systems over a 20 year period from 1971/72 to 1990/91.

Review of Sleeper, Motorail and Dining Car Services to Northern NSW

NSW Department of Transport. Development of a market study for the demand for sleeper, motorail and dining car services in order to establish the role of prices and quality of service attributes in determining the market for alternative service levels.

Determination of Commercial and Non-Commercial Bus Route Services

South and West Division of the State Transit Authority of NSW. The implementation of a study to identify which existing route services recover full costs of service provision and which route services require subsidy. Models were developed using data from an On-board survey as well as existing STA data sources to identify economically viable routes.

Externality Benefits of Public Transport Subsidies

NSW Ministry of Transport. Developed the methodology, the frame of the software, compiled the data base and undertook the analysis to establish the benefits of eliminating the bus and ferry subsidy in NSW. This project has been extended to rail systems in 1993.

Attitudes and Preferences Towards Buses in New South Wales

NSW State Transit Authority. Designed the stated preference experiment and questionnaire format, developed a set of econometric and marketing attitudinal models to predict the impact on image of service improvements.

The Very Fast Train Passenger Market and Feasibility Study

VFT Joint Venture. Overall coordination for the management team and the joint venture, designed the entire approach to survey design, data collection, base and forecast model systems and analysis. On behalf of the joint venture, also made the formal presentations to the Government bodies coordinating advice to government in NSW, Victoria and the ACT.

An Analysis of the Economic Conditions of the Long Distance Trucking Industry

Federal Office of Road Safety. Designed and implemented a study to investigate the economic conditions in the long distance trucking industry in Australia and to analyse the links with those conditions and road safety.

Greenhouse Emissions and Transport Fuels: Fuel Price Effects

Bureau of Transport and Communications Economics. Using available time series data a number of econometric models were developed to obtain Australian estimates of fuel price elasticities of energy demand for all major transport fuels (e.g. aviation turbine fuel).

The F5 Freeway Study: The Feasibility of an Urban Tollway in Sydney

For the State Bank of NSW, we designed and executed an empirical study of potential user demand for an urban tollway, data analysis and forecasting.

Economic Evaluation of Airports in Remote Communities with reference to the Pilbara Region of Western Australia

Federal Department of Aviation joint with McDonald Wagner. Developed the economic methodology for the overall study, advised on data needs, analysis procedures and forecasts.

The Value of Travel Time Savings for Air Travel

Federal Department of Aviation. Specialist adviser reviewing the overall design, conduct, analysis and resulting values of travel time savings.

The Dimensions of Automobile Demand

National Energy Research Development and Demonstration Program. Designed the methodology, the panel data set, the econometric procedures, the data collection approach and the analysis process.

The Private Bus and Coach Industry in Australia: Its Performance and Role

Bus and Coach Association of Australia. Designed the overall approach, the survey instrument, coordinated data collection, undertook analysis and modelling.

Forecasting Attendance at a Proposed Bicentennial Exposition

Australian Bicentennial Authority. Designed methodology, stated choice experiment, coordinated data collection, data analysis, modelling and forecasting.

Residential Location of Students

Polding College of Advanced Education. Designed survey instrument, estimated residential location choice models, developed policy outputs to aid in planning assistance.

The Royal Commission of Inquiry in the Kyeemagh-Chullora Road Plan

The Commission. Economic adviser to the Commissioner, commentary of the public submissions and the Government documentation.

Development of a Framework within which Traffic Forecasts can be Developed for the Oresund Road Bridge Between Denmark and Sweden

National Road Administration of Sweden. Designed the methodology and advised on its implementation.

Evaluating the Impact of a 20% Fare Reduction on Rail Services in Sydney

Commonwealth Bureau of Roads. Designed the approach, coordinated data collection, modelling and analysis.

Determining the Influences on Radio Station Revenues in Australia

Mintel. Econometric modelling, data reformatting, forecasting revenues.

Review of Individual Choice Modelling

Department of Housing. Assessed the literature and proposed guidelines for implementation of the methods in the context of housing choice.

Small Business Systems in Telecommunications

Telecom Australia joint with Logica. Designed the survey instrument and modelling strategy, undertook the econometric analysis and results interpretation.

The Demand for PABX Telecommunication Facilities

Telecom Australia joint with IMG. Designed the approach to the topic, assisted in survey design and data analysis.

Behavioural Choice Approach to Market Segmentation for Forecasting Future Telecommunication Products

Telecom Australia joint with MSJ Keys Young. Adviser on overall approach and data analysis.

Effect of Re-opening the Tasman Bridge on Mode and Route of Travel

Department of Public Works, Tasmania. Adviser on monitoring procedures, design of survey instruments, analysis of data.

ACTIVITIES:

Series and Volume Editor (jointly with Prof Ken Button) of Pergamon/Elsevier *Handbooks in Transport*, 1999 to present (6 volumes completed up to end of 2005 and a revised volume 1 in 2006-07).

Series and Volume Editor of Edward Elgar Books on *Transport and Valuation Studies*, 2011-2014.

Editorial Boards:

Editorial Advisory Board, Transport Findings, an Open Access Journal, (October 2018 to present)
Editorial Board of Journal of Strategic Contracting and Negotiation (February 2015 to present)
Editorial Board of International Journal of Quality Innovation (November 2014 to present)
Consulting Editor, Transportmetrica C: Travel Behaviour and Society (Oct 2012 to present)
Editorial Board of Research in Transportation Economics (RETREC), Elsevier, (August 2012 to present).
Editorial Board of Traveller Behaviour and Society, Elsevier, (2013 to present).
Editorial Board of Case Studies of Transport Policy (CSTP), Elsevier, (October 2012 to present).
Area Editor, Transport Reviews, Taylor and Francis Ltd., London (Jan 1985 to July 2022).
Associate Editor, Journal of Tourism Studies (May 1989 to 1993).
Editorial Advisory Board of Transportation - Elsevier Publishers (September 1975 to February 2023).
Editorial Advisory Board of Journal of Asian and Pacific Transport (November 1994 to present).
Editorial Advisory Board, Transportation Research A - Elsevier (June 1978 to present).
Editorial Advisory Board, Transport Policy and Decision Making - Martinus Nijhoff Publishers, The Hague (August 1978 to 1987, journal discontinued). Guest Editor of Two Issues on "Future of the Automobile" (1981 - 82).
Editorial Advisory Board, International Journal of Transport Economics (July 1982 to present).
Editorial Board, Logistics and Transportation Reviews- Universities of British Columbia and California at Berkeley (Nov 1985 to 2021, 1997 became Transportation Research Part E).
Editorial Board Member, Journal of Transport Economics and Policy (Feb 1988 to present).
Editorial Board, Transport Policy, Butterworths (new journal in 1993)
Editorial Board, Journal of Transport Planning and Technology (1989 to present)
Editorial Board, Journal of Retailing and Consumer Behaviour (new journal in 1994)
Editorial Board, Journal of Transport and Statistics (new journal 1997 to 2006 from the US Department of Transportation and the Bureau of Transportation Statistics, journal revived 2011 onwards)
Editorial Board, Perspective's on Transport: The Journal of the World Conference of Transport Research Society (new journal commencing in 1999).
Editorial Board, Cooperative Transportation Dynamics (new online journal, (December 2001 to present)
Editorial Advisory Board Journal of Choice Modelling (online peer reviewed journal commenced 2007)
Editorial Advisory Board Journal of Transport and Land Use (online peer reviewed journal commenced 2007)
Editorial Advisory Board of Journal of Transport and Supply Chain Management (2008 to present)
Editorial Advisory Board of the European Journal of Transport and Infrastructure Research (2011 to present)
U.S.A. National Academy of Sciences, Transportation Research Board Committee on Traveller Behaviour and Values (November 1971 to present) (Founding Member).
Member U.S.A. National Academy of Sciences, Transportation Research Board Committee on Travel Forecasting (January 1985 to present).
Guest Editor of Special Issue of Transportation Research on Longitudinal Data Analysis Methods (1985).
Guest Editor of Special Issue of Transportation Planning and Technology on Competition and Ownership of Public Transit (1990).
Guest Editor of Special Issue of Transportation Research on Productivity and Performance (1992), Vol. 26A(6).
Guest Editor of a Special Issue of Transportation on the Practice of Stated Preference Modelling and Analysis (1994).
Guest Editor of a Special Issue of Transportation Research B on Behavioural Insights into Freight Distribution (2006-07).
Guest Editor of a Special Issue of Transportation Research A on Public Transport Reform (2007-08).
Guest Editor of a Special Issue of Transportation on Global Public Transport Reform (2007-08).
Guest Editor of a Special Issue of Journal of Transport Geography on Planning and Patronage (2007-08).
Series and Volume editor for Transport and the Environment, Edward Elgar publishers (2011-2013).
Volume editor for Transport Economics, Routledge (2011-2012).
Inaugural Editorial Board, International Journal of Quality Innovation (Springer), September 2014- present.
Editorial Advisory Board of Asian Transport Studies (ATS), EASTS (October 20143 to present) http://www.easts.info/publications/ats.html.
Guest Editor of a Special Issue of Transportation Research Part A on Mobility as a Service (MaaS) and Intelligent Mobility (2018).
Advisory Board of Transportation Research Part A, a new position for four distinguished scholars, 2020

onwards.

Professional Committees:

Chairman of Advisory Committee of Victorian Institute of Colleges set up to establish Bachelor of Business (Transport Economics) at Royal Melbourne Institute of Technology, 1973 - February 1977
Member of Australian Science and Technology Council Sub-committee on Transport Research and Development in Australia, 1978
Member of Road Transport Technical Committee, Australian Road Research Board, January 1980 - January 1983
Committee Member, PTRC (U.K.) Transport Planning Committee, 1988 - 1991
Member of Steering Committee to advise Commissioners of Main Roads, Australian Road Research Board, September 1983 to 1989
External Member of Queensland Institute of Technology Course Assessment Committee for Graduate Diploma in Business Administration, January 1983 to 1988
External Member of South Australian College of Advanced Education Course Assessment Committee for Bachelor of Business (Transport), 1986 to 1988
Member, Advisory Committee of Transport Research Centre, Melbourne University, 1991 to present
Nomination of Federal Minister of Land Transport for Part-time Commissioner of National Road Transport Commission
Foundation Treasurer, Australasian Transport Research Forum Council, 1991 to 1996.
President, International Association of Travel Behaviour Research, 1994 to 1997.
Vice-Chairman, International Steering Committee of the World Conference on Transport Research Society, 1994 to present.
Member, Australian Capital Territory Transport Reform Advisory Group, July 1995 to May 1996.
Member, NSW Dept of Transport Technical Advisory Committee, 1996 to present.
Member, Peer Review Committee for the NSW Strategic Transport Plan, 1998.
Member, Standards Committee on Logistics, Australia, 2007-present.
Board Member, ITLS (Africa) Board of Advice, 2008-present
Member of four-person academic advisory board of the John Grill Centre for Project Leadership, The University of Sydney, November 2012 to present.
Chair in Public Transport Reference Group (Transport for NSW), 2008-present.
NSW Connected and Automated Vehicle (CAV) Stakeholder Reference Group, 2017-present.
Infrastructure NSW Smart Cities Research & Academic Institutions Working Group, 2018.

Conference Committees:

Chairman of one of eight workshops of Second International Conference on Behavioural Travel Demand Modelling, Asheville, North Carolina, U.S.A. (May 1975).
Chairman - Third International Conference on Behavioural Travel Modelling, Tanunda, South Australia (April 1977).
Committee Member - Fourth International Conference on Behavioural Travel Modelling, Munich, West Germany (July 1979).
Committee Member - Fifth International Conference on Behavioural Travel Modelling, Maryland, U.S.A. (October 1982).
Co-Chairman (and Organiser) of 4th Conference of Australian Institutes of Transport Research (held at Macquarie University, December 8 - 10, 1982).
Chairman, International Conference on Competition and Ownership of Bus and Coach Services, Thredbo (N.S.W.), May 1989.
Chairman, the 15th Australasian Transport Research Forum, 1990.
Co-Chairman and Member of Executive Committee, Second International Conference on Privatisation and Deregulation in Transport, Finland, June 1991.
Scientific Committee Member - 7th International Conference on Travel Behaviour, Canada, 1991.
Chairman, 15th Conference of Australian Institute of Transport Research, December 1992.
Chairman, Scientific Program Committee, 7th World Conference on Transport Research, to be held in Sydney in July 1995.
Scientific Committee Member - 8th International Conf on Travel Behaviour, Chile, March 1993.
Co-Chairman and Member of Executive Committee, Third International Conference on Privatisation and Deregulation in Transport, Canada, September 1993.
Chairman, Fourth International Conference on Competition and Ownership of Land Passenger Transport, New Zealand, July 1995.
Special Adviser, Fifth International Conference on Competition and Ownership of Land Passenger

Transport, Leeds, UK, May 1997.
Scientific Committee Member - 9th International Conference on Travel Behaviour Research, Texas, September 1997.
Member, Steering Committee of the 21st Australasian Transportation Research Forum, Adelaide September 1997.
Member, Steering Committee of the 22nd Australasian Transportation Research Forum, Sydney, September 1998.
Executive Chairman, Sixth International Conference on Competition and Ownership of Land Passenger Transport, Cape Town, September 1999.
Chairman, 11th International Conference of the International Association of Travel Behaviour Research, Gold Coast, June 2000.
Executive Chairman, Seventh International Conference on Competition and Ownership of Land Passenger Transport, Molde, Norway, June 2001.
Member, Steering and Scientific Committees of the 25th Australasian Transportation Research Forum, Canberra, October 2002.
Executive Chairman, Eighth International Conference on Competition and Ownership of Land Passenger Transport, Rio de Janeiro, Brasil, September 2003.
Executive Chairman, Ninth International Conference on Competition and Ownership of Land Passenger Transport, Lisbon, Portugal, September 2005.
Executive Chairman, 10th International Conference on Competition and Ownership of Land Passenger Transport, Hamilton Island, Australia, August 2007.
Executive Chairman, 11th International Conference on Competition and Ownership of Land Passenger Transport, Delft, Holland, September 2009.
Member of Board of International Conference "The Capacity of Transport Systems: arcs, nodes, services and technologies", Italy 2009.
Executive Chairman, 12th International Conference on Competition and Ownership of Land Passenger Transport, Durban, South Africa, September 2011.
Executive Chairman, 13th International Conference on Competition and Ownership of Land Passenger Transport, Oxford, UK, September 2013.
Executive Chairman, 14th International Conference on Competition and Ownership of Land Passenger Transport, Santiago, Chile, September 2015.
Executive Chairman, 15th International Conference on Competition and Ownership of Land Passenger Transport, Stockholm, Sweden, September 2017.
Executive Chairman, 16th International Conference on Competition and Ownership of Land Passenger Transport, Singapore, September 2019.
Executive Chairman, 17th International Conference on Competition and Ownership of Land Passenger Transport, Sydney, September 2022 (deferred from 2021 due to COVID-19).
Executive Chairman, 18th International Conference on Competition and Ownership of Land Passenger Transport, Cape Town, September 2024.

Professional Associations:

Economic Society of Australia
Transportation Research Board (U.S.A.).
Australasian Transport Research Forum (Founding Member).
American Transportation Research Forum.
Chartered Institute of Logistics and Transport (U.K.). (CILTA)
World Conference of Transport Research Society (Scientific Chair 1995, Vice-Chair, 1996-2000)
International Association of Travel Behaviour (President 1993 to 1997)
American Planning Association
Australian Institute of Traffic and Planning Management (AITPM)
Australian Institution of Engineers (Engineers Australia).

Adviser To:

Swedish National Road Administration, Stockholm (July - September 1975).
Bureau of Transport Economics, Canberra (September 1976 to Dec 1983).
M.S.J. Keys Young Planners, Sydney (1977 - Dec 1979, 1986 to 1989).
Implementation and Management Group, Sydney (1977 - November 1981).
Logica Pty. Ltd (November 1981 to December 1982).
New South Wales State Transport Study Group, Sydney (Sept 1976-Dec 1979).

John Paterson Urban Systems, Melbourne (1973-74; Sept 1976- Dec 1977).
McDonald Wagner and Priddle (and ACCA), (June 1983 to July 1986).
Planning Workshop Pty. Ltd (August 1984 to January 1985).
GHD Transmark (British Rail Consultancy), (1986 to 1988).
Very Fast Train (VFT) Joint Venture (August 1986 to present).
The Commissioner of Inquiry into the Kyeemagh-Chullora Road Plan (September 1979 - February 1980).
The Urban Transit Authority of N.S.W. Committee on the Reform of Transit Legislation, 1988.
The State Bank of New South Wales [Merchant Banking Division], private financing of transport infrastructure (1987-1988).
N.S.W. Ministry of Transport [Tendering, private financing] (1988 to 1990).
Member of the International Advisory Board of EURONETT, a project on transport futures in Europe (1989).
National Survey Research Pty. Ltd (1988 to 1990).
Nunawading, Ringwood and Box Hill Councils, Melbourne (1991).
Bureau of Transport Economics (1990 to present).
Australian Airlines
Statewide Roads Pty Ltd (1992)
Roads and Traffic Authority of NSW (1991 to present)
Auckland Regional Council (1992)
Travers Morgan Consultants (1986-1995)
Industry Commission (1993)
Federal Airports Corporation (1993 - 1995)
Queensland Transport (1993)
Dennis Johnston and Associates (1993)
Institute of Transportation Studies, University of California at Irvine (1993 to 1998)
Bureau of Tourism Research (1993 to present)
Government Prices Tribunal of NSW (1994 to 1998)
ACT Government (1998)
SKM Economics (1997 to present)
Secure Parking (1998-99)
Allen Consulting (1999)
ATEC (Inland freight railway) - member of Executive Directorate (1999 to present)
TRC Africa (2001)
Transfund New Zealand (1999 to present)
Transfield (2000 to present)
NSW Treasury (2002)
ABN Amro Bank (2002)
Price Waterhouse Coopers (2002 to present)
National Economic Research Associates (2002 to present)
Parsons Brickenhoff (2003 to present)
Macquarie Bank (Infrastructure Projects, 2003 onwards)
Theiss Construction (2002 onwards)
AAMI Insurance (on the crash index) 2005
Transit NZ (toll road projects, 2005-06)
Land Transport New Zealand (Passenger Transport Reform, 2005-06)
Saha International (2006)
Rand Europe (2006)
Frontier Economics (2007)
UK Department for Transport (2007)
Ministry of Transport (NSW) now Transport for NSW (TfNSW) (2007 to present)
Appointed (2007 to present) by the Singapore Minister of Transport (Raymond Lam) to the Land Transport Authority six member International Advisory Panel. The Panel will advise on international best practices and trends in transport policies, planning and development strategies of cities around the world; evaluate and provide feedback on the Land Transport Review and provide expert advice and recommendations on land transport issues in Singapore.
CBD Metro Study 2009
Gilbert and Tobin, expert adviser on willingness to pay for music in nightclubs, gyms and restaurants, 2006-209.
GHD Meyrick (2010)
NERA (2010)
Victorian Government Taxi Inquiry (2011-12)
NSW Govt Long Term Master Plan 2011-2012

Infrastructure Australia (2011 to present)
Southern Water (UK)(2012 -2014).
WestConnex (WDA) Project Sydney (2012-2016)
UBS Equity Investment (2013)
AECOM (2014 -2017)
Deloitte Access Economics (2015 -2022)
Emerge Capital (2015-2017)
Fijian Ministry of Infrastructure and Transport through the Department of Infrastructure, Transport and Policy, 2015 to 2018
University of Sydney CIS Sydney Metro Project (2015-2017)
CP2 (2017-18)
Independent Pricing and Regulatory Tribunal (IPART) 2018
Bridgestone (Japan), 2018-2019
Department of Premier and Cabinet, NSW, 2019
Stantec 2021-2022
NSW Toll Review, 2023-2024.
Queensland Olympics Transport Model Peer Review 2024-2025

Occasional Visiting Lecturer:

Northwestern University, Cornell University, Leeds University, University of Newcastle-Upon-Tyne, University of Oxford, University of London, University of California at Santa Barbara and Irvine, Penn State University, London Business School, University of Montreal, University of British Columbia, UWIST, Groningen Universiteit, Kyoto University, Universidad de Chile, Pontifica Universitat de Chile, Royal Institute of Technology (Sweden), Massey University (NZ), National University of Singapore, Nanyang Technological University, Hong Kong University, University of Pretoria, University of Johannesburg, ETH Switzerland, University College London, many Australian and NZ Universities.

Media and Meetings

A full list of media and meeting activity is given in the Annual Reports of the Institute of Transport and Logistics Studies. http://www.itls.usyd.edu.au/about_itls/annual_reports.asp and http://sydney.edu.au/business/news_and_events

ADDITIONAL ACTIVITIES:

Regular examiner of Theses in Economics and Civil Engineering (Transport).
Regular reviewer of articles on transport and discrete choice models submitted to Economics, Urban and Transport Journals (especially Economic Journal, Review of Economics and Statistics, Journal of applied Econometrics, Network and Spatial Economics, all Transport Journals).
Regular Referee on Academic Promotions (other Universities).
Founder (with two others) of Conference of Australian Institutes of Transport Research (1979).
Founding Member of International Committee of Association of Travel Behaviour (October 1982 to present).
Regular Session Chairman to Transport-related Conferences in Australia and Overseas.
External member of the N.S.W. Ministry of Transport's technical evaluation committee for competitive tendering of bus services.
Member of Inaugural Advisory Committee, State Transit Authority of NSW (South-West Division, 1990-91).
Member, Olympics Road and Transport Authority Bus Tendering Review Executive Committee, 1998.
Review Panel Member of Faculty of Management, University of Johannesburg, July 2014.
Review Panel Member (3 persons) of Department of Management Science at the City University of Hong Kong, January 2016

MAJOR EXTERNAL FUNDS (SINCE 1980):

Australian Bicentennial Authority (1980), $26,000
Australian Research Grants System (1981-2), $50,000
National Energy, Research, Development and Demonstration Program Grant (1982-90), $550,000
Very Fast Train Joint Venture (1986) $15,000

Volvo Research Grant (Australian Bus and Coach Association) (1987-88) $20,000
State Bank of New South Wales (1987) $25,000
Very Fast Train Joint Venture (1987-88) $395,000 (1989): $5,000
Urban Transit Authority of N.S.W. (1988-89) ($65,000)
Director-General of Transport (West Australia) (1987-88) $13,000
Australian Research Council (1989) $16,500
Roads and Traffic Authority of N.S.W. (1989) $30,000
State Bank of New South Wales (1989) $8,000
Pfizer Pty Ltd (1989) $58,000
Willoughby Council (1989) $20,000
Federal Office of Road Safety (1989) $10,000
Federal Office of Road Safety (1990) $115,000
Roads and Traffic Authority of N.S.W. (1990) $15,000
Australian Research Council (1990) $33,835
Defence House Authority (1989) $17,214
State Transit Authority of N.S.W. (1990)($67,150)
Very Fast Train Joint Venture (1990) $220,000
Australian Research Council (1991) $36,600
State Transit Authority of NSW (1991) $15,000
Australian Research Council (1992-94) $220,000
State Transit Authority of NSW (1992) $75,000
Roads and Traffic Authority of N.S.W. (1992) $60,000
Shellharbour Transport Project (1992-93) $114,000
NSW Department of Transport (1992) $14,000
Statewide Roads Pty Ltd. (1992) $20,000
Industry Commission (1993) $15,000
NSW Department of Transport/Countrylink (1993) $15,000
Bureau of Transport and Communication Economics (1993-1994) $345,000
Bureau of Tourism Research (1993) $20,000
Cityrail (1993) $26,400
Road Safety Bureau (NSW) (1994) $5,600
Transport Study Group NSW (1994) $79,800
Commonwealth Key Centre of Teaching and Research in Transport Management ($1.66m over 5 years)
Roads and Traffic Authority of NSW (1996) $28,000
Transport Data Centre (1997) $45,000
Abigroup/M2 (1997) $30,000
GEC-Alsthom (1997) $10,500
Western Australia Department of Transport (1997-98) $94,500
Bus Industry Confederation (1997) $7,500
Speedrail Joint Venture (1997-98) $60,000
Hills Motorway/TollAust (1998) $54,000
Greenhouse Challenge Unit (1998) $13,250
Secure Parking (1998) $55,000
ACT Government (1999) $30,000
NSW Department of Transport (1999) $30,000
ARC small and Faculty grant (1999) $23,000
Parramatta City Council Parking study (1999) $34,950
Bureau of Transport Economics (2000-2002) $95,000
Bus and Coach Association (NSW) under a Quality Partnership (2000-2004) $250,000
ARC Large Grant (2001-2003) $205,000
ARC Sesqui Grants (2000) $34,000
Transfield (Value of Travel Time Savings Project) (2001) $121,000.
ARC Discovery Program (2002-2006) $425,000
Bureau of Transport and Regional Economics (2002) $67,000
Roads and Traffic Authority of NSW Quality Partnership (2003 onwards) $85,000 per annum
University Sesqui Research Grant (2003) $23,500
Transport NSW (North West Transport Sector Patronage Demand Study (2003) $45,000
Macquarie Bank (2003-2004) $40,000
ARC Discovery Program (2004-2006) $255,000
ARC Sesqui Grants (2004) $10,000
School of Business Research Grant (2004) $27,000
ABN Amro and Thiess Value of travel time savings update study (2004) $207,000.

Macquarie Bank and Thiess Brisbane Gateway Bridge TollRoad study (2005) $180,000
Transit New Zealand Road Infrastructure study (2005-06) $155,000.
University of Sydney R and D Grant 2006 ($20,000).
School of Business Research Grants (2003-06) ($75,000)
ARC Linkage with ANU and ACTeWGL on Assessing WTP for urban water, waterwaste, gas and electricity distribution (2006-2009) $190,000.
ARC-DP grant on stated choice system for auto demand and use 2007-09 ($264,394).
ARC-DP grant on accident externalities 2007-09 ($239,394).
ARC-Linkage on exposure-based charging mechanisms, partnered with AAMI 2007-09 ($230,000).
Roads and Traffic Authority of NSW Safety Research 2007 ($97,000).
Secured Chair in Public Transport in ITLS, funded by NSW Government 2009-2013 ($1m)
Volvo Educational and Research Foundation Centre of Excellence in Bus Rapid Transit, 2011-2015 ($3m), 2016-2021 ($3m).
ARC-DP grant on buy in to road pricing reform schemes 2011-2013 ($426,000)
ARC-DP grant on Reliability and crowding in public transport 2012-2014 ($215,000)
ARC-DP grant on integrating attribute decision heuristics into travel choice models that accommodate risk attitude and perceptual conditioning, 2014-2016 ($400,000)
ARC-DP grant on business location decisions 2017-2019 ($310,000)
CRC- iMove grant to a consortium including ITLS (2017-2026) ($55m)
AustRoads National guidelines pilot study on value of time savings, reliability and safety (injuries and fatalities), Pilot Program ($55,000)
Independent Pricing and Regulatory Tribunal public transport elasticity study (IPART) ($50,000)
Bridgestone Japan research project on bus operator maintenance performance and tyres ($75,000)
Department of Premier and Cabinet NSW Fast Rail Project 2019 ($325,000)
Queensland Transport and Main Roads, through Mott Macdonald on Mobility Frameworks and MaaS 2020 ($7,000)
Austroads National guidelines study on value of time savings, reliability and safety (injuries and fatalities) National Program ($60,000)
BusVic study on emissions associated with dieel and green fuels. ($109,000).
Secured 10 year donation from Neil Smith for Sustainable Transport Futures ($7.6m, 2023-2032)

"The following colleagues have been awarded three or more ARC grants over the period 2002-07, accounting for 35 of our 63 ARC grants awarded over that period. Please join with me in warmly congratulating not only these outstanding scholars, but all have contributed to the Faculty's impressively rising performance in winning ARC grants.
SEVEN GRANTS
Professor David Hensher, Associate Dean (Postgraduate) and Director ITLS: ARC Large Grant, 4 ARC Discovery, 2 ARC Linkage
SIX GRANTS
Professor Alan Woodland, Econometrics, ARC Small Grant, 2 ARC Discovery, 2 ARC Linkage, ARC/NHMRC
FOUR GRANTS
Professor Russell Lansbury: Associate Dean (Research), ARC Large Grant, 3 ARC Discovery
Professor Rod Tiffen: Government and International Relations, ARC Large Grant, 2 ARC LIEF, ARC Discovery
THREE GRANTS
Professor Alex Frino, Finance: ARC SPIRT, ARC Linkage, ARC Discovery
Professor Graeme Gill, Government and International Relations: ARC Large, 2 ARC Discovery
Professor Stewart Jones, Accounting: 2 ARC Discovery, ARC Linkage
Dr Gabrielle Meagher, Political Economy: ARC Linkage, 2 ARC Discovery
Professor Peter Stopher, ITLS: 2 ARC Discovery, ARC Linkage"

EDUCATION:

Ph.D School of Economics, University of New South Wales, 1973 (First mainstream Doctoral Thesis in Economics at UNSW. Supervisors: Prof Nanak Kakwani and William Hotchkiss)

BCom (Economics Honours Class I), School of Economics, University of New South Wales, 1969.

Post-Doctoral Fellow (Nuffield and St Cross Colleges; Transport Studies Unit), University of Oxford, 1975-76.

Pre-University education: England (4 years, Lindfield), Kenya (6 years, Parklands Primary, Delamere

High) and Australia (2 years).

AWARDS and CITATIONS:

In 2023 appointed a Member (AM) of the Order of Australia (OA)

Australian Citizen Military Forces - Tolnay Trophy - for Commissioned Rank (Lieutenant), Australian Army 1971.

1989 Chartered Institute of Transport Qantas (Inaugural) Award for Excellence in Transport (as a major individual contribution to the Transport Industry).

Elected as a Fellow of the Academy of Social Sciences of Australia (FASSA), 1995.

Business/Higher Education Round Table 1999 Award for Outstanding Achievement in Collaboration in Education/Training, 18 November 1999 (joint with Bus and Coach Association of NSW).

Inducted into Beta Gamma Sigma Honours Society of AACSB, Tuesday June 29, 2004.

The Third Edition of Mark Blaug's *Who's Who in Economics* has recently been published by Edward Elgar in the UK (1999). Blaug identifies the 25 economists living in Australia who are most highly ranked by their peers in terms of citations in major economics and finance journals. The largest group is at the University of Sydney (6), followed by Melbourne (4), Adelaide (3), ANU (3), Monash (3), Queensland (2), Western Australia (2), Macquarie (1) and University of NSW (1). These findings would suggest that in terms of leading economists, the University of Sydney in NSW and Melbourne in Victoria have been most successful in terms of providing the right environment to attract world-class scholars: "University of Sydney, Faculty of Economics and Business: Elie Appelbaum, Robert H. Bartels, David A. Hensher, Peter L. Swan, Alan D. Woodland"

Nominated by Faculty of Economics and Business and College of Humanities and Social Sciences for a Federation Fellowship (2002-2006), 25 made available by the Prime Minister to recognise research excellence.

Cited in Pomfret and Wang (2002) Evaluating the research output of Australian Universities' Economic Departments. It states that 'David Hensher ranks first if self-citations are included and third if they are excluded' of academic economists in Australia.

School of Business (Faculty of Economics and Business, The University of Sydney) *Inaugural Award for Achievement in Research* for 2003.

Postgraduate Peer Mentoring Program Recognition in 2005:
"It is with great pleasure that I inform you that you have been selected as Runner-up in the 2005 Vice-Chancellor's Award for Support of the Student Experience. The Panel felt that your program was research-led and integrated, which not only provided benefits to those that are mentored but also to the mentees. It was felt that your Program was a model for other faculties and student groups in that it provided a transition to academic and social life of the University for both International students and students that had little recent experience of structured learning."

Recipient of the 2006 *Engineers Australia Transport Medal* for lifelong contribution to transportation.

Fourth most cited author of articles in Journal of Transport Economics and Policy, 1975-2006. (108 citations)

August 2008: The Faculty wishes to acknowledge good teaching and good teachers and the importance of teaching in our Faculty mission. Based on the information available from the Unit of Study evaluations, it is with enormous pleasure that I inform you of the following Unit of Study Coordinators, and their teaching teams, who will receive the Dean's Citation for Teaching.

Geoff Gallop	Policy in Practice: Delivering Value
David Hensher	*Transport & Logistics Economics*
Sabine Ludewig	Communication and Critical Analysis
Stephen Mills	Public Sector Leadership
Wu Zhan	International Business Strategy

Recipient of the 2009 Bus NSW (Bus and Coach Association) *Outstanding Contribution to Industry Award*.
(Criteria for award - extensive involvement and major/outstanding contributions. Achievements, particularly those most special to the bus industry include: quality partnership, international status, set up of CTM, set up BOAS course, overview ITLS role for Australia. production of quality students and believers in public transport (PT) influence on benchmarking, SQI, Margins, contracts, social issues, public debate to enhance knowledge on PT- set up PT chair,

champion for planning and partnerships, expert on special projects, and being able to relate to the bus industry)

It is with extreme pleasure that I am writing to inform you that you have been selected to be the recipient of the 2009 International Association of Travel Behaviour Research (IATBR) Lifetime Achievement Award. Everyone involved in this decision is very excited and energized by this choice. Given your long-standing and exceptional contributions to both IATBR and to the travel behaviour field, it is a very natural and clearly a very right outcome. It is a great honour to our organization to be able to count such outstanding people as yourself amongst our ranks, and the Executive Board is pleased to be able to recognize your many accomplishments with this award.
Professor Eric J. Miller, Ph.D.
IATBR Chair

Announcement: It is with great pleasure that I email to inform you that David Hensher is the recent recipient of the 2009 IATBR (International Association of Travel Behaviour Research) Lifetime Achievement Award. This award was given to David in recognition for his long-standing and exceptional contribution to both IATBR as well as to the wider travel behaviour community. As was noted at the time of the presentation of the award, David's contribution to the field is phenomenal, with David consistently being at the very edge of the research frontier where he can only be described as both a leader and pioneer. To understand fully the meaning of this award, one need look no further than the names of the only other previous recipients, Frank Koppelman (Northwestern) , Moshe Ben Akiva (MIT) and Ryuichi Kitamura (Kyoto). As one who has been lucky enough to work closely with David over the past few years, I can truly say that he is one of the most inspirational individuals and well deserving of this award. So please join me in congratulating David on this most prestigious award. John Rose December 21 2009. See http://iatbr.weebly.com/award-winners.html

Honorary Fellow Singapore Land Transport Authority Academy, April 2011 to present

Received best paper prize sponsored by *Maritime Economics and Logistics* at *International Association of Maritime Economists* (IAME) Conference, Santiago, Chile, 25-28 October 2011.

The Korea Association of Marine Industry have awarded their prize for the best paper released by the International Association of Maritime Economists (IAME) in 2011 to the paper *Understanding Mode Choice Decisions: A Study of Australian Freight Shippers* which was co-authored by Mary Brooks (Dalhousie University, the paper was written while Mary was a visiting scholar at ITLS), Professor David Hensher, Dr Sean Puckett (former ITLS academic), and Adrian Sammons (AMSTEC Design Pty Ltd) and presented at the 17th IAME conference in Santiago, Chile in October 2011.

Cited as the number two most prolific authors (January 2013) of public transport related papers in peer reviewed sources http://www.worldtransitresearch.info/top_authors.html

Smart 2013 Premier Award for Excellence presented every two years to an individual in recognition of outstanding contribution to the profession of supply chain management in Australia.

Excellence in Research Award of the Business School Research Awards for 2014.

Contribution to the Transport Profession Award from the Institute of Transportation Engineers (Australia and New Zealand) (ITENZ), 2014. This award is presented to individuals who have made a significant contribution to the development of the transport/traffic engineering profession over a sustained period.

Recipient of Award for Outstanding Research as part of the inaugural Vice-Chancellor's Awards for Excellence, 2016.

Recipient of the 2019 John Shaw medal (from Roads Australia) which honours an industry champion who has made a lasting contribution to Australia's roads (David with President David Stuart-Watts, 30 May 2019).

'Good morning David, I was just reflecting with friends over coffee on your prestigious award from Roads Australia and thought how great it is that accolades are now coming to you personally as well as ITLS. Your outstanding leadership, great management skills and academic excellence are now being recognised for what you have achieved in creating and nurturing ITLS as well as your enormous contribution to transport. I am very humbled to be involved with you and ITLS.
My best regards, Glen Dawes,' CEO of Queensland Rail (retired).

Annual prize named in honour of David A Hensher for Best Paper in Transport Demand Modelling at the Australasian Transport Research Forum (ATRF)
The inaugural David A Hensher prize for the best paper in transport demand modelling at the ATRF, was established in 2021. The prize recognises both his outstanding global contribution to transport modelling and his ongoing support of ATRF. The winning paper will be judged based on theoretical rigour, methodological application and practical contribution, all key characteristics of David's work. Professor David Hensher has a distinguished academic career spanning over 50 years.

Recipient of the 2021 Research Engagment award of the University of Sydney Business School.

PATENTS

WO 2022/270106 A1 (Fuel consumption prediction system and fuel consumption prediction method) with Bridgestone Corporation
WO 2022/270111 A1 (Tire wear prediction system and tire wear prediction method) with Bridgestone Corporation

MAJOR OVERSEAS TRAVEL ACTIVITY:

August - December 1971: Europe, England, Africa and the U.S.A. discussing research into Behavioural Demand Modelling and Travel Time Valuation (in capacity of consultant to the Commonwealth Bureau of Roads).

January 1973 - February 1973: U.S.A. and England holding discussions on various transport economics issues and presentation of an invited paper at U.S.A. Transportation Research Board Annual Meeting (Washington).

July 1973: U.S.A. to present invited paper at First International Conference on Travel Demand Modelling, South Berwick, Maine.

May 1975 - 1976: U.S.A and Europe as a Postdoc Fellow, St. Cross College and Transport Studies Unit, University of Oxford.

June 1979: Europe and the U.K. to present invited position paper at Fourth International Conference on Behavioural Travel Modelling (West Germany) and hold discussions in the U.K. on research interests.

July 1980 - December 1980: Sabbatical leave visitor at the Public Sector Management Unit, London Business School.

October 1982: U.S.A. to attend Fifth International Conference on Travel Analysis Methods, Easton, Maryland.

March - May 1985: Holland to present a paper to International Conference on Travel Behaviour, to U.K. on a British Council Travel Grant (Academic Links) - University of Bristol, Oxford University and London Business School, and to U.S.A. (Penn State University, Universities of California at Irvine and Santa Barbara).

October - November 1987: France to present a paper to the 5th International Conference on Behavioural Travel Modelling, and to U.K. to give seminars at UWIST, Leeds University, University of Newcastle Upon-Tyne, and to have discussions on deregulation of bus operations at London Regional Transport and London Business School.

July 1989: Japan to present papers at the World Conference on Transport Research (Yokohama), and an International Conference on Dynamic Travel Behaviour Analysis (Kyoto).

January 1990: Washington D.C. to present a paper at the 3rd International Conference on New Survey Methods in Transport, and to attend the Transportation Research Board Annual Meeting. To London Business School to discuss joint research project with Professor Michael Beesley.

June - July 1991: Finland to present a paper at the Second International Conference on Privatisation and Deregulation of Passenger Transport, University of Tampere, Tampere, 16-21 June, and UK/Netherlands to undertake research on Monopoly rents and corporatisation.

February 1992: Papua New Guinea to address the World Bank project on transport infrastructure evaluation and to hold meetings at the Department of Transport and the University of Papua New Guinea.

June - July 1992: Lyon, France to present a paper at the World Conference on Transport Research.

September 1992: Auckland (NZ) to give a series of lectures on discrete choice modelling and stated response methods, and to advise on the Auckland transport study. Wellington (NZ) to participate in a workshop on the value of travel time savings.

October 1992: California, UCLA Conference Center, and University of California, Irvine, to present a paper to the first USA invitational conference on panels in transport planning.

July 1993: North Carolina, Duke University to attend the Second International Invitational Conference on Consumer Choice Theory and Applications

September 1993: Mississauga, Canada, to Chair and present a paper at the 3rd International Conference on Competition and Ownership in Passenger Transport. Seminars at University of Montreal, and University of British Columbia. Discussions at University of Washington (Seattle).

December 1993 - February 1994: Visiting Professor, Department of Economics and Institute of Transportation

Studies, University of California at Irvine.

June 1994: Santiago, Chile to present a paper at 7th International Conference on Travel Behaviour, and then to Paris to attend The Scientific Committee Meeting of the World Conference of Transport Research (in capacity of International Vice Chairman and Chairman of Local Scientific Committee of the 7th WCTR).

August 1994: Fort Worth Texas, to attend the Invitational Conference on Travel Model Improvement Methods, hosted by the Texas Transportation Institute, 13-17 August.

December 1994: Portland (Oregon) and University of California at Irvine, to present a short course on stated preference methods and to hold discussions on the development of travel choice model system for predicting impact of transport policies on greenhouse gas emissions.

July - August 1995: University of California at Irvine invited paper at Conference on Social Benefit-Cost Analysis, Beckmann Center, Sponsored by US Bureau of Transportation Statistics; Rotarua, New Zealand to present a paper and Chair 4th International Conference on Competition and Ownership of Land Passenger Transport, then to Korea to Launch a book on Transport Economics and present paper at Workshop on Issues in Transport Economics hosted by Korean Institute of Transport Research and Korean Airlines.

December 1995: To Vietnam to present a paper of Infrastructure needs in Regional Economic Planning, Hanoi, and then to Singapore to give seminars and hold talks on our teaching program at The National University of Singapore and Nanyang Technological University - hosted by Singapore Chartered Institute of Transport.

June 1996: To USA to participate in the International Choice Symposium held at Arden House, Columbia University, visit to ITS-Irvine and to Portland (Oregon) to present a 4 day course on Stated Choice Methods.

July-August 1996: To UK to present a paper at Brunel University conference on teleworking; and to Stockholm to present invited paper at the International Conference on the Theoretical Foundations of Travel Choice.

August 1996: To Auckland to present a paper at the 20th Australasian Transport Research Forum.

November 1996: To Hong Kong to present keynote address on roads in the urban community to a conference on Highways into the 21st Century.

May-June 1997: To Norway (Value of time workshop), UK (Pergamon Major Ref Work in Transport meeting), 5th International conference on competition and ownership of land passenger transport, Sweden for stated choice workshop.

September 1997: To New Zealand to deliver series of lectures at Massey University; to USA to Chair workshop on telecommuting at 8th IATBR conference and deliver a paper, then to University of California at Irvine to continue research with Prof Tom Golob.

July 1998: To France for Choice Symposium, to Belgium for 8th WCTR, to present 3 papers and Chair 7 sessions and to University of Oxford to give invited occasional address at Hertford College.

September 1999: To South Africa to present a paper at 6th International conference on competition and ownership of land passenger transport, and to Chair a workshop, 23-27th.

June-July 2001: To Invitational Choice Symposium, University of California (Berkeley), to Molde, Norway (Executive Chair, Thredbo 7, 23-26 June), New York (to deliver Discrete Choice Modelling Course), Seoul Korea (World Conference of Transport Research)

September 2001:Invitation by Director General, Institute for Transportation Science and Technology, Ministry of Transport, Hanoi, Vietnam to discuss graduate training.

April 2003:To Queenstown, NZ to present paper at Bus Industry Confederation Annual Conference, (5-10 April).

August 2003:To Switzerland, to present invited resource papers to 10th IATBR Conference (10-15 August) and London for Conference on Congestion Pricing, Imperial College, London 18-20 August..

September 2003:To Rio de Janeiro present a paper at 8th International conference on competition and ownership of land passenger transport, to Chair a workshop, and undertake duties as Executive Chairman on the Conference

Series, (15-18 Sept) and Seminars at Catolica de Pontifica de Universida, Santiago and Sectra in Chile (19-14 September).

June 2004 - To Invitational Choice Symposium, University of Colorado at Boulding, and University of California at Irvine (Institute of Transportation Studies).

August – September 2005 – To Hong Kong and Shanghai on Faculty promotions and then to 9th International Conference on Competition and Ownership of Land Passenger Transport (Thredbo 9), Lisbon, 2-8 September (Exec Chair, Plenary paper and workshop paper).

August 2006 – To Santiago (Chile) to give an invitational talk at The University of Chile on Transportation and Sustainable Cities as part of Millennium nucleus on complex engineering systems; then to Kyoto (Japan) for IATBR Conference to give invitation resource paper.

March 2007 – To Oslo, Norway to give an invitational paper on new methods to value externalities and a seminar on public transport service quality (Institute of Transport Economics).

July 2007 – To Singapore to deliver a series of public addresses on public transport reform, choice analysis and its relevance to the Civil Service College, Land Transport Authority, National University of Singapore and meetings with Minister of Transport on Land Transport Policy

November 2007 - member of Singapore Land Transport Authority International Advisory Panel (Chaired by Minister of Transport), First meeting.

February 2008 – visit to University of Johannesburg in South Africa to launch ITLS (Africa) and to give lectures at the University.

September 2008 – Deliver choice analysis short course, University of Johannesburg.

October 2008 - European Transport Conference (ETC), invited keynote presentations, seminars at the Tinbergen Institute and Free University, and Significance, the Netherlands

November 2008 - member of Singapore Land Transport Authority International Advisory Panel (Chaired by Minister of Transport), Second meeting.

March-April 2009 - to present invitational paper on attribute processing and choice analysis at 1st International Conference on Choice Modelling, Harrogate, UK., seminars at ITS-Leeds and at TSU-University of Oxford.

June 2009 - to Ryuichi Kitamura Memorial Symposium, University of California at Davis, USA

September 2009 - to 11th International Conference on Competition and Ownership of Land Passenger Transport (Thredbo 11), Delft Holland 21-26 September (Exec Chair, Plenary paper and workshop paper). Also ITLS (Africa) and two public seminars in Johannesburg on Road Pricing and Bus Contracting.

November 2009 – Delivery paper at 2nd Workshop on Choice Modelling, Christchurch, New Zealand.

December 2009 – Delivery Plenary address at opening of the International Association of Traveller Behavior Research (IATBR), Jaipur, India.

June 2010 – Deliver the John McMillan Memorial Lecture at New Zealand Association of Economists Annual Conference, Auckland.

December 2010 – Guest speaker at launch of the Institute of Business Research (IBR) Waikato University, New Zealand.

February 2011 – Keynote speaker at South Africa Bus Association (SABOA), Johannesburg, and invited lectures on Transport Reform at the University of Johannesburg.

September 2011 – to 12th International Conference on Competition and Ownership of Land Passenger Transport (Thredbo 11), Durban, South Africa 11-15 September (Exec Chair, Plenary paper and workshop paper).

July 2012 – Invited keynote address to Twelfth International Conference on Advanced Systems for Public Transport (www.caspt.org), Santiago, Chile, July 23 to July 27.

February 2013 – Keynote speaker at South Africa Bus Association (SABOA), Johannesburg, and invited lectures on Road Pricing Reform at the University of Johannesburg (ITLS-Africa).

September 2013 – to 13th International Conference on Competition and Ownership of Land Passenger Transport (Thredbo 13), Oxford, UK 15-19 September (Exec Chair, Plenary paper and workshop paper) and VReF BRT centre workshop 20 September 2013, Oxford.

July 2014 – University of Johannesburg in South Africa Faculty of Management Review Panel and ITLS (Africa).

August 2015 - to 14th International Conference on Competition and Ownership of Land Passenger Transport (Thredbo 14), Santiago Chile August 29 - September 4 (Exec Chair, Plenary paper and workshop paper) and VReF BRT centre book launch and Board meeting.

January 2016 – Seminar at Hong Kong University and Review Panel Member (3 persons) of Department of Management Science at the City University of Hong Kong.

March –April 2017 – Paper presentations at 5th International Conference on Choice Modelling, Cape Town and Guest talks at ITLS Africa (Johannesburg).

August-September 2017 - 15th International Conference on Competition and Ownership of Land Passenger Transport (Thredbo 15), Stockholm, Sweden.

June 2018 – Invited plenary panel paper on shared mobility, International Transport Economics Association (ITEA) conference, The Hong Kong Polytechnic University.

August 2018 - Guest talks at ITLS Africa (Johannesburg) and Celebrations of 50 years of Department of Transport and Supply Chain Management.

March-April 2019 – VREF BRT+ Centre of Excellence Collaborative visit to University of Pretoria, South Africa (BoA of ITLS (Africa) Johannesburg and guest lectures at University of Johannesburg Business School.

May 2019 – Swiss Transport Research Centre (STRC) keynote speaker at Ascona conference and public lecture in Zurich (May 15 – May 17).

August 2019 – 6th International Conference on Choice Modelling, Kobe Japan (19-21 August) and 16th International Conference on Competition and Ownership of Land Passenger Transport (Thredbo 15), Singapore, 25-30 August).

2020-2022 - All international travel curtailed due to the COVID-19 pandemic. Planned talks delivered as webinars.

September 2022 – 17th International Conference on Competition and Ownership of Land Passenger Transport (Thredbo 17), Sydney 3-6 September.

April 2024 – International Choice Modelling Conference (ICMC) Puerto Varas, Chile. April 1-3, and Sochitran address in Santiago 26 March.

September 2024 – 18th International Conference on Competition and Ownership of Land Passenger Transport (Thredbo 18), Cape Town, South Africa, 3-6 September, ITLS Africa – 12-16 October 2024.

February 2026 – Singapore lectures at LTA, NUS, FCL and URA.

September 2026 – 19th International Conference on Competition and Ownership of Land Passenger Transport (Thredbo 19), Velotta, Malta, 3-6 September.

TEACHING EXPERIENCE:

Undergraduate:

Principles of Microeconomics (year 1)
Cost-Benefit Analysis (year 3)
Discrete-Choice Modelling (Honours)
Urban Economics (year 3)
Transport Economics (year 3)
Housing Economics (year 3)
Telecommunication Economics (year 3)
Industrial Economics (year 3, Honours)
Advanced Microeconomics (Honours)

Postgraduate:

Survey and Sampling Methods
Transport Systems Management
Cost-Benefit Analysis
Transport Modelling
Transport Policy
Discrete-Choice Modelling
Stated Choice Methods
Transport Administration
Transport Planning Methods
Urban Economics
Business Strategy
Transport Economics and Management
Transport and Logistics Economics
Market Research Methods
Housing Economics*
Consumer Research and Policy
Spatial Economics
Management Decision Making
Industrial Economics
Applied Welfare Economics
Advanced Microeconomics
Economic Impact Analysis
PhD Workshop on Research Strategies

Numerous Short Courses and Executive Programs

Supervision of Honours, Masters,Ph.D and PostDoc Students and Fellows:

1979 - 7 students
1980 - 7 students
1981 - 4 students
1982 - 3 new and 1 continuing students
1983 - 7 new and 3 continuing students

1984 - 10 continuing students

1985 - 6 students

1986 - 6 students

1987 - 5 students (+ 4 research projects)

1988 - 5 new and 4 continuing students

1989 - 3 new and 5 continuing students

1990 - 4 continuing students (+ 5 research projects)

1991 - 4 students

1992 - 10 students

1993 - 9 students

1994 - 7 students

1995 - 6 students

1996 - 4 students

1997 - 3 students

1998 - 3 students, 1 postdoc

1999 - 4 students, 1 postdoc

2000 - 5 students

2001 - 4 PhDs, 1 postdoc

2002 - 4 PhDs (Rose, Dabbas, Efron, Cheng)

2003 - 6 PhDs (Rose, Puckett, Dabbas, Cheng, Efron, Clifton)

2004 - 6 PhDs (Rose, Puckett, Dabbas, Efron, Clifton, Knowles)

2005 - 7 PhDs (Rose, Puckett, Dabbas, Efron, Clifton, Knowles, Hsiao), MPhil (Alsnih)

2006 - 6 PhDs (Puckett*, Dabbas, Efron, Clifton, Knowles, Hsiao), MPhil (Alsnih)

2007 - 4 PhDs (Clifton, Knowles, Collins, Beck, Dabbas), 1 MPhil (Zheng Li,)

2008 - 6 PhDs (Clifton, Knowles, Collins, Beck, Chung, Zheng Li, Dabbas), 1 external (Ben McNair ANU)

2009 - 9 PhDs (Clifton, Knowles (deferred), Zhang (deferred), Collins, Beck, Chung, Zheng Li, Tirachini Hernández, Dabbas (submitted and awarded 2010)), 1 external (Ben McNair ANU)

2010 - 10 PhDs (Clifton (submitted and awarded May 2011), Knowles (deferred), Zhang, Collins, Beck, Chung, Zheng Li, Alejandro Tirachini Hernández, WaiYan Leong), 1 external (Ben McNair ANU, submitted)

2011 - 9 PhDs (Knowles (deferred), Zeyan Zhang, Andrew Collins, Matthew Beck, Demi Chung, Zheng Li, Alejandro Tirachini Hernández, WaiYan Leong, Richard Ellison)

2012 - 8 PhDs (Zeyan Zhang, Andrew Collins** (submitted August), Matthew Beck** (submitted June), Demi Chung (submitted March), Zheng Li (submitted March), Alejandro Tirachini Hernández (submitted March), WaiYan Leong, Richard Ellison)

2013 - 3 PhDs (Zeyan Zhang (submitted July), WaiYan Leong (submitted September), Richard Ellison)

2014 - 3 PhDs (Richard Ellison (submitted February)***, Collins Tye, Camila Balbontin)

2015 - 2 PhDs (Collins Tye, Camila Balbontin)

2016 – 3 PhDs (Collins Tye, Camila Balbontin, Yale Wong)

2017 – 2 PhDs (Camila Balbontin, Yale Wong)

2018 – 2 PhDs (Camila Balbontin, Yale Wong)

2019 – 1 PhD (Yale Wong) plus advisory role to three other PhDs****

2020 – 1 PhD (Yale Wong, submitted January, emendations and approval and graduate July) plus advisory role to other PhDs at ITLS, ETH Switzerland (Daniel Reck) and Chalmers University Sweden (Goran Smith, PhD successful defence June 2020)

2021 – Adviser to ETH Switzerland (Daniel Reck)

2022 – Ongoing – Adviser to numerous PhD students in ITLS

* Sean Puckett received the IATBR Eric Pas prize (first place) in 2006 and was presented with this prestigious award at TRB in January 2007 in Washington DC.

** Andrew Collins received the IATBR Eric Pas prize (first place) in 2013 and was presented with this prestigious award at TRB in January 2014 in Washington DC. Matthew Beck was runner up.

*** Richard Ellison received the IATBR Eric Pas prize (runner up) in 2015.

**** Yale Wong won the 2019 ATRF David Willis Prize for best paper by a young researcher and the Intelligent Transport Society (ITS) Australia Young Professional Award, November 2019.

Key Note Addresses and Conference Presentations

A full list of addresses and presentations is given in the Annual Reports of Institute of Transport and Logistics Studies. http://sydney.edu.au/business/itls/about/annual_report

See http://scholar.google.com/citations?user=22m62pAAAAAJ

Papers: 752. Average Cites/paper: 104 (10,999 is highest). Google H-index: 126, i10-Index 566 Citations: 82,878 (reached 50,000 16 July 2019; 60,000 22 February 2022; 65,000 26 December 2022; 70,000 8 October 2023, 75,000 July 2024, 80,000 22 July 2025); Scopus H-index: 88

Celebrating a Google H-index of 101 (7 November 2019)

Refereeing: extensive but Elsevier details are at https://www.reviewerrecognition.elsevier.com/#/profile/c53363b1-ec4e-4a39-913f-82325a23be2e

MATERIAL WRITTEN:

(A) Formal Publications (in refereed sources)

** = Most Significant Contributions*

1974

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A6 Hensher, D.A. (1975) "Incremental Planning and Uncertainty", in Ogden, K. and Hicks, S.K. (Eds.), Urban Goods and Vehicle Movement, *Proceedings of a Workshop on Urban Goods Transport*, Melbourne, Commonwealth Bureau of Roads, March; 101-105.

A7 Hensher, D.A., McLeod P.B. and Stanley, J.K. (1975) "Usefulness of Attitudinal Measures in Investigating the Choice of Travel Mode", *International Journal of Transport Economics*, Vol. 11, No. 1, 51-78.

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A11 Hensher, D.A. (1975) "Value of Travel Attributes: The Relationship Between Behavioural, 'Resource' and 'Equity' Values", *International Journal of Transport Economics*, Vol. II, No. 4, December; 227-232.

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A14* Hensher, D.A. and McLeod, P.B. (1975) "Towards an Integrated Approach to the Identification and Evaluation of the Transport Determinants of Travel Choices", Transport Studies Unit Working Paper No. 10, University of Oxford, November 1975. (Published in *Transportation Research*, Vol. II, No. 2, 1977, pp. 77-93).

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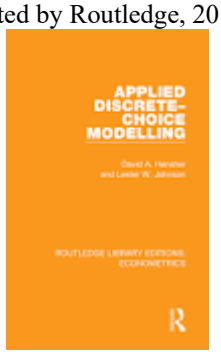

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A63 Hensher, D.A., Kirby, D.A. and Beesley, M.E.(1983) The Appraisal Process in Transportation: An Australian Experience, invited paper for book edited by K. Button and A. Pearman on Case Studies in Transport Project Appraisal, Gower Press, London; 108-132.

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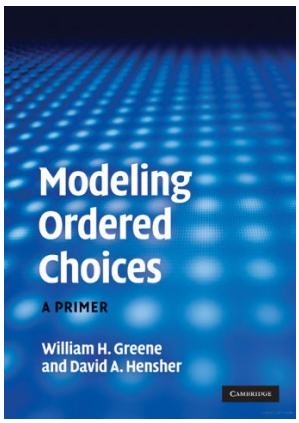

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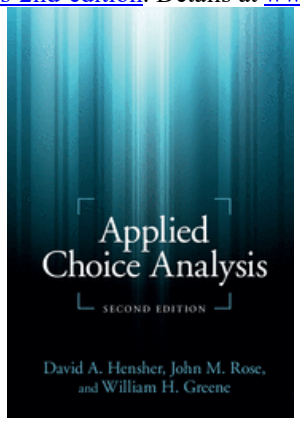

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A583 Ho, C. and Hensher, D.A. (2017) Application of irrelevance of state-wise dominated alternatives (ISDA) for identifying candidate processing strategies and behavioural choice rules adopted in best-worst stated preference studies, (paper presented at the *International Association of Traveller Behaviour Research (IATBR)*

Conference, London, 18-23 July 2015.) *Journal of Choice Modelling* 25, 40-49, http://dx.doi.org/10.1016/j.jocm.2017.01.002

A584 Balbontin, C., Hensher, D.A. and Collins, A. (2017) Does familiarity and awareness influence behavioural response? (Paper presented at the *International Association of Traveller Behaviour Research (IATBR) Conference,* London, 18-23 July 2015.) *Journal of Choice Modelling,* 25, 11-27. http://dx.doi.org/10.1016/j.jocm.2017.01.005

A585 Stanley, J.K. and Hensher, D.A. (2017) Getting the prices right, *Roads and Transport Research*, 26 (3), 13-21.

A586 *Balbontin, C., Hensher, D.A. and Collins, A. (2017) Integrating Attribute Non Attendance and Value Learning with risk attitudes and perceptual conditioning (presented at the *Ninth Triennial Symposium on Transportation Analysis* (TRISTAN IX) - 13 - 17 June, 2016 – ARUBA), *Transportation Research Part E*, 97, 172-191.

A587 Mulley, C.M., Hensher, D.A. and Cosgrove, D. (2017) Is rail cleaner and greener than bus? *Transportation Research Part D,* 51 (1), 14-28.

Conference Papers (Refereed)

A588 Collins, A., and Hensher, D.A. (2017) Choice modelling with time-varying attributes, with an application to train crowding, paper presented at *The Fifth International Choice Modelling Conference* 3 – 5 April, Cape Town, South Africa.

2018

Books

A689 Alexandersson, G., Hensher, D.A. and Steel, R. (editors) (2018) Selected papers of the 15th International Conference on Competition and Ownership of Land Passenger Transport (Thredbo 15), Sweden, August 30 to September 3, 2017, *Research in Transportation Economics*, Elsevier Science, 69. https://www.sciencedirect.com/journal/research-in-transportation-economics/vol/69/suppl/C

Book Chapters

A590 Hensher, D.A. (2018) Public service contracts – The economics of reform with special reference to the bus sector, in J. Cowie and S. Ison (eds.) *The Routledge Handbook of Transport Economics,* Routledge, London, Chapter 7, 93-107.

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A591 Stanley, J.K., Ellison, R., Loader, C. and Hensher, D.A. (2018) Reducing Australian motor vehicle greenhouse gas emissions (paper prepared for presentation at the *15th International Conference on Competition and Ownership of Land Passenger Transport* (Thredbo 15), Stockholm, Sweden, 13-17 August 2017) *Transportation Research Part A*, 108, 76-88.

A592 Hensher, D.A. (2018) Tackling road congestion – what might it look like in the future under a collaborative and connected mobility model?, Invited paper from an eminent academic on invitation from Editor in Chief Tae Oum, *Transport Policy* 66, A1-A8. https://doi.org/10.1016/j.tranpol.2018.02.007

A593 *Hensher, D.A., Balbontin, C., and Collins, A. (2018) Heterogeneity in decision processes: embedding extremeness aversion, risk attitude and perceptual conditioning in multiple process rules choice making, (Paper presented at *The Fifth International Choice Modelling Conference* 3 – 5 April 2017, Cape Town, South Africa, April 2016, and the *Western Economic Association Annual Conference*, Newcastle Australia January 12 2018, special session chaired by Daniel L. McFadden), and the *International Transport Economics Association* (ITEA) Conference June 2018 Hong Kong, *Transportation Research Part A*, 111, 316-325.

A594 Rose, J.M. and Hensher, D.A. (2018) The taxi industry in Australia: How satisfied are customers? *Journal of Transport Geography*, 70, 234-245.

A595 Mulley C., Ho., C., Ho, L., Hensher, D.A. and Rose, J.M. (2018) Will bus travellers walk further for a more frequent service? An international study using a stated preference approach, paper prepared for the 2017 Annual *Transportation Research Board Conference*, Washington D.C., January 2018, *Transport Policy*, 69, 88-97.

A596 Hensher, D.A. (2019) Editorial: Road pricing reform – another attempt at getting started! *Case Studies on Transport Policy*, online June 2018, 7 (4) December, 677-678. https://protect-au.mimecast.com/s/FWoNCoVzGQipglO0h19bMT?domain=doi.org

A597 Ho, C., Hensher, D.A., Mulley, C.M. and Wong, Y. (2018) Potential uptake and willingness-to-pay for Mobility as a Service (MaaS): A stated choice study, (paper presented at the *15th International Conference on Competition and Ownership of Land Passenger Transport* (Thredbo 15), Stockholm, Sweden, 13-17 August 2017), *Transportation Research Part* A, 117, 302-318.

A598 Hensher, D.A. (2018) Toll roads – a view after 25 years, *Transport Reviews*, 38 (1), 1-5, http://dx.doi.org/10.1080/01441647.2017.1330850.

A599 Chung, D. and Hensher, D.A. (2018) Public Private Partnerships (PPPs) in the provision of tolled roads: shared value creation, trust and control, paper presented at *Thredbo 14*, Chile, August 30 to September 3, 2015. *Transportation Research Part A*, 118,341-359.

A600 Bray, D., Hensher, D.A. and Wong, Y. (2018) Thredbo at Thirty: Review of Papers and Reflections**, (**paper presented at the *15th International Conference on Competition and Ownership of Land Passenger Transport* (Thredbo 15), Stockholm, Sweden, 13-17 August 2017), *Research in Transportation Economics* (RETREC), 69, 23-34. https://doi.org/10.1016/j.retrec.2018.04.004

A601 *Wong, Y. and Hensher, D.A. (2018) The Thredbo story: A journey of competition and ownership in land passenger transport, paper presented at the *15th International Conference on Competition and Ownership of Land Passenger Transport* (Thredbo 15), Stockholm, Sweden, 13-17 August 2017). (Linked to VREF Centre), *Research in Transportation Economics* (RETREC), 69, 9-22. https://doi.org/10.1016/j.retrec.2018.04.003

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A602 Wong, Y.Z., Hensher, D.A. and Mulley, C. Mode-agnostic mobility contracts: Identifying broker/aggregator models for delivering mobility as a service (MaaS), paper presented at the *Australasian Transport Research Forum*, November 2018, Darwin. This paper won the David Willis Prize for best paper.

2019

Books

A603 Stanley, J.K. and Hensher, D.A. (eds.) (2019) *A Research Agenda for Transport Policy*, Edward Elgar publishers, July, 215 pp. Introduction by John Stanley and David A. Hensher, pages 2-6. https://www.e-elgar.com/shop/a-research-agenda-for-transport-policy https://www.elgaronline.com/view/edcoll/9781788970198/9781788970198.xml

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A604 Hensher, D.A., Balbontin, C., Ho, C. and Mulley, C., Macario, R. and Stewart, A. (2019) Evaluating BRT and LRT on a level playing field in developed economies: A cross cultural comparison*, Developing Bus Rapid Transit: The Value of BRT in Urban Spaces.* edited by Fiona Ferbrache, Edward Elgar Publisher. Chapter 5 (Linked to VREF Centre), 68-89. https://www.e-elgar.com/shop/developing-bus-rapid-transit

A605 Hensher, D.A., Ellison, R., Ho, C. and Weisbrod, G. (2019) How well does BRT perform in contrast to LRT? An Australian case study using MetroScan_TI, *Developing Bus Rapid Transit: The Value of BRT in Urban Spaces,* edited by Fiona Ferbrache, Edward Elgar Publisher. Chapter 8 (Linked to VREF Centre and ARC-DP grant (2017-19) DP170100420), 124-153. https://www.e-elgar.com/shop/developing-bus-rapid-transit

A606 Hensher, D.A. (2019) Transport Economics, in Stanley, J.K. and Hensher, D.A. (eds.) *A Research Agenda for Transport Policy*, Edward Elgar publishers, Chapter 2, 7-15.

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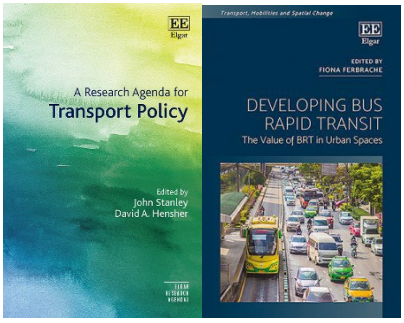

Journal Articles

A608 *Hensher, D.A., Balbontin, C. Ho, C. and Mulley, C. (2019) Cross-cultural contrasts of preferences for bus rapid transit and light rail transit, (paper presented at the *15th International Conference on Competition and Ownership of Land Passenger Transport* (Thredbo 15), Stockholm, Sweden, 13-17 August 2017. (Linked to VREF Centre)) *Journal of Transport Economics and Policy,* 53 (1), January, 47-73.

A609 Ellison, R., Hensher, D.A. and Greaves, S. (2019) Collecting longitudinal data from freight operators: survey design and implementation (paper presented at *The 10th International Conference on Transport Survey Methods*, held November 17-21, 2014 in Leura, NSW, Australia), *Transportation Planning and Technology,* 42 (2), 152-166. https://doi.org/10.1080/03081060.2019.1565162

A610 Hensher, D.A. (2019) Using the average wage rate to assess the merit of value of travel time savings: a concern and clarification, in inaugural issue of *Transport Findings* (an online Open Access Journal), Issue 1, February.

A611 Balbontin, C., Hensher, D.A. and Collins, A.T. (2019) How to better represent preferences in choice models: the contributions to preference heterogeneity attributable to the presence of process heterogeneity, (presented at IATBR 2018, Santa Barbara, California, July 2018; abstract accepted December 2017, and presented at Interdisciplinary Choice Workshop (ICW), Santiago de Chile, 7-10 August 2018), *Transportation Research Part B,*122, 218-248.

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A613 Stanley, J., Stanley, J., Balbontin, C., Hensher, D.A. (2019) Social exclusion: the roles of mobility and bridging social capital in regional Australia. *Transportation Research Part A*, 125, 223-233. DOI: 10.1016/j.tra.2018.05.015.

A614 Balbontin, C. and Hensher, D.A. (2019) Firm-specific and location-specific drivers of business location and relocation decisions, submitted to *Transport Reviews*, 24 January 2018, referees reports 30 June 2018, revised 3 September 2018, additional referees reports 9 November 2018, revised 15 November 2018, accepted 10 December 2018, proofs 18 December 2018, online 24 December 2018, 39 (5), 569-588. https://doi.org/10.1080/01441647.2018.1559254

A615 Hensher, D.A., Ho., C. and Ellison, R. (2019) Simultaneous location of firms and jobs in a transport and land use *Journal of Transport Geography,* 75, 110-121.

A616 Hensher, D.A. and Teye, C. (2019) Commodity interaction in freight movement models for New South Wales, *Journal of Transport Geography*, 18, 102506. https://doi.org/10.1016/j.jtrangeo.2019.102506

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A618 Hensher, D., Mulley, C., Ho, C., Nelson, J., Smith, G. and Wong, Y. (2019) Understanding MaaS: Past, Present and Future, paper prepared for presentation at *the 2nd International Conference on Mobility as a Service*, Tampere, Finland, November 2019.

2020

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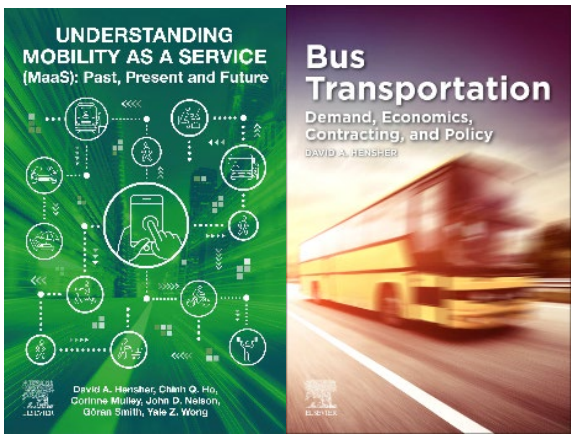
A619 Hensher, D.A. and Co-authors (2020) *Bus Transport Demand, Economics, Contracting and Policy*. 34 chapters drawn from published papers since the last book in 2008 and edited (see A310 above), Elsevier, UK, published 17 April, 526 pp. (softcover and e-book). ISBN: 978-0-12-820132-9; eBook ISBN: 9780128203934 Order at https://www.elsevier.com/books/bus-transport/hensher/978-0-12-820132-9

A620 Hensher, D.A., Mulley, C., Ho, C., Nelson, J., Smith, G. and Wong, Y. (2020) *Understanding Mobility as a Service (MaaS) - Past, Present and Future.* Elsevier, published May 18 2020, 204 pp. (softcover and e-book). ISBN 9780128200445. Order at https://www.elsevier.com/books/understanding-mobility-as-a-service-maas/hensher/978-0-12-820044-5
The MaaS book ITLS wrote is #2 on best technology and mobility books: https://skedgo.com/our-top-ten-must-reads-on-business-tech-and-transport/



A621 Leong, W., Wong Yiik Diew, Hensher, D.A. and Steel, R. (editors) (2020) Selected papers of the 16th International Conference on Competition and Ownership of Land Passenger Transport (Thredbo 16), Singapore, August 26 to 30, 2019, published in *Research in Transportation Economics*, Elsevier Science, 83, November. https://www.sciencedirect.com/journal/research-in-transportation-economics/vol/83/suppl/C

Journal Articles

A622 Mulley, C., Ho, C., Balbontin, C., Hensher, D.A., Stevens, L., Nelson, J. and Wright. S. (2020) Mobility as a service in community transport, in Australia: can it provide a sustainable future? Prepared for special issue of *Transportation Research Part* A on MaaS and Intelligent Mobility, Guest Edited by David Hensher and Corinne Mulley, 131, 107-122. https://doi.org/10.1016/j.tra.2019.04.001

A623 Wong, Y., Hensher, D.A. and Mulley, C.M. (2020) Emerging transport technologies and the modal efficiency framework: a case for mobility as a service (MaaS), paper presented at the *15th International Conference on Competition and Ownership of Land Passenger Transport* (Thredbo 15), Stockholm, Sweden, 13-17 August 2017. (Linked to VREF Centre), revised in 2018 for special issue of *Transportation Research Part* A on MaaS

and Intelligent Mobility Guest Edited by David Hensher and Corinne Mulley, 131, 5-19. https://doi.org/10.1016/j.tra.2019.09.030

A624 Ho, C., Mulley, C. and Hensher, D.A. (2020) Public preferences for mobility as a service: insights from stated preference surveys, prepared for special issue of *Transportation Research Part* A on MaaS and Intelligent Mobility Guest Edited by David Hensher and Corinne Mulley, 131, 70-90. https://doi.org/10.1016/j.tra.2019.09.031

A625 Hensher, D.A. and Mulley, C. (Guest editors) (2020) Introduction to Special issue on developments in mobility as a service (MaaS) and intelligent mobility, *Transportation Research Part A*, 131, 1-4. https://doi.org/10.1016/j.tra.2019.09.039

A626 Smith, G. and Hensher, D.A. (2020) Towards a framework for Mobility as a Service policies, (presented at the *16th International Conference on Competition and Ownership of Land Passenger Transport* (Thredbo 16), Singapore August 2019) *Transport Policy*, 89, 54-65. https://doi.org/10.1016/j.tranpol.2020.02.004

A627 Li, Z., Hensher, D.A. and Ho, C. (2020) Values of travel time savings from stated preference data and revealed preference data: an empirical investigation and comparison, *Transportation Letters*, 12 (3), 166-71. https://doi.org/10.1080/19427867.2018.1546806

A628 Hensher, D.A., Ho, C., Teye, C., Liu, W. and Wei, E. (2020) Integrating business location choices into transport and land use planning tools, *Journal of Transport Economics and Policy*, 54 (1), April, 121-150.

A629 Hensher, D.A. (2020) Electric cars – they may in time increase car use without effective road pricing reform and risk lifecycle carbon emission increases, *Transport Reviews* Editorial Series, 40 (3), 265-266 DOI: http://dx.doi.org/10.1080/01441647.2020.1709273.

A630 Hensher, D.A, (editor) (2020) *Thinking Outside the Box: Thought Pieces in Transport, Logistics and Supply Chain Management*, A Monograph of 5 years of Thinking Pieces, 4 April, 162pp. Available for free on Linkedin. Also see https://www.sydney.edu.au/content/dam/corporate/documents/business-school/research/itls/thinking-series-67-thought-pieces.pdf.

A631 Becker, H., Becker, F., Abe, R., Abou-Zeid, M., Becker, T., Bekhor, S., Belgiawan, P. F., Compostella, J., Frazzoli, E., Fulton, L. M., Garrick, N., Bicudo, D. G., Gurumurthy, K. M., **Hensher, D. A**., Joubert, J. W., Kockelman, K. M., Kroger, L., Kuhnimhof, T., Vine, S. L., Malik, J., Marczuk, K., Nasution, R. A., Rich, J., Carrone, A. V. P., Shen, D., Shiftan, Y., Tirachini, A., Verdis, D., Wong, Y. Z., Zhang, M., Bosch, P. M. & Axhausen, K. W. (2020) Impact of vehicle automation and electric propulsion on production costs for mobility services worldwide, input submitted to joint paper with ETH and others, Full draft 12 October 2017 submitted to international cooperation research coordinated by ETH Zurich, inquired 24 January 2018, revised input March 8, 2018, May 5 2018, 12 December 2018, 30 December 2018, Submitted to *Transportation Research Part A*, 19 May 2019 (also to be presented at 2020 Annual *Transportation Research Board Conference*, Washington DC, January titled Impact of Vehicle Automation and Electric Propulsion on Production Costs for Mobility Services Worldwide).
"Thx for this David. This is really important research and a great example of where transparency of cost scenarios can shift the current policy paradigm for user based charging to where it needs to go if governments are to ready themselves for new market forces." *Cheers Clare (Clare Gardiner-Barnes, Head of Strategy and Innovation, Infrastructure NSW), 3 August 2019),* referees report 4 August 2019, inquired 13 August 2019, revised 26 October 2019. Also for presentation at *Transportation Research Board Annual Conference*, Washington DC January 2020, *Transportation Research Part A, 138, 105-126.*

A632 Li, Z. and Hensher, D.A. (2020) Performance contributors of bus rapid transit systems within the ITDP BRT standard: An ordered choice approach, presented at the *16th International Conference on Competition and Ownership of Land Passenger Transport* (Thredbo 16), Singapore August 2019. This paper received an honorable mention for Zheng Li re the Michael Beesley Award. *Economic Analysis and Policy,* 67, 154-161.

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A634 Ho, C., Hensher, D.A. and Wang, S. (2020) Joint estimation of mode and time of day choice accounting for arrival time flexibility, travel time reliability and crowding on public transport, *Journal of Transport Geography* , 87, 102793.

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A636 Hensher, D.A. (2020) What might Covid-19 mean for mobility as a service (MaaS)? *Transport Reviews*, 40 (5), 551-556. See also a slightly longer version at https://imoveaustralia.com/thoughtpiece/what-might-covid-19-mean-for-mobility-as-a-service/

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A638 Beck, M. J., Hensher, D.A. and Wei, E. (2020) Slowly coming out of COVID-19 restrictions in Australia: implications for working from home and commuting trips by car and public transport, Paper #3, *Journal of Transport Geography*, 88, 102466.

A639 Li, Z. and Hensher, D.A. (2020) Understanding risky choice behaviour with travel time variability: a review of recent empirical contributions of alternative behavioural theories, *Transportation Letters,* 12 (8), 580-590, DOI: 10.1080/19427867.2019.1662562.

A640 Hensher, D.A., Wong, Y. and Ho, L. (2020) Review of bus rapid transit and branded bus service network performance in Australia, Presented at the *16th International Conference on Competition and Ownership of Land Passenger Transport* (Thredbo 16), Singapore August 2019, (also for presentation at the ATRF 2019 conference, November). *Research in Transportation Economics*, 83, November. https://doi.org/10.1016/j.retrec.2020.100842

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A644 Balbontin, C., Hensher, D.A., Ho., C. and Mulley, C. (2020) Do preferences for BRT and LRT change as a voter, citizen, tax payer, or self-interested resident? (BRT+ Centre Webinair 20 June 2018). *Transportation,* 47, 2981–3030.

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2021

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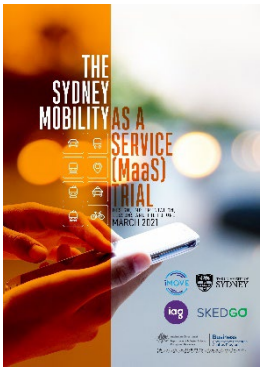

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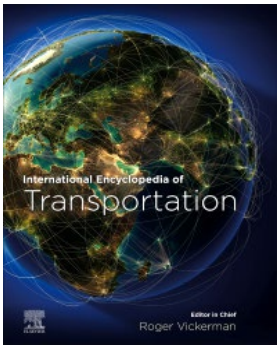
A648 Hensher, David. (2021) Value of life and injuries. In: Vickerman, Roger (eds.) *International Encyclopedia of Transportation*. vol. 2, 737-741. UK: Elsevier Ltd**.** ISBN**:** 9780081026717. https://dx.doi.org/10.1016/B978-0-08-102671-7.10205-2



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A651 Hensher, D.A., Wei, E., Beck, M.J. and Balbontin, C. (2021) The impact of COVID-19 on the time and monetary cost outlays for commuting - the case of the Greater Sydney Metropolitan Area after three months of restrictions, Paper # 5, *Transport Policy*, 101, 71-80.

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A653 Hensher, D.A., Ho, C. and Reck, D. (2021) Mobility as a Service and private car use: evidence from the Sydney MaaS trial, Corrigendum to "Mobility as a service and private car use: Evidence from the Sydney MaaS trial" [Transp. Res. Part A 145 (2021) 17-33].*Transportation Research Part A*, 145,17-33.

A654 Balbontin, C. and Hensher, D.A. (2021) Modelling business location decisions: identifying main drivers and ANA process strategy behaviour, *Journal of Transport Geography*, 91, 102955.

A655 Teye, C. and Hensher D.A. (2020) A commodity-based production and distribution freight model with application to Sydney, New South Wales (an early version presented at *The Fifth International Choice Modelling Conference* 3 – 5 April 2017, Cape Town, South Africa). *Transportmetrica A*, 17 (4), 566-592. https://doi.org/10.1080/23249935.2020.1802361.

A656 Hensher, D.A., Beck, M. J. and Wei, E. (2021) Working from home and its implications for strategic transport modelling based on the early days of the COVID-19 pandemic, Paper #2, *Transportation Research Part A*, 148, 64-78.

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"Russell King<russindia1@gmail.com>Brilliant paper - I have to summarise it for my newsletter. It reminds me of a presentation I went to from the sustainability team at TfNSW to the top 100 leaders in the department. They broke down the sources of carbon emissions in NSW and within transport they split it into two sections - the emissions TfNSW is directly responsible for from its vehicles and operations and everything else. They then proceeded to ignore private car emissions believing they did not have much to do with them. I was completely gobsmacked."

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A742 Xi, H., Shao, Z., Hensher, D.A., Nelson, J.D., Chen, H. and Wijayaratnae, K. (2025) A multi-task transformer with mixture-of-experts for personalized periodic predictions of individual travel behavior in multimodal public transport *Transportation Research Part C*, 179, 105287,online 5 August 2025,

A743 Mao, H.,Li, H., Jin.Z., Tu, H., and Hensher, D.A. (2025) The impact of ride experience on car travelers' adoption of private and shared autonomous vehicles. *Traveller Behaviour and Society,* 41, 101099, online 5 August 2025.

A744 Hensher, D. A., Ho, C.and Wei, E. (2025) Development, Practical Challenges, and application of a statewide transport model system in Australia, *Transportation Planning and Technology* 48 (1), 1-42. https://doi.org/10.1080/03081060.2024.2367757
Long version as ITLS Working Paper, October 2023:
https://ses.library.usyd.edu.au/bitstream/handle/2123/31664/ITLS-WP-23-19.pdf?sequence=3&isAllowed=y

A745 Hensher, D.A., Wei, E,. and Pellegrini, A. (2025) Accounting for the location and allocation of working hours throughout the working week: a discrete-continuous choice model, *Transportation Research Part A*, 104484. https://doi.org/10.1016/j.tra.2025.104484

A746 Kandanaarachchi, T., Nelson, J., Hensher, D.A. and Mulley, C.(2025) Establishing a Framework of Support to Scale in Mobility as a Service: Consolidated Insights from the Literature on potential governance frameworks, Paper #1 iMOVE project on Scalable MaaS, presented at *Thredbo 18*, Cape Town, September 2024, **TMR MaaS Paper #2**. *Research in Transportation Economics* (RETREC) Thredbo 18 Special Issue, 17 accepted 24 May 2025, https://doi.org/10.1016/j.retrec.2025.101583

A747 Xi, H., Nelson, J.D., Mulley, C., Hensher, D.A., Ho, C., and Balbontin,C. (2025) Barriers towards enhancing mobility through integrated mobility services in a regional and rural context: insights from suppliers and organisers, *Transport Policy* **RTRH Paper #4,**.171, 282-295.
("That is a very good paper. For those who are interested in such things, I think you have produced a 'model' analysis that could be similarly applied to many of the other services (eg health services, communication services) being provided to low density rural populations. I am pretty sure these 'parallel analyses would come to the same conclusions that you have reached for the provision of transport services. What I am saying is that this paper, whilst specifically addressing transport, articulates some profound realities for the support of Australia's rural communities. Well done, it deserves to be widely circulated. Regards **Ian Christensen** Managing Director, iMOVE, 19 June 2025").

A748 Zeng, J., Li, Z., and Hensher, D.A. (2025) Travel decision making under uncertainty and road traffic behavior: the multifold role of ambiguity attitude, *Transportation Research Part A*, 22 Online 192, 104326

A749 Li, Z., Zeng, J., Hensher, D.A. and Wu, C. (2025) Travel time reliability, psychological choice mechanisms, sustainable travel behavior and smart urban development, *Transportation Research Part A*, 200, 104622, 6 August 2025.

A750 Haghani, M. and Hensher, D.A. (2025) Private toll roads are supposed to save taxpayers' money, but can have these hidden costs, *The Conversation*., 12 September 2025 https://theconversation.com/private-toll-roads-are-supposed-to-save-taxpayers-money-but-can-have-these-hidden-costs-263441. DOI https://doi.org/10.64628/AA.j3n9k4jjy. See also https://www.thewire.org.au/story/rethinking-the-current-private-road-toll-model/
"This is an important article, about the risk of overstating revenue for privately funded road toll schemes, an issue where Australia leads the way in experience, if not solutions. There are aspects of modelling practice that increase this risk, not only in private schemes. Earlier results from the London congestion charge also somewhat overestimated the revenue and underestimated the traffic reduction, though in that case the effect was beneficial, since the main objective was to reduce congestion and the scheme was more effective than expected. The common thread is underestimation of the sensitivity of demand to costs, especially in the longer term. The same often applies to the effects of increasing (or reducing) road capacity" Prof Phil Goodwin, 12 September 2025.

A751 Haghani, H., Wiedmann, T., Rajabifard, A. and Hensher, D.A. (2025) The race for deep-sea minerals could cause geopolitical and ecological harm, *Nature* **646**, 804 (2025), doi: https://doi.org/10.1038/d41586-025-03429-2

A752 Xi, H., Nelson, J.D. Mulley, C., Hensher, D.A., Ho, C., and Balbontin, C. (2025) Addressing transport disadvantage in regional and rural areas through integrated mobility services, **RTRH Paper #5,** *Research in Transportation Economics* (RETREC), 114, 101650.

A753 Basnak, P., Balbontin, C. Vallejo-Borda, J.A., Feres, F., Reyes, J., Beck, M.J., Hensher, D.A.,and Giesen, R. (2025) Determinants of mode changes in times of COVID-19: A study of 11 main Latin American cities, **WFH Paper #36**, *Transportation Research Part A,* 104478.

Online to appear in 2026

Book Chapters

A754 Hensher, D.A., Beck, M., Balbontin, C., and Nelson, J. (2025) Commuting mode choice and work from home in the later stages of COVID-19: Implications for sustainability *in Routledge Handbook of Sustainable Urban Transport*, edited by Lucy Budd and Maria Attard, for 2025 publication, finalised 13 April 2024. **WFH Paper #37.**

A755 Hensher, D.A., Nelson, J. D., and Mulley, C. (2025) Mobility as a Service: Challenges and Opportunities, for *Handbook on Research Methods in Transport Economics and Policy*, edited by Andrew Smith and Chris Nash, Edward Elgar Publishers. Drafted 17 April 2025. Reviews 14 July 2025, Due July 2025. (Abridged version presented at the 2005 ATRF, Auckland, November).

A756 Hensher, D.A., Wei, W. and Beck, M.J. (2025) Working from Home and Hybrid Work in the new era of Flexi-place and Flexi-time in *Editors:* Michiel C.J. Bliemer and Corinne Mulley, *Handbook on Transport and Urban Planning in the Developed World*, Edward Elgar Publishing Ltd, UK.

Journal Articles

A757 Balbontin, C., Nelson, J.D., Hensher, D.A., and Beck, M.J. (2025) Identifying main drivers for students and staff members' mode choice or to work/study from home: A case study in Australia, **UTP Paper #1** prepared and submitted to the *hEART conference*, 2 March 2023, accepted for presentation 23 May 2023, *Transportation*, accepted 7 March 2025.

A758 Hensher, D.A, Wei., E.., and Liu, W. (2026) Systematic assessment of push and pull initiatives in behavioural responses associated with public transport fares, service frequency, car-related tolls, distance-based road user charges, and parking charges, *Case Studies on Transport Policy*, 23 March 2026. https://doi.org/10.1016/j.cstp.2025.101656

2026

Books and Proceedings

A759 Hensher, D.A., Vanderschuren, M., Nelson, J.D. and Connell, R. (editors) (2026) Thredbo 18 Conference - Special Issue: Competition and Ownership in Land Passenger Transport, Selected papers Cape Town, September 2024, *Research in Transportation Economics*.

Journal Articles

A760 Balbontin, C., Hensher, D.A, and Beck, M.J. (2026) How have commuting choices and work from home changed since 2020 in metropolitan versus rural settings? A case study in Australia. **WFH Paper #26,** preliminary results presented at *International Choice Modelling Conference* (ICMC), Chile, April 1-4, 2024, *Transport Policy*, 103869. https://doi.org/10.1016/j.tranpol.2025.103869.

A761 Greene, W. G. and Hensher, D.A. (2026) Hybrid choice modelling and transportation research, *Foundations and Trends in Econometrics,* Now Publishers Inc., Boston (part of Emerald Publishing) 174 pp.

A762 Hensher, D.A. (2026) Road user charge reform and the political shift in interest: some thoughts to contemplate, *Transport Policy*, 177, 103930, . https://doi.org/10.1016/j.tranpol.2025.103930

(AA) Posters at Conferences and Presentations Only

Excludes an extensive number of public lectures, seminar, webinars

AA1 Chandler, D, Landau, S. Mulley, C., Hensher, D and Ho, C (2017) U.S. and Australian Experience with Surveys of Ridesharing Markets, poster presented at the *2017 Transportation Research Board Annual Meeting*, Washington D.C., January.

AA2 Mulley, C., Ho, C., Ho, L., Hensher, D. and Rose, J (2018) Will bus travellers walk further for a more frequent service? An international study using a stated preference approach, poster presented at the *2018 Transportation Research Board Annual Meeting*, Washington D.C., January.

AA3 Balbontin, C., Hensher, D.A. and Collins, A. (2018) How to better represent preferences in choice models: the contributions to preference heterogeneity attributable to the presence of process heterogeneity, prepared for the *University of Sydney Accelerated Computing for Innovation Conference* presented by the Sydney Informatics Hub, September.

AA4 Reck, D.J., K.W. Axhausen, D.A. Hensher, and C.Q. Ho Multimodal transportation plans: empirical evidence on uptake, usage and behavioral implications from the Augsburg MaaS Trial; paper prepared for presentation at the *Transportation Research Board Annual Conference*, Washington DC, January 2021, accepted for presentation 2 October 2020.

AA5 Cutler, D., Schroeckenthaler, K., Weisbrod, G., Liu, W, Wei, E. and Hensher, D.A. A Multi-Regional Transportation-Economic Model with O-D Detail for Freight and the Economy, presented at *Transportation Research Board Planning Applications Conference*, a biennial specialty conference, 21 July 2021.

AA6 Chen, N.T., Fu, X., Hensher D.A., Zhi-Chin, L. and Sze, N.N. Air travellers' preference changes during a pandemic - an international comparison using a stated preference approach hksts@25 (the 25th International Conference of Hong Kong Society for Transportation Studies), number 244.

AA7 Smith, G., Hensher, D.A., Ho, C. and Balbontin, C. The user perspective on Mobility-as-a-Service: Insights from a trial in Sydney, to be presented at ICoMaaS in Finland 3rd international conference on mobility as a service, Tampere Hall, Tampere, Finland, 29–30 November 2022.

AA8 Xi.,H., Li, Q. H., Hensher, D.A., Nelson, J. and Ho, C. Quantifying the impact of COVID-19 on travel behavior of people in different socioeconomic groups, presented as a poster at the *Transportation Research Board Annual Conference*, Washington D.C, January 2023.

AA9 Balbontin, C., Nelson, J.D., Hensher, D.A. and Beck, M. (2023). Identifying main drivers for students and staff members' mode choice or to work/study from home or attend University campus: A case study in Australia. Presented at 11th hEART Symposium (the *European Association for Research in Transportation*), Zurich, 6th - 8th September 2023.

A10 Balbontin, C., Hensher, D.A. and Beck, M. J., Giesen, R., Agustín Vallejo, J., and Basnak, P.Changes in mode choices since 2020 to 2022: a cross-cultural comparison between Australia and Latin America, presented at *Thredbo 18*, Cape Town, September 2024.

(AB) Selected Podcasts and Webinars (2020 onwards)

Historical discussion on the Sydney Harbour Tunnel and tolls:
http://www.herinst.org/sbeder/edresources/videoinf.html

https://roadsaustralia.buzzsprout.com/1010266/4124777-mobility-as-a-service-maas-where-to-next ASSA:

https://seriouslysocial.org.au/podcasts/how-avoiding-the-commute-is-making-us-happier-2/

Engineers Australia (Transport Australia Society) 3 February 2021
Mobility as a Service (MaaS) and Working for Home (WFH) – two active agendas that could change the multi-modal landscape post COVID-19
https://www.engineersaustralia.org.au/event/2021/01/integrating-multi-modal-end-end-journey-transportation-and-their-interaction-34826

John H.E. Taplin Inaugural Memorial Lecture 17 March 2021
University of Western Australia "What does intelligent mobility through MaaS add to sustainablilty?"

Mobility as a Service (MaaS) 21 April 2021
The Sydney Trial and Lessons Learnt: https://imoveaustralia.com/news-articles/personal-public-mobility/maas-what-have-we-learnt-from-our-2-year-trial/
The report, and recording are now up on iMove
https://imoveaustralia.com/project/project-outcomes/sydney-maas-trial-final-report/
https://imoveaustralia.com/wp-content/uploads/2021/04/iMOVE-Sydney-MaaS-Trial-Final-Report-March-2021.pdf
and linkedin
https://www.linkedin.com/feed/update/urn:li:activity:6790153864684433408

UCL MaaSLab launches a new series of Guest Lectures 25 May 2021
The Sydney MaaS Trial – Synthesis and Lessons Leant

Futures Collider Event – Public Transport ITS, Vic DoT Talk on MaaS and contracts, 17 March 2021.

Does MaaS have legs? Views of supporters and sceptics
March 10, 2021 https://www.youtube.com/watch?v=RwnqpZr1vOc

https://www.sydney.edu.au/content/dam/corporate/podcasts/business-school/the-early-days-of-the-pandemic.mp3

AITPM 2021 National Conference Plenary Talk, 6 September 2021
https://interchange.aitpm.com.au/viewdocument/ocs-2021-opening-keynote-impact-o?CommunityKey=b8d7bbd4-cfb4-4b60-bb6b-0b96ab06c8eb&tab=librarydocuments

Talking Headways with Jeff Wood, March 22, 2023 on MaaF
https://podcastaddict.com/episode/155060595
https://streetsblog.libsyn.com/episode-425-fixing-mobility-as-a-service

iMOVE Conference Panel on MaaS, November 2024

ATRF November 2024 panel debate on High Speed Rail in Australia

See also Video Link:https://faculti.net/the-future-of-mobility-as-a-service-and-post-covid-commuting
DOI Link:https://doi.org/10.64240/5e400b0b0a

See also talk on 11 November to The Royal Geographical Society of Queensland https://www.youtube.com/watch?v=9dB-AD6z8og

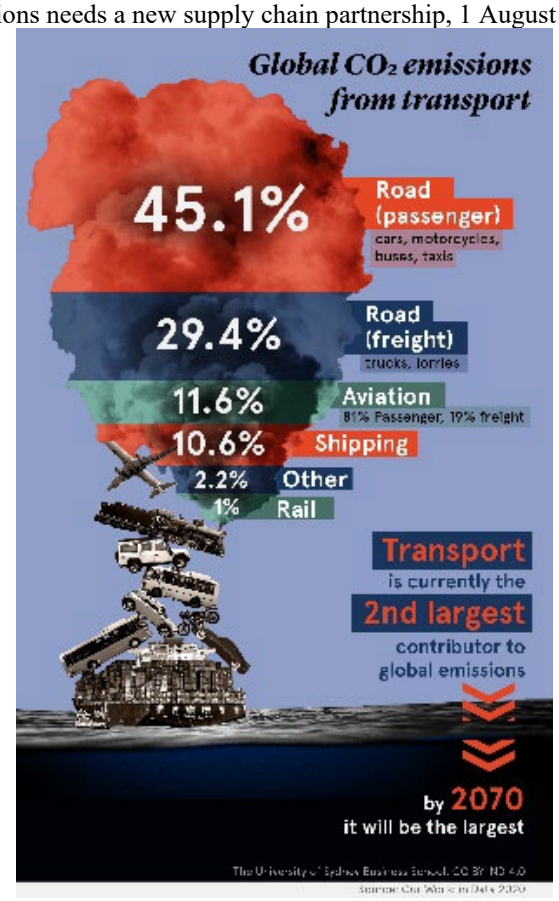
Professor David Hensher was asked (May 2023) by the Bus Rapid Transit Center to give an introduction to the topic "Towards Electric Public Transport: Navigating the Transition". This short video synthesises a significant amount of the evidence on the challenges facing the transition to clean energy buses including costs, risks, and contracting options. The full set of energy sources are discussed including battery, hydrogen, renewable diesel and other innovations designed to lower C02 emissions. https://youtu.be/NWYZHjgliYI

	I get to chat with a lot of interesting and cool people for Compass IoT's Byte Size - Podcast. and David Hensher AM is no exception! https://podcasts.apple.com/us/podcast/byte-size/id1530623028. May 2023.

2025 podcast on MaaS and MaaS: https://mobilitaetsfunk.de/multiservice-statt-multimodal-wie-mobilitaetsverhalten-wirklich-veraendert-werden-kann/

2025 see short video on the Car Community Club (CCC) https://mitfahrverband.org/beyond_ride-sharing/

Transitioning to net zero emissions needs a new supply chain partnership, 1 August 2024



https://sbi.sydney.edu.au/transitioning-to-net-zero-emissions-needs-a-new-supply-chain-partnership/

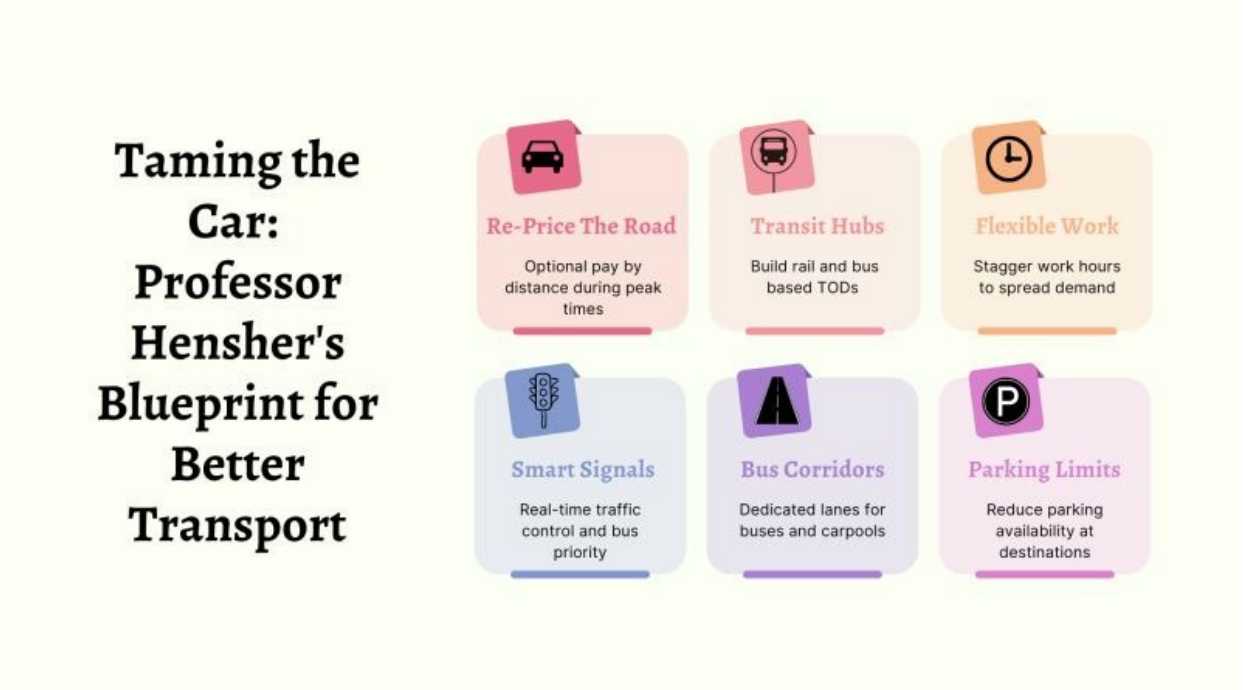
"The emphasis is on transition to clean energy for cars, buses, and trucks, and to date the The Institute of Transport and Logistics Studies (ITLS) team have contributed to the development of alternative transition pathways in respect of the full life cycle effects of battery electric and hydrogen conversion for buses and trucks.

The greatest challenge is having a governance framework that creates unambiguous policy settings developed by government, that provide the clarity needed for industry to invest in future clean energy solutions.

There needs to be greater dialogue between procurement agencies in government and the private sector, noting that most expertise in energy technology, manufacturing, and implementation is in the private sector. A critical role for government is to build trust in a Supply Chain Partnership Contract (SCPC), by recognising the diverse set of roles, and risk sharing, that can be delivered by private sector partnerships that negotiate or tender with government to deliver outcomes aligned with achieving the net zero goal.

This would involve a paradigm shift from traditional contracting (i.e., contracts between government and bus operator, or between a truck business and truck manufacturer), to management agreements between **government and consortiums**. This new arrangement would account for the entire supply chain: energy provision generation and distribution, original equipment manufacturer, asset owners, and operators. This would give the government certainty of service continuance in a net zero emission future for all transport modes."

AITPM Panel on "Lessons from industry and government: challenges we face in reframing the way we need to think and act going forward, to improve on governance, planning, delivery and operations", 6 March 2025.



(B) Papers under editorial consideration for formal publication

B1 Hensher, D.A. and Johnstone, D. A model of how investors are attracted to risky mega-projects, December 2024, in revision for journal, 5 August 2025.

B2 Balbontin, C., Hensher, D.A. and Beck, M. J., Agustín Vallejo, J., Giesen, R., and Basnak, P. Commuting and non-commuting travel activity: a cross-cultural comparison between Australia and Latin America, **WFH Paper #28**, presented at *Thredbo 18*, Cape Town, September 2024, to be submitted to *Research in Transportation Economics* (RETREC), inquired 20 November 2025.

B3 Hensher, D.A., Nelson, J.D., Balbontin, C., Ho, C., Wei, E., Mulley, C., and Kandanaarachchi, T. Establishing evidence of initiatives undertaken by non-mobility service providers that are aligned with sustainable travel behaviour change as a next generation focus of MaaS as MaaF. **TMR MaaS Paper #3**, submitted to *Transportation Research Part A*, 25 October 2024, inquired 21 October 2025, referees reports 29 November 2025, revised 3 December 2025.
See https://papers.ssrn.com/sol3/papers.cfm?abstract_id=5000871

B4 Sourd, R.C., Hess, S., Börjesson, M. and Hensher, D.A. Should transport analysts worry about incentive compatibility? Paper presented at the *2017 Transportation Research Board Annual Meeting*, Washington D.C., January. Presented at the EAERE 2017 Conference as revisiting preference stability: a first step to testing the incentive compatibility arguments. Submitted to HEART 2020 (9th Symposium of the European Association for Research in Transportation (hEART 2020), Lyon) and accepted for presentation 7 May 2020, 1 February 2020. Submitted to *Transportation Research Part A*, 29 April 2020, referees reports and minor revisions, 19 August 2020, draft revision 23 October 2020, revised 12 November 2020, referees reports 8 February 2021, revised 28 February 2021, further minor revisions 2 March 2021, resubmitted 4 March 202, inquired 10 May 2021, referee report 23 August 2021, inquired 14 February 2022, updated 23 April 2021, revised 6 May 2022, revised with new title of preference instability in stated choice surveys: new evidence, 20 June 2022. Inquired 16 November 2022, 15 July 2023, withdrawn from TR A, 8 August 2023. (Romain Crastes dit Sourd <R.CrastesditSourd@leeds.ac.uk>), inquired 24 February 2024, 24 April 2024, 28 August 2024.Rtitled as Title: Preference Instability in stated choice surveys: more evidence, submitted to *Traveller Behaviour and Society,* June 2025, inquired 10 October 2025, referee's reports October 2025.

B5 Vallejo-Borda, J.A., Giesen, R., Lira, B.M., Basnak, P., Reyes,J.P., Pasqual, F., Petzhold, P., Beck, M.J., Hensher, D.A., and de Dios Ortúzar, J. **WFH Paper #16**, Characterizing public transport shifting to active and private modes in Brazil during the Covid-19 pandemic, accepted for presentation at Annual *Transportation Research Board Conference*, Washington DC January 2022. Inquired 16 November 2022, 23 January 2023; to be submitted to *Transportation Research Part F*. Inquired 27 April 2023, delayed, inquired 21 July 2023, advice 10 September 2023, inquired 3 March 2024, update of progress 24 May 2024, inquired 6 December 2024 and delayed, inquired 24 July 2025, inquired 10 October 2025, 21 October 2025.

B6 Pisa, N.,Ho, C.Q., Hensher, D.A.,Luke, R.,Hyens, G., Magetoa,J., and Chakamera,C. How poor lamd use planning has created an unfixable problem for transport: a case study of the City of Johannesburg**,** submitted to the *Journal of Transport Geography*, 27 May 2025, referees reports 22 July 2025, revised 20 August 2025, referees reports 9 October 2025, revised 22 October 2025.

B7 Rose, J. M., Pellegrini, A. Hensher, D.A. and Beck, M.J. Low cost flat public fare policy: induced demand, mode switching and policy beneficiaries, submitted to *Transport Policy*, 20 May 2025, referees reports 10 September 2025, inquired 2 December 2025, revised 23 December 2025.

B8 Stanley, J.K., Hensher, D.A.,Vella-Brodrick, D. and Stanley, J. R. Monetizing the value of changes in eudaimonic wellbeing, submitted to *Transportation Research Interdisciplinary Perspectives,* 6 August 2025, inquired 4 December 2025, referees reports 31 December 2025.

B9 Hensher, D.A. Time for a reset of bus contracts? Material based on Bus Industry Confederation (BIC) and APTIA keynote presentations in Hobart and Canberra. Full draft 30 January 2025, submitted to *Thredbo 19*, Malta, September 2026, and presented at *12th International Symposium on Travel Demand Management* (TDM 2025), 9-11 December, Sydney, https://tdmsymposium2025.org/

B10 Hensher, D. A., Wei, E., Nelson, J. D., Kandanaarachchi, T., Mulley, C., Balbontinn, C., Liu, W., and Ho, C. Establishig the level of support for transport initiatives which make a positive impact on travel behaviour,

submitted to *Journal of Transport Geography*, 25 October 2025, referee reports 2 December 2025, major revision and re-submission required or submit to another journal.

B11 Merkert, R., Bushell, J., Anderson,D., Iemma. A., and Hensher, D.A., Data hubs and information collaboration challenges in freight ecosystems, a proximity theory approach, to be submitted to *Transportation Research Part A,* 24 June 2025, inquired 21 October 2025.

B12 Hensher, D.A. Commuting choices in *A Research Agenda for Responsible Transport*, Edited by Stephen Ison and Lucy Budd, Edward Elgar, full draft 8 October 2025.

B13 Hensher, D.A., Pellegrini, A. and Wei, E. The influence of flexi-time and flexi-place work on online ordering expenditure, submitted to *Transport Policy*, 16 December 2024. Inquired 27 September 2025.

B14 Li, Z., Zeng, J., and Hensher, D.A. Economic and environmental implications of electric and reliable mobility: An extended land use-transportation interaction model and a case study, submitted *to Transportation Research Part A,* 25 September 2026.

B15 Nelson, J.D., Hensher, D.A., Mulley, C., Wei, E., Kandanaarachchi, T., Balbontinn, C., and Liu, W. Consolidated insights from the literature on sustainable_transport infrastructure development and travel behaviour change, submitted to *International Journal of Sustainable Transport*, 27 October 2025.

B16 Wei, E. and Hensher D.A. A comparative analysis of the drivers and outcomes of work, location and commuting choices of the main office only, hybrid and home /other location only workers, **WFH Paper #38**, submitted to *Transport Policy*, 23 May 2025

B17 Pelligrini, A., Rose, J. M.,. and Hensher, D.A. Exploring community public budget preferences for transport electrification: Evidence from a contingent budget allocation study in New South Wales, Australia, full draft 25 June 2025, submitted to *Transport Policy*, 26 June 2025, referees reports 3 September 2025, inquired 2 Decmber 2025, revised 23 December 2025.

B18 Balbontin, C., Hensher, D.A., Wei, E. and Liu, W. Profiling future passenger transport initiatives that garner community support as a guide to identify the growing role of active and micro-mobility modes: a MDCEV model, **Active Travel Project Paper #2**, submitted to *Transportation Research Part C*, 1 May 2025, referees' reports 9 October 2025, inquired 20 November 2025,retitled as 'The growing role of active and micro-mobility modes: insights from mode adoption and weekly use by trip purpose', revised 28 November 2025.

B19 Hensher, D.A., Nelson, J.D., Wei E., Kandanaarachchi, T., Balbontin, C., Ho, C., Mulley, C. and Liu, W. Windows of change as precursors to changing travel behaviour aligned with sustainable mobility, submitted to *Transportation Research Part A*, 24 July 2025.
Also a WP https://ses.library.usyd.edu.au/handle/2123/34154.

B20 Rashidi,T., Black, J., Graham, D., Hensher, D.A., and McNeil, S. Future challenges in the systems anaysis of multi-modal urban transport networks – a trans-disciplinary perspective, submitted to *Journal of Traffic and Transportation Engineering (*English Edition), 5 August 2025.

B21 Hensher, D.A. Wei, E, Balbontin, C. and Nelson. J. D. Identifying circumstances in which the introduction of distance-based, cordon-based, and congestion-free lane road user charge regimes garner support**,** submitted to *Transportation Research Part A*, 1 September 2025, referees reports 29 November 2025, revised 3 December 2025.
https://url.au.m.mimecastprotect.com/s/J62XCL7EwMfQ1RvM0tBfytyPeHC?domain=ssrn.com

B22 Nelson, J.D., Mulley, C. and Hensher, D.A., Chinh Q. Ho, Haoning Xi, and Camila Balbontin Planning to extend the modal landscape in rural and regional areas: the potential of the Triple 'C' Car Community Club (CCC), *World Conference on Transport Research* - Toulouse 6-10 July 2026.

B23 Chung, D. and Hensher, D.A. Risk sharing in Public-Private-Partnerships: a contractual economics perspective in *Editors:* Michiel C.J. Bliemer and Corinne Mulley, *Handbook on Transport and Urban Planning in the Developed World*, Edward Elgar Publishing Ltd, UK., submitted 12 November 2025.

(C) Material in Progress – Active

CA1 Wei, E., Hensher, D.A., and Coote, L. Embedding scoring rules representing discrepancies between choice and design probability distributions in MNL models estimating SP data.

CA2 Xi, H., Hensher, D.A., Zhang, Y.,Wang, J., Nelson, J.D. and Waller, S.T. A decade of Mobility-as-a-Service research: A systematic review of modeling methods and future research agenda, submitted to *Transportation Research Part A*, 1 January 2026, full draft 18 December 2025

CA3 Wei, E., Hensher, D.A. and Kandanaarachchi, T. Online shopping and implications for passenger and freight vehicle movements.

CA4 Balbontin, C., Hensher, D.A. and Nelson, J. Travel patterns of students and staff at the University of Sydney: examining complementary and substitutive trip purposes and modes' dynamics, **UTP Paper #2,** presented at *Elsevier Transportation Research Symposium,* Rotterdam, May 2025, being revised for a journal 5 October 2025.

CA5 Rose, J. M., Pelligrini, A. and Hensher, D.A. What if we listen to the public? Transport justice or simply bad outcomes? In progress 24 Decvember 2025.

CA6 Hensher, D.A., Nelson, J.D., Wei E., Kandanaarachchi, T., Balbontin, C., Ho, C., Mulley, C. and Liu, W. Exploring travel behaviour change through user-centric incentives, *12th International Symposium on Travel Demand Management* (TDM 2025), 9-11 December, Sydney, https://tdmsymposium2025.org/ Being prepared as a paper.

CA7 Hensher, D.A., Rose, J.M., and Greene, W.H. *Applied Choice Analysis*, Third Edition, Cambridge University Press, Cambridge. To be delivered mid to late 2026, with revised and new chapters.

CA8 Hensher, D.A., Balbontin, C., and Nelson, J. D. What is the behavioural response impact difference of a push-pull policy initiative in contrast to a stand-alone push or pull initiative? Full draft 42 December 2025.

CA9 Hensher, D.A. and Wei, E.. Is Political preference bias aligned with the debate on net zero emission targets in Australia?

CA10 Hensher, D.A. Wei, E.,and Nelson, J. D. Connecting NSW – transport priorities as the community sees them.

(C) Material in Progress – Other

CO1 Hensher, D.A. and Ho, C. VTTS under toll saturation – comparing evidence from an online consumer panel and face to face interviews.

CO2 Truong, T.P. and Hensher, D.A. Elasticity of choice and elasticity of demand – Some comparisons and suggestions for an integrated application.

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CO7 Buckell, J., Hensher, D.A. and Hess, S. Smokers' choices and addiction: The role of endogenous experience, in progress.

CO8 Balbontin, C., Mulley, C. and Hensher, D.A. Vertical equity implications of road pricing reform.

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(E) Unpublished Papers

E1 Hensher, D.A. (1971) "Modal Choice and Modal Split: A Review of Modelling Procedures", School of Economics, University of New South Wales, March.

E2 Hensher, D.A. (1975) "The Relevance of a Knowledge of the Nature of Urban Travel Demand in Urban Transport Planning", Commonwealth Bureau of Roads, Melbourne, March.

E3 Hensher, D.A. (1975) "Consumer Choice, Product Differentiation and Policies for Market Segments", unpublished paper Commonwealth Bureau of Roads, Melbourne, March.

E4 Hensher, D.A. (1977) "Incidence Analysis in Project Appraisal: The Rudiments of a Methodology", School of Economic and Financial Studies, Macquarie University, January.

E5 Hensher, D.A. (1977) "Multi-dimensional Scaling and Intransitivity", School of Economic and Financial Studies, Macquarie University, January.

E6 Hensher, D.A. (1977) "An Economic Interpretation of the Parking problem", School of Economic and Financial

Studies, Macquarie University, February.

E7 Hensher, D.A. (1977) "The Issue of Reported Perception and the Relationship to Actual Levels of Fares: An Empirical Note", School of Economic and Financial Studies Macquarie University, May.

E8 Hensher, D.A. (1981) "Translation of Road Pricing Measures into Generalised Cost Parameters", School of Economic and Financial Studies Macquarie University, February.

E9 Hensher, D.A. (1981) "Research in Transportation at Macquarie University", paper presented at 3rd Conference of Australian Institute of Transport Research, University of Melbourne, December 9 - 11.

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E11 Hensher, D.A. (with Smith, N.C. and Wrigley, N.) (1989) "Modelling Discrete Choice Sequences: An Application to Automobile Transactions", March.

E12 Louviere, J.J., Hensher, D.A. and Stopher, P.R. ((2000) An Empirical Analysis of the Effect of Numbers of Choice Sets in Designed Choice Experiments.

E13 Hansen, D. and Hensher, D.A. (2000) Forecasting Organisational Decisions: Obtaining Better Estimates of Management Decisions by Combining Market and Experimental Decision Data Presented annual INFORMS Marketing Science Conference at INSEAD, Fontainebleau, France, July 13 1998.

E14 Troung, T.P. and Hensher, D.A. Free-Riding and the Invisible Hand In the Optimal Provision of Public Infrastructure Goods: With Reference To Toll Roads

E15 Hensher, D.A. Congestion Charging: Lessons from the first 6 months of the London Experience and its Scalability to Sydney, September 2003. (Summary in Sydney Morning Herald, September 10, 2003).

E16 Hensher, D.A. Taking Service Quality and Ongoing Support Seriously in the Delivery of Electricity, Gas and Water, An opinion piece prepared on the invitation of ActewAGL, Canberra, November 7, 2003.

E17 Kwang, K., Hensher, D.A. and Ton, Review of TRESIS as a policy advisory tool for evaluating land use and transport interaction, presented at 8th International Conference on Computers in Urban planning and Urban Management, Sendai Japan 27-29 May 2003

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E31 Davidson, P., Teye, C., Bell, M.G.H. and Hensher, D.A. Value of travel time savings in developing economies – an assessment, prepared for the 2017 *European Transport Conference* (ETC). Presented at *The Fifth International Choice Modelling Conference* 3 – 5 April 2017, Cape Town, South Africa.

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(F) Theses

F1 Hensher, D.A. (1968) The Economics of City Parking Policies, unpublished B. Com (Economics Honours I) Thesis, School of Economics, University of New South Wales, November.

F2 Hensher, D.A. (1972) The Consumer's Choice Function: A Study of Traveller Behaviour and Values, unpublished Ph.D. Thesis, School of Economics, University of New South Wales, October.

(G) Internal papers or reports

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G2 Hensher, D.A. (1975) "Shopping Travel - An Exploratory Analysis of the Development of a Destination Choice Model," Transport Studies Unit Research Note, University of Oxford, June.

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G4 Hensher, D.A. and Stanley, J.K. (1975) "Expectancy Value Theories and Attitudes in Utility Measurement", Transport Studies Unit Research Note, No. 3, University of Oxford, August.

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G9 Hensher, D.A. (with M.S.J. Keys Young and Implementation and Management Group) (1977) " Behavioural Choice Approach to Market Segmentation for Forecasting Future Telecommunication Products", August.

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H2 Hensher, D.A. (1971) "Some Theoretical and Empirical Issues in Travel Demand Analysis", Department of Environmental Engineering Transportation Seminar 1, Cornell University, U.S.A. November.

H3 Hensher, D.A. (1973) Critique of Urban Transport Planning Practices, Economic Society of Australia and New Zealand", (N.S.W. Branch), March.

H4 Hensher, D.A. (1973) "Valuation of Travel Time: An Alternative Procedure", paper presented to Third Australasian Conference of Economists, University of Adelaide, South Australia, May.

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H9 Hensher, D.A. (1987) "Discrete Choice: Issues, Data and Application", prepared for Australian Institute of Urban Studies Workshop on 'Assessing Economic Impact of Retail Centres Development: Issues, Methods and Implications for Government Policy'.

H10 Hensher, D.A. (1988) "Tolling Urban Roads: The Role of the Private Sector", presented at a seminar on Sydney's Strategy, Macquarie University, June.

H11 Hensher, D.A. (1992) "Urban Rail: The Wider View", presented at the Urban Rail Workshop organised by The Australian Rail Industry Advisory Committee, Melbourne, November.

H12 Zhu, W. and Hensher, D.A. (1996) “Optimal Traffic Flow Sampling for Estimation of an Origin-Destination Trip Matrix from Link Traffic Counts for Large Networks”.

H13 Brewer, A. and Hensher, D.A. (1996) “The Relationship between Organisational Structure, Work Organisation and Flexible Work Arrangements and their Impact on Travel Behaviour: Identifying Key Linkages and Establishing a Research Agenda” early version of paper presented at a workshop on New International Perspectives on Telework: From Telecommuting to the Virtual Organisation?, Brunel University, London, UK. July 31 to August 2, 1996.

H14 Wang, B.. Hensher, D.A. and Ton, T. Modelling Road Safety Trends and Predicting Road Fatalities in Australia, December 1998. (Early version presented at the 1998 Conference of Australian Institutes of Transport Research, Sancta Sophie College, The University of Sydney, December 14).

H15 Hensher, D.A. (2001) The Valuation of Non-Commuting Travel Time Savings for Urban Car Drivers, presented at World Conference of Transport Research, Seoul, July.

H16 Hensher, D.A. (2001) Service Quality as a Package: What does it mean to Heterogeneous Consumers?, presented at World Conference of Transport Research, Seoul, July.

H17 Rose, J. and Hensher, D.A. Modelling Agent Interdependency in Group Decision Making: Methodological Approaches to Interactive Agent Choice Experiments

H18 Efron, A., Brewer, A. and Hensher, D. International Travelling Art Exhibitions: A negotiated value process.

H19 Kwang, K., Hensher, D.A. and Ton, T. Examining the applicability of the TRESIS model system to Seoul, Korea

H20 Dabbas, W. and Hensher, D. A. Measures for Modelling Automobile Emissions: using Classification and Regression Trees (CART)

H21 Hensher, D.A. and Jones, S. "Modeling Corporate Failure: A Multinomial Nested Logit Analysis for Unordered Outcomes". Paper presented at 2005 Annual Conference of American Association of Accounting in New York.

H21 Zhang, Z., Rose, J., Hensher, D.A. and Figliozzi, A. (2012) Determinants of Risk Administration in the Global Net of Cargo Transportation: China’s Point of View, presented at The Third Ibero American Symposium of Marine Insurance, Columbia, November.

H22 Hensher, D.A. and Beck, M. (2014) Funding and Financing Options for Transport Infrastructure, NRMA Roundtable, 15 October, Sydney.

H23 Hensher, D.A. (2014) Research driving efficiency, Plenary opening address at the Australian Road Research Board (ARRB) Conference, 20 October, ANZ Stadium, Sydney.

H24 Hensher, D.A. (2014) Data Challenges: Big Gaps and Big Opportunities: More Behavioural and (relatively) less Statistical, Plenary address 10th International Conference on Transport Survey Methods, held in Leura, Blue Mountains, NSW 17th November.

H25 Jose Agustin Vallejo-Borda, Ricardo Giesen, Beatriz Mella Lira, Paul Basnak, José P. Reyes, Francisco Pasqual, Guillermo Petzhold, Matthew J. Beck, David A. Hensher, Juan de Dios Ortúzar (2022) Paper #16, Characterizing public transport shifting to active and private modes in Brazil during the Covid-19 pandemic, accepted for presentation at Annual *Transportation Research Board Conference*, Washington DC January.

Referee of Papers

Regular referee of papers for major journals in transportation and economics. These include Transportation Research (A,B,C,D,E), Transportation, Journal of Transport Economics and Policy, Journal of Transportation and Statistics, Environment and Resource Economics, Journal of Applied Econometrics, Energy and Resource Economics, Review of Economics and Statistics, Environment and Planning A, Transport Reviews, Journla of Choice Modelling, Traveller Behaviour and Society, Transportation Research Board Journal, Journal of Transport Geography, Transport Policy, Transportmetrica, Urban Studies, Regional Science and Urban Economics, Economic Record, and Applied Economics. Regular reviewer of chapters for books in Elsevier Science Series.

Comments on some of my contributions……

Dear David,
On behalf of the University, I extend my warmest congratulations for being named in the 2025 Clarivate Highly Cited Researchers List. This prestigious recognition is a testament to your outstanding contributions to research and scholarship, and to the global impact of your work. Your dedication, innovation, and leadership continue to elevate the University of Sydney's reputation as a world-class institution.
We are incredibly proud of your achievements and grateful for the inspiration you provide to our academic community.
Kind regards,
Mark
Professor Mark Scott AO | Vice-Chancellor and President, **The University of Sydney,** Office of the Vice-Chancellor and President 13 November 2025.

Dear David, You must be so incredibly proud of the legacy you've built — ITLS is a true testament to decades of vision, dedication, and leadership. I hope you're able to take a step back and feel deep pride in all that you've created and the profound impact it has had on so many of us. Please take care of yourself during this time. I hope your wife and daughter are doing okay too - I can imagine how difficult this must be for them. You inspire thousands of people around the world, but for someone like me — just starting out with big aspirations — you're more than a brilliant academic. You're a remarkable human being. The way you treat everyone with respect and kindness, whether they're a new PhD student or another great scholar, is truly admirable In a world where so much is uncertain, the most powerful thing we can do is be good to others — and I truly look up to how you embody that through both your groundbreaking contributions to knowledge, which will shape transport for generations to come, but just as importantly your generosity of spirit towards everyone. Please know that you're in our thoughts and prayers. Wishing you strength, rest, and a swift recovery. With warmest regards. Sara Haider PhD student ITLS and Project Engineer at Transport for NSW, 28 September 2025.

Dear David, I have been also feeling quite exhausted those days, and thinking whether I am pushing myself too much – but I said to friend that it is technically feasible as David Hensher runs ITLS with less help, and did much better job. I probably forgot that I am talking about the No. 1 in the world (officially by the 2% researcher study by Stanford). So you really should be proud of yourself, for achieving so much, and inspired so many people including myself. That said, nobody can be No. 1 forever, and you have done enough for USyd too. FU, Xiaowen [ISE] <xiaowen.fu@polyu.edu.hk>, Tuesday, 30 September 2025 1:26 PM.

Hi David, It is so good to hear from you, though I was not aware of this latest health challenge until your message—thank you for sharing it with me. So sorry to learn about the stage 4 kidney disease. After hearing from you, I read a bit more, and it does give hope that with lifestyle adjustments, keeping blood pressure in check, and the right treatments, one can continue to lead a full and meaningful life. Also, glad you are taking steps to care for yourself, while the doctors guide you through treatment options. I know it is not easy for someone like you to step back from work—it has been such an integral part of who you are. But, David, you have already achieved and contributed more than most could in multiple lifetimes. Your pioneering theories and groundbreaking empirical studies have not only guided the profession, but have shaped its very trajectory. You have always been far ahead of your time, and your influence is deeply embedded in every aspect of our field. Yet, beyond all that, what we cherish most is you—the kind, generous, and thoughtful person that you are. We want you around for a long time, not just as a brilliant mind, but as the warm friend who spreads joy so effortlessly. As Sara so beautifully said, it is about how generously you have given yourself to

others, professionally and personally. Your cheerful and positive spirit has lifted countless young scholars and colleagues, offering them both dignity and self-belief. That is a rare and lasting gift that will last generations. So please take care of yourself, my dearest friend. I will plan to visit you early next semester—I am now going to pull all the stops to make that happen. With love and hugs,, Chandra, Chandra Bhat, University Distinguished Teaching Professor and Joe J. King Endowed Chair in Engineering, Director, US Department of Transportation National University Center on Travel Behavior and Demand Fariborz Maseeh Department of Civil, Architectural and Environmental Engineering, Department of Economics (Courtesy Appointment), The University of Texas at Austin, 1 October 2025

Thanks to the whole of ITLS including my HDR colleagues past and present. One of the defining characteristics of ITLS is the collaborative nature of the community. It has been a pleasure to be a part of it. Special mention to David who has been an inspiration since my first day of teaching back in 2008 and helped convince me that ITLS was the right choice for an old shopkeeper to undertake PhD studies., Gareth Jude PhD 2 October 2025.

What MS-Pilot and CHtGPT say: "The top transport academic in Australia is widely considered to be Professor David Hensher, who is the Founding Director of the Institute of Transport and Logistics Studies (ITLS) at the University of Sydney. He is internationally recognized for his pioneering work in transport economics, demand modeling, and policy analysis. His contributions have significantly shaped both academic research and practical transport policy in Australia and globally. The ITLS itself is one of the leading research centers in the country, known for its interdisciplinary approach to transport, infrastructure, logistics, and supply chain management. It consistently produces research rated "well above world standard" by the Australian Research Council." "Professor David Hensher's key research areas span a broad and influential spectrum within transport and logistics studies. His work is internationally recognized and has shaped both academic theory and practical policy." "Professor David Hensher's research has had a **profound and direct influence on transport policy** in Australia and internationally. His work has shaped how governments approach infrastructure planning, pricing, and service delivery." 20 August 2025

"…you are one of the greatest scholars we have ever had as your listing in the 'high cite' category year after year shows. While we all hand on the torch at some point given what you have built we want to keep you as long as possible and acknowledge the contribution you have made. And when the day comes (in the distant future) when you decide it is time you have my full backing for Emeritus standing". Cheers. Stephen, 12 September 2024, **Professor Stephen Garton AM** | *FAHA FASSA FRAHS FRSN*, President Australian Academy of the Humanities, Interim Vice-President Operations, Office of the Vice-Chancellor and President, **The University of Sydney**

In response to "This week I reached a professional milestone of over 80,000 citations on Google Scholar. I'm incredibly grateful to my research community, collaborators, and students who have engaged with and built upon my work over the years. (Total Papers: 752, Average Citations per Paper: 104, Most Cited Paper: 10,703 citations, H-index: 124, i10-index: 548. Thank you all for being part of this journey:
"David, you are a force of nature and your contribution to the sector is quite remarkable. Like so many in transport, iMOVE has benefitted from your experience, so have I personally from our many discussions. Thank you and congratulations on this awesome achievement." **Lee-Ann Breger**, Leader in transformational R&D focussed on delivering value and insights from data, to improve essential services. 29 July 2025.
"Congratulations, Prof. We are proud of you!" Shimul (Md Mazharul) Haque, Head of School, Civil and Environmental Engineering | Professor of Transport Engineering | Director of Smart Transport Safety Research Lab at QUT (Queensland University of Technology)
"You have achieved what most dare to dream! Hats off to a pioneer." Liton Kamruzzaman, Associate Professor of Transport at Monash University

What MS CoPilot AI says about me (12 July 2024). Sent by Copilot:
"Professor David Hensher has significantly influenced transportation policy and practice through his extensive research and expertise. Here are some ways in which he has made an impact:

1. **Discrete Choice Models**: Professor Hensher's work on discrete choice models has been instrumental in understanding travelers' decision-making processes. These models help policymakers design effective transportation systems, optimize pricing strategies, and enhance user experience.
2. **Pricing and Congestion**: His research on road pricing and congestion management has informed policies worldwide. By analyzing the economic implications of tolls, congestion charges, and incentives, he has contributed to sustainable urban mobility.
3. **Transport Economics**: Professor Hensher's contributions to transport economics have guided investment decisions, cost-benefit analyses, and infrastructure planning. His insights help balance public and private interests in transportation projects.
4. **Public Transport**: His studies on public transport efficiency, service quality, and user preferences have influenced transit agencies and policymakers. His recommendations aim to enhance public transport systems and encourage modal shifts.
5. **Policy Adviser**: Professor Hensher's role as an adviser to governments, industry bodies, and international organizations ensures that his research directly informs policy formulation and implementation.

In summary, Professor Hensher's work bridges theory and practice, shaping transportation policies and improving the daily lives of commuters and travelers."

"Cheers David. The feedback was very positive about your presentation, even from different and unusual sources.I would have expected nothing, but. you have and always will be one of the great contributors to our industry. I hope the powers that be understand your contribution as I do."
Many thanks, Macca, APTIA, 5 July 2024

"I meant what I said in the video. Australia is known worldwide as a leader in choice modelling – a reputation largely built on your work." Len Cootes in announcing Australia in Qld will host 2026 ICMC (International Confeence on Choice Modelling), 10 April 2024.

"This is a superb paper. It is the best thing I have read on pandemic impacts & their aftermath on travel behaviour. This should be essential reading for all transportation researchers and practitioners. I have no substantive suggestions for improving the paper." Referee of paper What have we learned about long term structural change brought about by COVID-19 and working from home? *Transportation Letters: the International Journal of Transportation Research*, 14 April 2023.

Congratulations to David Hensher and Matthew Beck since himself and his colleagues in U Sydney made multiple entries in this prestigious TP citation lists ! Excellent, David !
Tae (Prof.) Tae Hoon Oum, Editor-in Chief Transport Policy (Elsevier), 28 May 2022

"David, you deserve more than a 'little' credit for my Transport Economics education. I expect if had I not met you, I would have continued as a physicist/ mathematician. While there are many people around the world who can say they learned Transport Economics from Professor David Hensher, I had the very special privilege of learning not in a formal course, nor as a research student but as an apprentice." 8 June 2022.
Nariida, Dr Nariida Smith, GB & NC Smith Infrastructure Advisors

"I don't think I made my point clearly on the phone, but ITLS is an amazing place to work. Full of ideas, good people, robust conversation and at the end of the day despite the hiccups we all pull in the same direction. Being in ITLS and thus being able to trade on the reputation and connections associated with the Institute, you are so fortunate to have contact with great people who encourage you, support you, challenge you, teach you. I've relished that. All of that, however, starts at the top. To have someone as approachable as you, as free with your time and energy, is such an amazing resource for an academic starting their career and developing through it. You have always been a role model, not just in terms of academic output (which is without peer), but all the other things you do as an academic: teaching, leadership, strategy, industry networking. I've tried to watch, learn and implement as much as I can across the entire portfolio of activities, since starting my journey with ITLS. I enjoy working in ITLS, and I still am extremely motivated to make positive contributions for ITLS wherever needed." Professor Matt Beck, 8 December 2021.

As you are somebody who knows David Hensher well, I'd thought you'd be interested to know about the inaugural David A. Hensher prize for the best paper in Transport Demand Modelling submitted to the Australasian Transport Research Forum (ATRF) conference. Neil Douglas, President ATRF 16 June 2021. From: Mokhtarian, Patricia L . Dear Neil, Thanks for letting me know about this! Given David's well-earned gravitas, I'm sure the prize will be a coveted one, and will do much to elicit high-quality research submissions to the ATRF conferences. All the best, Patricia.
Hi Neil. Thanks for this. An annual prize with the name of David Hensher is an excellent idea. We have known each other for over 50 years (I think it was 1968 we first met, as students). Phil Goodwin. Emeritus Professor of Transport Policy, UCL & UWE, and senior fellow, Foundation for Integrated Transport.

Hi David, I apologise again for not being with you at the celebration, due to lingering COVID anxiety, and hope that all present have a wonderful evening. ITLS under your leadership has made great strides and continues to do so, its international standing being clear recognition of all that has been achieved. This event marks a considerable milestone, that few such institutes can ever aspire to achieve. Your contribution has been critical here, both personally and in terms of those you have gathered around you at the Institute. Values and talent are what makes great organisations, in my view. ITLS has both in abundance and has been fortunate in this regard throughout its lifetime. I have greatly valued the 13 years association (come 1st July) that I have had with the Institute and its great people, and hope that an association can continue, albeit in reduced form, in coming years. Well done and enjoy.
JOHN STANLEY |Adjunct Professor
Institute of Transport and Logistics Studies | The University of Sydney Business School., 12 May 2021.

Sydney has the most influential academics in Australia, 20 November 2020, and David Hensher is in Top 10 (fourth) most highly cited academics 1996-2018 – PLOS (Number 1 in Business and Economics). "A study published in PLOS Biology found 443 University of Sydney academics are in the top 2 percent of researchers globally, the most of any Australian university. The study, led by Professor John Ioannidis from Stanford University, combines several different metrics to systematically rank the most influential scientists by scientific field as measured by citations. Analysing research from 1996 to 2018, the ranking measures the long-term impact of currently active scientists: in total the work of almost 7 million scientists worldwide was analysed."
https://www.sydney.edu.au/news-opinion/news/2020/11/20/sydney-has-the-most-influential-academics-in-australia.html?tc=edm|staff-news-brnd|mc-staff|||
Top 10 most highly cited academics 1996-2018 – PLOS

- Professor Philip Gale - School of Chemistry
- Professor Edward Holmes - Marie Bashir Institute, Charles Perkins Centre, School of Life and Environmental Sciences and School of Medical Sciences
- Professor Adrian Bauman – Charles Perkins Centre, School of Public Health in the Faculty of Medicine and Health
- Professor David Hensher - Business School

- Professor Paul Mitchell - Faculty of Medicine and Health
- Professor Raewyn Connell - Sydney School of Education and Social Work
- Professor Manfred Lenzen – Faculty of Science
- Professor Michael Swain – Dental School
- Professor Yiu-Wing Mai – Faculty of Engineering
- Professor John Simes – Faculty of Medicine and Health

Dear David, Thank you for coming along and speaking to SIE. All my colleagues commented on your entrepreneurial spirit and impressive list of achievements! They also agree that it was great to hear so many practical tips and ideas for how we can grow as a group - now we just have to go about implementing some of them. Kind regards, Leanne, Leanne Cutcher, Professor and Head of Discipline of Strategy, Innovation and Entrepreneurship, University of Sydney, 1 December 2020.

Hi David, Just a quick note to let you know I've just listened to the Seriously Social episode this morning and it's terrific! Such an interesting discussion and you're a natural in this format! Thanks so much for agreeing to take part and for being so generous with your time. With best wishes, Chris, Dr Chris Hatherly CEO, Australian Academy of Social Sciences, 17 November 2020.

'Dear David, Congratulations on making the University's top 10 media spokespeople for May 2020. Your media commentary on a survey showing that social distancing and hygiene on public transport is a public concern and traffic congestion during COVID-19 reached an estimated audience of 2,690,562. Our academics play a critical role in shaping public debate around issues that affect our society. If we are to have informed and honest conversations, we need researchers like you to be engaging with the media. Thank you for your valuable contribution.'
Yours, Michael, Dr Michael Spence AC | Vice-Chancellor and Principal, The University of Sydney, 19 August 2020.

'I have taken the liberty of forwarding this email to Peter Rossi and David Hensher, whose towering reputations in stated preference analysis would carry a lot of weight if they have papers or opinions to add.' Dan, 30 August 2018 (Dan McFadden, Nobel Laureate in Economics, 2000).

"Professor David Hensher has dominated the field of discrete choice analysis since its inception in the 1970's. He has developed and applied path-breaking methods to assess the value that consumers place on goods that are not bought and sold directly – including, importantly, the value of time, reliability, energy efficiency, risk of injury, vehicle power, and water supply. The methods that he introduced have become standard procedures in the field, and his findings are widely cited as crucial information for policymaking. Prof. Hensher's work has greatly influenced my thinking and research over the years, as he has influenced the entire field. He is truly one of the thought-leaders of the world." Kenneth Train, University of California, Berkeley; Vice-President NERA, May 2018.

David and his team dominated the 10 most popular iMOVE research and reads in 2020: ranks 1,2,3,6 and 9. https://imoveaustralia.com/news-articles/intelligent-transport-systems/2020-top-articles/

"It's great to be able to hear from someone with a career as esteemed as yours, and for you to shed invaluable insights into how you do what you do. It sounds like you've been working hard to create impactful research for decades. It goes to show that world-renown and reputation is built in the early stages of one's career, where the right personalities put the work in and make themselves available to industry and government." With thanks, Brody Hanna, ANU, 13 March 2020.

"In the Preface of Basil Schmidt's PhD thesis "Michiel gave me the great opportunity to visit him and his team in Sydney, where I spent two months working side by side with some of the most experienced choice modelers on Earth, including David Hensher and Joffre Swait" 30 August 2019.

Congratulations David on recognition Transport world cites pioneer researcher's global contribution. – a very well deserved and timely recognition. Best regards Ken Dobinson, retired CEO RTA, 1 October 2019.

Applied Choice Analysis (2nd Edition) is an excellent and inspiring contribution to choice modelling. It is reflective of the academic quality of the authors. In a remarkably clear and coherent manner, *David Hensher, John Rose* and *William Greene* have done an exceptional job in providing a state-of-the-art discussion of the fundamental concepts, insights, methods and practical applications of choice analysis. *Applied Choice Analysis* is an essential textbook on choice modelling. It is relevant across disciplines and experience levels, and it pushes the boundaries of choice modelling to a degree not previously accomplished in a book. Ilias Goranitis, Centre for Health Policy, Melbourne School of Population and Global Health, University of Melbourne, August 2018.

'As a practitioner first-and-foremost, I've appreciated – and used – Professor Hensher's research material for many years. He has the ability to combine applied and insightful research, of very practical use in the 'real world', with a deep understanding of its theoretical underpinnings. One of Professor Hensher's recent publications really attracted attention, an ITLS Working Paper entitled '*How Much is Too Much for Tolled Road Users*' (ITLS-WP-16-03). In many ways this typifies Hensher's contributions to knowledge. It (the affordability of tolls) is an important topic which has failed to attract much – if any – attention in the literature. Hensher is therefore a front-runner (as often is the case). And he approaches his subject from a data-driven, evidence-based perspective which adds considerable weight to his (at this stage, preliminary) conclusions. I have no doubt it is a topic to which he will return. In the meantime, those of us working in the toll road industry can start to examine the implications of his findings. He is an exceptional resource that many of my fellow professionals, internationally, value most highly.'

Dr Robert Bain, Visiting Research Fellow, University of Leeds, UK, **RBconsult** Ltd, Investor Support Services, www.robbain.com
+44 1732 463314

"Professor Hensher's influence on the practice of transport appraisal in Australia is without peer, in terms of breaking new ground and seeing this through to implementation. This contribution is most widely recognized in terms of his work on valuation of travel time savings, which has had a hugely influential impact for over four decades on quantifying what is commonly the single biggest benefit from major land transport Infrastructure improvement initiatives. The quality of Professor Hensher's initial work, and subsequent improvements he has made therein, have ensured that it retains its currency as world leading research with major transport planning and policy consequences, both in Australia and overseas. Recently, Professor Hensher has pioneered research on integrated land use transport planning models, which reflect the dynamic way in which cities and regions adapt to changed land use and transport environments. I expect that, within a decade or so, this new approach will replace the traditional four step transport planning models that are used world-wide and often produce quite misleading predictions about travel behaviour change. Professor Hensher's extensive research background in choice modelling is being used in this new and innovative approach, which will make a major contribution to transforming the way city and regional futures are imagined and the way policy instruments are used to shape these futures, for the benefit of residents and visitors." John Stanley, Adjunct Professor (Previously Chief Economist, Victorian Treasury, Executive Director Bus Victoria) Institute of Transport and Logistics Studies | The University of Sydney Business School. May 2018.

'Professor David Hensher has helped shape the field of valuation of user benefits for four decades. He has made numerous long standing contributions, not least of which in the valuation of business traveller time through what is now universally called the Hensher formula. What is especially remarkable is how Hensher's contributions have kept pace with what has been an exponential increase in model complexity and capability, a non-trivial share of which he has himself been responsible for, notably in models for heterogeneity and information processing which have important implications for valuation. Hensher has made important contributions also in the survey techniques used for valuations, notably in a reliability and risk context, including important work on the value of statistical life. In what is a clear reflection of the importance of his contributions, many of the methods originally developed for an Australian and transport focussed context have now been incorporated into best practice around the world and have also crossed over into other fields where valuation of user and indeed non-user benefits are important components of the analysis and evaluation toolkit.' Professor Stephane Hess University of Leeds, 15 May 2018, Stephane Hess S.Hess@leeds.ac.uk, May 2018.

'David Hensher and I have been discussing the valuation of travel time for more than 40 years. He had already formulated a rational cost savings approach to the valuation of business travel time, leading to the 'Hensher formula'. More important have been his contributions to the willingness-to-pay approach to valuing leisure travel time (and non-market goods more generally), where his detailed investigation of the issues of the stated choice context has clarified numerous issues and allowed substantial improvements in the approach to this essential component of the planning process. His numerous publications on this and many other issues testify to his contributions over a wide area.' Andrew Daly, Emeritus Professor, Institute for Transport Studies, University of Leeds, May 2018.

'David Hensher has been a leading light in the field of transport research since the 1980s. He has been a prolific producer of important methodological results in choice modeling, having produced several books and hundreds of articles. His work on model forms, willingness to pay and value of time forms the backbone of research in the area.' William Greene, Department of Economics, Stern School of Business, New York University, wgreene@stern.nyu.edu

'Over the period since 2011, Professor Hensher and ITLS have had a number of engagements providing advice, modelling and input to Deloitte and Deloitte Access Economics in particular. These engagements have directly related to valuation of user benefits and informed a number of Australian Government clients particularly Austroads. Private sector clients such as the Australasian Railway Association have also benefited significantly from David's role in Deloitte's work. These engagements have involved providing expert advice on best practice approaches to measuring user benefits (in terms of VTTS, reliability and safety), modelling of willingness to pay for travel time savings, reliability and safety and broader modelling of transport network benefits related to mode choice. A significant project that David provided critical input on was the Congestion and Reliability review undertaken by Austroads. This project measured and assessed congestion levels and costs in Australian cities using detailed data from Google maps – it was the first of its kind in Australia. This project has led to changes in data use and hence decision making by a number of Australian Government road agencies and has generated genuine benefits for Australian road users, the economy and society. Of all academic partnerships that Deloitte enters into, our partnerships with David and ITLS are among the very best, most productive and most practically relevant. The approach taken by ITLS in these partnerships can act as a strong demonstration for others of the benefits of integration between government, the private sector and academia.' Eamon McGinn, Director | Deloitte Access Economics, Sydney, NSW, 2000, Australia. eamcginn@deloitte.com.au

'I am responsible for the development and issue of the *Principles and Guidelines for Transport Investment and Initiatives* which is widely being used in Transport by practitioners and consultants. Dr David Hensher has been a staunch supporter of our work in Transport. He has given me and my staff very useful and practical guidance in our work of improving cost benefit analysis methodologies and approaches. His many contributions to the field of transport economics have been well received and considered in Transport. A few of my staff and colleagues were his students in the Institute of Transport and Logistics Studies. To Dr Hensher's credit these staff members and colleagues are among the outstanding officers in Transport because of their technical knowledge, very sound grasp of transport economic fundamentals and very good work ethics. Dr Hensher also provided peer reviews of researches we have conducted, in particular the stated preference survey and research on determination of willingness to pay for travel (value of travel time), reliability and transport amenities. The results of these researches are used in continuously improving the economic guidelines. He also kindly provided his time to co-author and supported me and my staff in various researches and in developing technical papers for presentation to conferences and fora. One of the papers we did together was

awarded the Best Conference Paper Award in the International World Rail Research Congress. His reviews and guidance are great contributions in the development of the economic appraisal guidelines for use in CBAs of projects and programs in Transport. Dr Hensher was also instrumental in conceptualisation and implementation of the willingness to pay principle in CBA of road projects. He was the consultant who did the work for Roads and Traffic Authority (RTA) together with PricewaterhouseCoopers in the seminal work of conducting stated preference surveys and developing economic values on safety benefits (value of fatality, major and minor crashes) for NSW. The results of this study replaced the values we previously used in CBA in RTA based on human resource cost. These WTP values are also included in the Australian Transport and Planning (ATAP) Guidelines. The concept and the methodologies have become the stepping stone of current researches to update the NSW safety values and derive values for other States under the current national research where Dr Hensher also serves as part of the consultancy project.' Julieta Legaspi, Associate Director Evaluation and Economic Advisory, Finance and Investment, Transport for NSW and member of the Steering Committee of Australian Transport and Planning Guidelines (ATAP).

David Hensher is ranked number 1 on the strength of the researcher, and number 6 on number of unique collaborators, as reported in a major review by MIT academics Lijun Sun and Iyad Rahwan (2017) Co-authorship network in transportation research, *Transportation Research Part A*, 100, 135-151. This paper examines the structure of scientific collaboration in transportation research by building a co-authorship network over period 1990-2015 in all the key transportation journals.

David – just saw the story on your MIT recognition – that is great. Richly deserved. Cheers. Stephen
PROFESSOR STEPHEN GARTON | Provost and Deputy Vice-Chancellor, Office of the Provost and Deputy Vice-Chancellor, THE UNIVERSITY OF SYDNEY, 17 November 2017.

From: Terry Papadis [Terry.Papadis@gs1au.org]
Sent: 10 November 2017 10:21
Subject: GS1 Overview
Please find attached an overview document on the GS1 system for your information and reference. Also see this video with the boss chatting happily about the relationship between GS1 with ITLS…
https://www.youtube.com/watch?v=f94DjjrjBEs
David has a lot of fans in the GS1 global community! He is the best Head of School / Director that we deal with and we deal with a lot…. here and abroad. And most certainly, Jyoti has been instrumental in the success of our relationship.
Terry, GS1 Training Manager

Comments from Assessors' of a 2016 ARC-DP application:

As one of the most influential scholars in travel behaviour modelling, Prof Hensher is well positioned to undertake this important project. Prof Hensher's excellence in transport modelling is unanimously acknowledged (nationally and internationally) in the field, and he is widely regarded as a giant who has been consistently staying at the very edge of the research frontier in the travel behaviour field. Thus, any comment from this assessor on his readiness to investigate this highly significant problem is unnecessary. To this assessor, no other person in Australia is better suited for undertaking this project.
And Probably the best indicators of David Hensher's standing are the award citations. He has become probably the most highly recognised contributor to travel behaviour research and modelling. In addition he is a noted academic contributor to public policy development. Specific indicators of the analytical advances he has made are contained in the ten best publications. The list of 250 books, chapters, and publications in high quality journals go back to 2006 and the added high quality conference papers to 2010. In fact, his substantial contributions have grown continually since the late 1970s. All this has been achieved while he has been leading a significant research centre, the ITLS. His output of PhDs includes scholars who now have significant roles in academic and professional fields. In addition, his regular training courses have resulted in an Australian population of highly trained specialists in choice modelling. It is common enough for a leading research academic to have surmounted two or three obstacles or goals in a field but David Hensher has been a major contributor to virtually all of the advances in the rapidly developing choice modelling field since its first inception. One does not wish to allocate 'awards' because there are often multiple contributors to major advances, but the field would not have progressed nearly so well as it has without Hensher's enormous inputs. From an Australian viewpoint, he has become a beacon attracting leading scholars and innovators in the field to take up positions in this country, particularly at the universities in Sydney.

I am delighted to announce an exceptional achievement by Professor David Hensher, Director of the Institute of Transport and Logistics Studies. As of the end of January, David has over 25,000 citations listed by Google Scholar for his work in the field of transportation. This is a significant accomplishment and David will be only the second researcher at a Business School in Australia to achieve this milestone. It clearly illustrates the major impact he has had in his field.
Regards, Greg. Greg Whitwell | Dean The University of Sydney Business School, February 3 2015.

Dear David, Feeling proud to see your name in the top 5% economist in the world. Congratulations!! Link: https://ideas.repec.org/top/top.person.all.html. I believe, ITLS will continue the leading position in all areas of transport research. Best Regards, Mahbub Mahbubul Hakim. PhD Student, Institute of Transport and Logistics Studies | The University of Sydney Business School

Dear Prof. Hensher, My name is Kurt, was your student back in 2008-2009. I went back to Australia in June this year for meeting my permanent residency requirement, and I took the opportunity to visit ITLS again during the short trip, the place that I always remember because I had such a great time studying there. And I was so lucky enough to meet you on that day and had a short conversation with you. It's good to know that you are doing great, especially that ITLS is celebrating its 21 years of achievement!

Without your excellent job, this wouldn't be possible! I still cherish my time spending there, and the staff, the learning environment, and all the support that I got, which I'll never forget! Good health to you and your family! Best Regards, *Kurt Yang (Kurt) Liu, Doctoral Researcher, University of Cambridge, December 24 2012.*

Good morning David, I just thought I would drop you a note for the presentation that you made at the BusNSW conference yesterday. In my short term in this industry (8 months) this was by far-and-away the most articulated, visionary and practical presentation that I have seen and that goes directly to the transport issues of NSW and you offered a solution to address many of these issues. I could sense your passion and interest to these issues and I have not yet experienced this same holistic commitment in any other person associated within this transport (Bus) Industry in NSW. Though, clearly, you have many time restraints to that presentation, you presented a clear and concise picture.
Regards, Livio Sartoretto, Financial Controller, Interline Bus Service 7 October 2011

ARC Discovery Program 2011 Assessor's Reports "Hensher is a world leader and admirably placed to undertake the research."

The revised paper makes a very strong contribution to the literature on the optimal design of mass transit systems, and will likely remain the definitive treatment of the optimal design of a dedicated bus corridor for many years to come. The exposition, the analysis, and the review of relevant literature are all first rate. I am happy to accept it for publication in *Transportation Research B*. I am confident that your paper will become a modern classic in the economics of mass transit. I shall certainly draw on it in the work I am doing on downtown parking and traffic congestion with mass transit. (Tirachini, A. and Hensher, D.A. Bus congestion, optimal infrastructure investment and the choice of a fare collection system in dedicated bus corridors, *Transportation Research B*), Richard Arnott, 4 February 2011.

David, your paper on Mixed Logit (2003), Bus Rapid Transit (2008) and Stated Preference Methods (1994) are in the top 10 as numbers 1, 2 and 8 for downloads of *Transportation*. Martin Richards, Editor-in-Chief, *Transportation* (Springer).

David, thanks very much for coming over to NZ and doing all the talks you did. It was excellent to have you here. I heard lots of positive feedback from your keynote address at the conference of economists, and Arthur Grimes was obviously pleased with your presentations to the Ministry of Transport and at the public meeting. Dr Bill Kaye-Blake, organiser of NZ Economics Society Annual Conference, July 2010

ARC Discovery Program 2010 Assessor's Reports: "Hensher is the leading researcher in transport economics in Australia. His research output places him at the forefront of the field internationally. Most of his career-best journal articles are in ERA A*-ranked journals. He is a prominent contributor to transport policy debates in Australia." "An outstanding track record and a world leader in the area. A significant number of high quality research publications." "Hensher is an established international researcher with outstanding track record."

Dear David, Congratulations! You have been successful in the University's Scholarship Index funding, reference year 2007. The Scholarship Index rewards faculties whose staff contributes to teaching quality through the scholarship of university teaching. Qualifications in university teaching, teaching awards, textbooks, journal articles and conference and seminar presentations about university teaching have all been eligible up until 2007.You have received $ 3,738, November 2009.

Hi David, Great meeting this afternoon, too - though one tinged with real personal sadness, I have to say. You have been a real role model for me, as well as a trusted friend and confidant. I look forward to saying a few words about you and your influence on GSB at the appropriate point in time.
John, JOHN SHIELDS | Associate Professor, Faculty of Economics and Business, December 5, 2008.

Dear David
Indeed the GSB is in great shape because it has enjoyed the benefit of your leadership. You have been a tremendous source of encouragement and inspiration to those who have had the privilege of serving on the GSB with you. Janice,
Janice Loftus, Accounting discipline, December 2008.

"Thank you also for your help with the *Journal of Transportation and Statistics*. We have completed our first year and, thanks to contributions from outstanding researchers such as yourself, successfully, I think. Of course, we'd welcome further contributions from you and your colleagues down under at any time."
David L. Greene, Oak Ridge National Laboratory, US

"...I really wish I could have a chance one day working with you - a world renowned expert for a joint transport-air pollution project."
Charles Xu, Environmental Protection Authority

"Dear David, On behalf of the Environment Advisory Committee may I thank you for the excellent report you prepared on the recent Survey of the University of Sydney's Key Stakeholders' Views on Environmental Issues. The comprehensive and lucid analysis of the results which you have undertaken provides the University with an effective foundation on which to build its Environment Policy and Implement Strategies and the Committee is most grateful for this."
Professor Ken Eltis, Deputy Vice Chancellor, University of Sydney

"I would like to thank you for your presentation at the Institute Dinner on Wednesday, July 14, 1999. The points you covered certainly raised some interest amongst members. Indeed, the range of options in transport education was quite impressive, particularly in what the ITS has developed over time."

L. J. Harper, Immediate Past Chairman, Chartered Institute of Transport in Australia

"A letter, at long last, to formally thank you for your presentation to our Bus Day seminar last month. We believe it was very well received and supported by local politicians, transport planners and the media, and your contribution has generated considerable interest."

John Collyns, Executive Director, Bus & Coach Association New Zealand

"I am writing on behalf of the National President, Keith Todd to thank you for attending the National Conference in Cairns and for addressing our delegates. Your presence was an essential element in what was a very successful conference."

Ian MacDonald, Conference Director

"The success of ITS is a matter of record and does not need to be recounted here. I am very proud of the small part that I played in providing a home for ITS and an environment which allowed you and your colleagues to get on with the important job of establishing ITS as a centre which is now recognised internationally... I have no doubt that ITS will go from strength to strength in its new home. Please pass on to everybody in ITS my thanks for their help and support in the past and my very best wishes for the future."

"I was surprised and delighted to be made an Honorary Member of the ITS Alumni Association Inc. ITS now has some very distinguished alumni and, of course, it has always enjoyed strong support from the industry and from Government. I am sure that these connections will continue to provide ITS with the support and encouragement that is now essential for all university activities."

Murray Wells, Graduate School of Business

"With my fairly sudden withdrawal from active involvement in University of Sydney affairs, I didn't ever see you to congratulate you on your success in being named as a Commonwealth Key Centre. I became a great admirer of your Institute's achievements and your whole approach.."

Brian W. Scott, Management Frontiers Pty. Ltd.

"If as a result of our association we have made people's travel more pleasant, or the movement of the goods or services they require more efficient, I will be glad. Thanks a million for your part in making my job both enjoyable and rewarding."

Dr Derek Scrafton, Director-General of Transport, SA (retired)

"Thank you for taking the time to introduce me to staff of the Institute last Friday and for your warm welcome. I found my visit to be most informative and encouraging. I see many opportunities for close cooperation between our organisations."

Stephen Hunter, Director, Bureau of Transport and Communications Economics

"Just a brief note of congratulations for the award of a Key Centre. I was delighted to hear of your news...I know you and your team will do a great job and provide the University of Sydney with a further example of its ability to 'deliver' in research"

Professor Bruce G. Thom, Vice-Chancellor, University of New England

"In a country which is so reliant on efficient and safe transport systems, it is gratifying to know we now have a centre which will play such an integral role in research and lead the way in the development of excellence in Transport Management standards."

D. Geoff Stevenson, Director General, Queensland Department of Transport

"The ITS is already recognised in Australia and Overseas for its leading role in teaching and research in transport. This recognition is the result of many years of hard work by the ITS staff and the leadership you have shown. I am privileged to participate in the ITS program and look forward to a continuing role."

Rodney T. Swan, Managing Director, Business Growth Projects

"I am proud to be associated with ITS Sydney. Their publications have placed them at the forefront of international studies in transportation management."

Professor G.J. Fielding, University of California, Irvine

"David, Well, it seemed to me that you were the hero of the meeting. They clearly had a lot of confidence in you. You sounded great on the phone, a deep, melodious voice, and you had good responses to their concerns. If NERA/Sydney wins this, it will be because of you. I'll have to remind them that it was me who put them into contact with you!"

Professor Ken Train, University of California at Berkeley, September 2002

"Dear David, This is not a frivolous question. I really want to know so that I can emulate your success. How come you are so prolific? What is your method/secret?"

Gaye Wilson, Administrative Officer (Web and Publications), School of Business, February 2001.

"Dear David, This is another Hensher record - you already hold at least one in the Transportation record book! A full review in less than a day of it being requested! Many thanks for giving it priority when you are very busy."

Martin Richards, OBE, Managing Editor, Transportation, September 2001

"David - just a brief not to say thanks for the presentation to the CST yesterday. It is an excellent message and you present it well. It does need to get out to the troops as widely as possible."

Prof Les Field, Acting PVC (Research) University of Sydney.

"Dear Peter, Ian Zimmer, Exec Dean in Management School at UQ called and wanted to know if I was interested in heading up the Management School. I told him I am very happy where I am running ITS and working under your Dean Ship. David" June 2001.

Comments from Assessors' of a 2003 ARC-DP application:

Assessor 1: There is no doubt whatsoever, that the CI has a first class record in research and has a considerable international reputation. He is well known not only for being in the vanguard of important new methodological innovations in modelling but also for his ability to apply these innovations to practical issues and to communicate them to an international audience very effectively.

Assessor 2: Applicant is a leading world expert in travel demand modelling and choice modelling. Applicant's record is extremely impressive.

Dear David, I don't wish to sound obsequious, but I genuinely admire your whole approach to the job and draw a great deal of encouragement from your strong strategic focus, your inclusive approach to leadership, and the way in which you demonstrate trust and collegiality. I can tell you that these qualities are genuinely appreciated and respected." Kind regards,

Dr John Shields (Senior Lecturer in Faculty of Economics and Business, Member of Graduate Studies Board).

"Brilliant lecture David, thanks for the opportunity. I loved your flair ... but also learned a couple of things I had never quite understood."

Professor Juan deDios Ortuzar, Pontificia Universidad Catolica de Chile

Dear David, Thank you so much for being on Radio National last week. We had some good feedback on the segment - one listener said you should be congratulated for "breathing some common sense into the emotional claptrap peddled by the NRMA." best wishes, Abbie Thomas

Radio National, September 2005

Dear David, I thought you would like to know that your paper *The Mixed Logit model: The state of practice* was the paper on our website that had the third highest number of downloads last year, *and Refocusing the Modelling of Freight Distribution: Development of an Economic-Based Framework to Evaluate Supply Chain Behaviour in Response to Congestion Charging* was ranked fifth. Thank you for allowing us to publish them

*Martin Richards, Editor in Chief**, **Transportation**. http://www.springeronline.com/journal/11116 (March 5, 2006)*

What my Graduate Students say…….

http://video.econ.usyd.edu.au/itls/Denny_Yang_ITLS_Alumni.mp4

Note: David stopped teaching graduate students in 2015 (giving occasional lectures only from 2016 on).

I just want to thank you for the amazing leadership and setting a very high standard to all of us at ITLS. I have truly enjoyed my time at ITLS and learnt so much from many interesting individuals. ITLS will always be close to my heart! I hope Urbis can partner with ITLS for some projects in future. Thank you again for the wonderful opportunity David! Kind regards,
Supun (Dr Supun Perera), 2 February 2020.

David, Thank you for the great lecture [on performance measurement and benchmarking] yesterday, I think the content is one of the most useful topics I have learned at ITLS. The material from ITLS has already broadened my ability to question the policies upper management deems important, i.e. some of the announcements from this week. Regards, Kelvin Nicholson, May 2012.

Dear Professor Hensher, I would like to say thanks you to your teaching and encouragement. Honestly I have never felt confident before I came to your class. Whenever I had to make a presentation, I always felt scared and lost all intended words to say. But it was amazing that I could make it. Very confident though. Hannah Nguyen, October 2012.

It's perhaps my best day after leaving Sydney. My happiness knew no bounds when I received a merit certificate duly signed by my favorite teacher and the world class authority on transport. There are only a few persons in transport who can match your fund of knowledge and experience-perhaps none. This is what your 129 pages CV reflects but today I shall praise you as a man of highest discipline, committed & visionary leadership and above all caring attitude towards guest students at ITLS. There is hardly any doubt that institute will produce quality professionals under your untiring leadership. I pray and wish to serve this great institute in my humble capacity in any role. I always introduce ITLS as the world's best place for interactive learning in transport & logistics. Thank you again for your kind consideration and sending this valuable certificate which means a life-time achievement for me. Warmest Regards, Tariq (MTM/MLM October 13 2011)

Dear Prof. Hensher, How are you? My name is Yang (Kurt)Liu, I was a student at ITLS, and I had a fantastic experience there. I received the Sir Hudson Fysh award and had work experience with PwC via the Graduate Work Experience program. Because of the valuable experience I had at ITLS, I was accepted by University of Cambridge to continue my PhD studies. I joined the Centre for International Manufacturing at the Institute for Manufacturing (IfM), under the Department of Engineering (http://www.ifm.eng.cam.ac.uk/default.html). I started my PhD in early October, so far so good I feel. I will focus my doctoral

research on sustainable supply chain design and configuration (specifically looking at automotive industry). The knowledge and skills I have learnt from ITLS definitely give an advantage for doing my PhD at Cambridge. So I am very grateful for the experience I had at ITLS. I still remember the logistics and transport Economics class that you taught, and it probably is the best lecture I ever had. Well, I don't have anything else to say, just want to say thanks to you and hope I can revisit ITLS someday and meet you again (October 29 2010) ("Y. Liu" yl415@cam.ac.uk)

Respected David, Thank you very much for your encouragement and the guidance throughout the course. I have never seen such a beautiful blend of sound knowledge, practical background and above all a genuine desire to teach students and enable them to use these concepts in their job environment, in my entire student life. You had been always clear and sure about the mistakes made by us but kind enough to indicate in such a lively manner that was not discouraging rather initiating useful discussion. My final emotional comments might be quite out of place in the Australian cultural context, but I said what I felt very true about you as a marvellous person and an outstanding academician. Regards Tariq Sipra, Pakistan Railways, June 17 2010 at end of TPTM 6130 Transport and Logistics Management.

Respected David, It was truly a great lecture in many respects. The contents, discussion and real life scenarios covered almost everything. It was really amazing that difficult economic theories could be taught in such a lively way. I really feel happy to be the participant of this course and utilize this treasured learning experience. Thanks & Regards, Tariq Anwar, Pakistan Railways (March 2010)

Great course and I thought the teaching was fantastic …some of the frameworks will prove useful and the topics were interesting. (June 2007)

Dear David, I just wanted to drop you a line and thank you and the staff at ITLS. I have finally finished my combined MURP/MTM (marks pending) after 5 long years. ITLS is very well run and all the staff there have been very approachable and I really enjoyed my time studying there. On a personal note I want to thank you again for the opportunity to study the Special Transportation subject in semester 1 this year. I really enjoyed working on the Brisbane BRT paper. Kate Golotta, (November 2008).

Dear David, How are you! I want to say that I'm very proud of being your student. You are the most knowledgeable professor I've ever met. What all I have learned in your class and from your books are very helpful for my future career. Expectantly, someday you would like to go to China to help us solve some traffic problem which is quite serious now. Thank you so much and wish you happy every day and enjoy your work. By the way here is a picture taken on our wonderful presentation day. Your smart student Lauren (July 2007).

David, With the upcoming graduating ceremony in mind, I'm in the unfortunate position of not being able to attend given that I've been seconded to the UK. I thought I would take the opportunity to thank you for your efforts and others at ITLS in stimulating and advancing my interests in transport. Although at times I found it to be a frustrating experience (the group work!), one cannot fault the underlying drive of ITLS to prepare its graduates for the real world through a careful mix of pragmatism and practicality.
Matt "Matthew Yi" <matthew_yi@unwired.com.au>

"Dear David, I would like to thank you for your wonderful lectures and your kind advices on my research. I have learnt a lot from you, not only the theories, but also a new way to think. Good luck for your future research and your life! Best wishes"
Daisy (Zhan Liu), MLM student 2005

"The MTM course offered a unique blend of practical Transport Management modules and core MBA modules in the one package. The modules were all well presented with good handouts, reading lists and stimulating assignments. Student participation in lectures was encouraged and, because many students were already in the workforce, their contributions enabled others to appreciate the practical implications of the subject being taught...The MTM lecturing staff are well connected within the public and private sectors of the Logistics/Transport Industry and thus the lectures have a practical focus rather than a heavy bias towards academic theory."
Mel Hindson, Manager, Systems Projects, TNT (graduate)

“I was just writing to say thanks for the transport economics lectures and to say that I look at a lot of the things at work quite differently because of them.”

Tim Dewey, Student

“I have found that the courses I took at ITS are very helpful especially Contemporary Issues in Transport. The concept of cost efficiency, sustainable transportation and the VTTS is still echo in my head. Thank you very much and thanks also to all ITS staff. Best Regards”

Wittawat Aroonsangsuree (SID: 9956293)

“Thanks for such a wonderful class you made in Transport Economics. To tell you the truth, I didn't expect this much. I really enjoyed the way you teach and it changed my perspective about how boring Economics is. Best regards”

Anawat Peng-udom, 2003

“Just thought I would let you know that I really enjoyed the course. In a way it would have been nice if it was one of the first subjects I did and not one of the later ones.”

Philip Bullock, 2003

“Dear David, Congratulations! I was told by one of your students in Master program that you are the brightest and best teacher he has come across. What more would a teacher want than that kind of true compliment! The student does not know I know you and he just commented on his learning experience. Wonderful teacher! Thank you for your good work to our younger generation. God bless!”

Ada Chow 2003

“Dear David, At this moment, I would like to say thank you very much for your excellent lecture which impressed every attendee as well as the specific instruction you gave us. Also, I'd like to let you know that I've really enjoyed my study for this unit, though I have to admit that I experienced a hard time with preparing the research paper. I think I've learnt a lot from you.”

Denny (Yibin Yang) 20/05/03

“David, Thought you might find the following entertaining and maybe for reference for your current crop of students:- Am currently involved with Consolidated Broken Hill in overall supply / logistics matters relating to the acquisition from Pasminco of the Elura mine at Cobar. Yesterday we had discussions with Pacific Rail - Richard Galbraith concerning contract novation and other matters. CBH will be railing zinc concentrates to Carrington and lead concentrates to Port Pirie (paid for by CBH), with backload of black sands for disposal at Cobar from Cockle Creek (paid for by Pasminco). Issues relating to pricing of shared assets (including containers) are central to the situation; also the allocation of residual liabilities in the event of CBH ceasing to rail/ship concentrates, or Pasminco returning black sands. Richard then suggested something to the effect that the Avoidable Cost Concept would be the appropriate way to go in resolving the issue - at which point I (figuratively speaking) woke up and started taking real note of what was being said! After the meeting your name quickly crept into the conversation. Have since referred to my paper (Cost Concepts in Transport Economics) written in May 2001 as part of the Transport Economics module and have been able to brief all on the CBH team about definitions of Avoidable, Shared, Joint and Common costs - single capacity rules and alternative capacity rules (with the appropriate references, of course). This has probably left the team members somewhat bemused but helped to establish my credentials as a guru on the subject and thus (I hope) competence to take a lead role in the situation. Thought you might be entertained at the thought that at least one of your students had evidence of not only having absorbed something they were being taught but also very practical application - as you noted at the time as my preference in my choice of written submissions!”

Kindest regards, Brian Smith (4/09/03)

The CTM course was interesting, informative, intensive but thoroughly worthwhile. Each topic was presented by experienced tutors with a wealth of knowledge. Some delivered their topic in a businesslike manner and others were full of passion (Professor Hensher in particular). I thought he was inspirational!!! I'd like to thank senior management at Busways for giving me the opportunity to do the CTM - I loved it.

Shirley, Busways (August 2005)

From: "lee windy" <windy_608@hotmail.com>

Dear David, I am writing to appreciate for your excellent lectures and kind guidance. Through one-year study, I found the courses provided by ITLS are closely linked to contemporary supply chain management issues and the lecturers are very helpful and give us wonderful guidance as well. I've learnt not only the comprehensive theoretical knowledge, but also critical thinking and research methods that are helpful in my future career and life. Thank you and all ITLS staff very much again. I will never forget your guidance and be proud of having been a student of ITLS forever.

Best regards, Yingying Li

Hello, Professor Hensher, I am Lu Jin from TPTM6130 this semester. I have finished my degree this year and am back in Shanghai looking for a job now. Thank you for giving us such a great experience in class and I am sure it will benefit my future career a lot. It's Christmas. Regards Lu Jin

What others Say ……

Hi David - thanks for the interesting paper - and for the encouraging health news, on which very best wishes indeed. I really admire the way you have confronted the difficult issues in both, with vigour, enthusiasm and detailed technical expertise. One lonely battle and one where you are (I think) in harmony with the best thinking in the world. What energy to tackle both! Yes I do think you are on the right track. Electrification of cars to facilitate continued growth in car use is not enough. Or, worse, it will continue to make things worse. The answer 'yes, but more slowly' is an evasion. Worse more slowly in the process with positive feedback, out of control, is bad. The challenge is to get over a simple, direct, proposition; less car use. Because it's not only fuel, it's also all the embedded carbon in vehicle manufacture, road construction, low density housing etc which would be accelerated if electric action plus autonomous vehicles actually make car ownership and use grow faster.
Your friend of nearly 50 years. Phil. 23 November 2025
Phil Goodwin, Phil Goodwinphilinelh@yahoo.com

"Adding to the bonanza, working from home, which was especially widespread in Victoria, saved on travel costs as well as on the time spent travelling. Careful estimates by Sydney University's David Hensher, who is one of the world's foremost transport economists, suggest that when a money value is put on the time savings, the gain to Victorians who worked from home amounted to some $5000." 3 December 2022 https://www.theaustralian.com.au/inquirer/federal-cash-splash-made-the-good-times-roll-for-daniel-andrews/news-story/5475fcbe409ea6528309a3879eef39c9 Henry Ergas AO

"It is a pleasure to be able to show my support for the renowned work of the ITLS and even more of a pleasure to do it in such luxe style. Best, Annamarie.
PROFESSOR ANNAMARIE JAGOSE | FAHA | FRSN
Provost and Deputy Vice-Chancellor
Office of the Vice-Chancellor, The University of Sydney" 20 July 2022

"Well, when my close and very distinguished friend, David Hensher, gives an accolade, that is something to be pleased about…. "Chandra Bhat, University Distinguished Teaching Professor, Joe J. King Chair in Engineering, The University of Texas at Austin, 22 March 2022.

"A leader sees opportunities and possibilities, whereas others see obstacles and problems. Matt and I often discuss this and are often surprised that some only see obstacles. Your ability to spot and seize opportunities is what makes you a great leader, not only with this large donation but also with smaller things like getting Volvo to sponsor the awards night." Prof Michiel Bliemer, ITLS, 8 February 2022

From: Simon Ville <sville@uow.edu.au>
Sent: Wednesday, 3 November 2021 9:53 AM
To: David Johnstone <djohnsto@uow.edu.au>; Nan Seuffert <nseuffer@uow.edu.au>
Subject: RE: our capabilities in transport research..
Thanks David, that's very helpful and interesting. I didn't know you worked with Hensher. He's an absolute star of the transport field. I used his work quite a bit when I worked on transport history.
Best
Simon

"From the short time I have been at ITLS, I must add that I find your resolve and enthusiasm quite inspiring." Chris. Christopher Day, 31 July 2020.

"David, You are one of the reasons I came to the ITLS, sometimes when you meet people you admire they eventually disappoint you, with you that is not the case. The clarity of your thoughts and your energy are to be applauded." Best regards, Miguel Loyola. PhD candidate, 31 July 2020.

"Superstar performance David, so positive, thoughtful and not a word out of place. Those two hosts have never given anyone so much time and respect, they are really good too." Prof David Johnstone, U Wollongong, re interview on ABC 702 Radio (7.15 am Breakfast show, Wendy and Robbie), 18 May 2020.

Hi David, Where do you find the energy and time to be so productive? I wish I had you as my mentor. Will order both books for our library! Cheers, Mark, Mark Zuidgeest University of Cape Town 31 May 31, 2020.

David, I was just going through my memories over the 16 years and remembered that you were a member of the selection committee that hired me all those years ago and then we had a glass of wine with Peter in his office (what days😊). It's been always a great pleasure working with you, David! You are one of a kind! Many times I have thought if only we had more academics like you! Farewell to Alena Nadvornikov, Data Intelligence Manager the Business School 5 February 2020.

In a world where fake news is real news, and where opinion often claims to be evidence, there has never been a time when independent, rigorous analysis by academic institutions has been more important to the functioning of society. Transport is a thing that affects every person in society, and by association, every action in the economy. It is not in its detail exciting, or even particularly interesting, until it doesn't meet expectations of the citizenry, at which point it becomes a political football. Academia has always spoken truth to power, but in a place where tens of billions of public dollars a year are being expended annually in pursuit of transport dreamings, it is critical that ITLS continues to be a voice of evidence and reason. Its impact may not be highly visible, but of course, ITLS research steers billions of dollars of public investment and spending annually. The shape of bus

contracts, boring but multi-billion dollar commitments, arose from ITLS research. AP Locke's critiques of infrastructure deals have pulled the focus of the deal makers on both sides of multi-billion dollar equations. Prof Levinson's rebranding of the political economy is shaping public service thinking in pursuit of influencing political and public thinking. And as ever, Prof Hensher's raging against the machine has created tension, debate and thus influence on everything from fares to road pricing. It is always hard to measure influence, because egos do not necessarily rate being influenced positively. But it is true that it is difficult in NSW to debate any transport topic without there being a link back to research and positions arising from research that ITLS has put into the thinking. Terry Lee William Arup Consulting 9 July 2019

Prof. Hensher – Don't you ever sleep? Every time I receive one of these alerts, it includes at least one paper of yours! You remind me of the illustrator Edward Sorel's caricature of the composer Joseph Haydn, who as you undoubtedly know wrote 104 symphonies in his lifetime. As I remember it, Haydn is sitting at a long table – powdered wig and all – holding quill pens in both hands and both feet, simultaneously composing a symphony with each of his four limbs. Astonishingly, I cannot find it anywhere on the internet, so maybe my memory is confused.
In any case, I trust you are well, and that you will take this as attempted humor. Best regards…
Don Pickrell, Volpe Center, Boston June 10 2016.

Dear David, I want to thank you and all of ITLS staff for inviting me to the University of Sydney for a semester. I am extremely impressed with the range of activities going on at ITLS, the depth of industry support for the program, and the staff currently assembled in the program. I'm very excited about some of the research I began working on at ITLS and plan to continue and build upon this research over the coming months. I should also state that the collection of visiting scholars and academics that ITLS seems to attract is also far-ranging, impressive, and dynamic. I have not witnessed a program with such great potential for the exchange of ideas, collaboration, and networking. I am fortunate to have been taken part in these activities for a short while, and have indeed become a 'champion' of ITLS Sydney.
Simon Washington, Professor, Department of Civil & Environmental Engineering, Arizona State University, 10 July 2007

From: "Sebastián Caussade C." <scaussad@puc.cl>
To: <davidh@its.usyd.edu.au>
Subject: Acknowledgments
Date: Tue, 24 Jun 2003 12:55:47 -0300
Dear Professor Hensher

My name is Sebastián Caussade, and I'm Juan de Dios' MSc student. First of all, I would like to apologize for my poor English level: I'll try to do my best. I write to you in order to thank you for all the support you've laid to us, even at theoretical and experimental aspects. I'm aware about how busy you should be by now teaching courses, writing papers, and so on... I've done a lot of reading of your latter papers concerning willingness to pay, DoD SC experiments and Mixed Logit models (with W.H. Greene). This is a very exciting stuff !!

We have already done a lot of modelling with data of the preliminary survey we' ve carried out between April and may, in the same way you propose in the first document you send to Juan de Dios (revealing differences in WTP...). I hope Juan de Dios had mailed you a couple of tables with some results, so that you can have an initial insight of our work here in Santiago. Now I'm doing some research concerning Mixed Logit in order to figure some ML models in the same way you propose us in the second paper you send us (Accounting for SC...)
I promise to mail you (through Juan de Dios, of course) some results as soon as possible.
Thanks a lot again for your advices, I feel really grateful for everything.
Best regards....Sebastián Caussade C. MSc Program Student Pontificia Universidad Católica de Chile
scaussad@puc.cl

Prof. Hensher
I'm a PhD student in the area of mode choice modelling using mixed logit models. In my study I'm evaluating, among others, the weight that variables related to private car restrains (free and paid parking densities mainly) and public transport quality/accessibility (frequencies, perceived travel time, direct routes) can have in influencing mode choice. Since you are one of the world renowned experts in this field, I would like to ask if you have any knowledge of studies with this kind of variables to compare with my results?
Best regards
Jorge H. G. Gonçalves, Civil Eng., MSc., Department of Civil Engineering, University of Beira Interior, Calçada Fonte do Lameiro, 6200 Covilhã - Portugal

Discrete choice modelling short course February 2006:

Overall an excellent course. Great lecturers who are obviously world leaders in the field & are very motivating. Excellent course, applied content is outstanding! Undoubted expertise of teaching staff, probably very few places worldwide where you could get this knowledge. The Lab work/computer work, very practical hands-on experience was very worthwhile. It has helped me gain a greater understanding of the subject matter. The running of the models in the lab was very useful. Practical tips & ideas of what to do in practice were most important.

RE ARC Linkage Application Assessor March 2006-03-07Research Team Track Record
This is an ideal team to undertake this project. The theoretical design aspects are very well covered by Hensher,….Hensher is internationally reputed for his contributions to choice modelling, and these contributions are directly relevant to the utility industries studied here. He has had a large amount of experience in carrying out this type of study successfully. He can be counted upon to

provide a sound theoretical base for the research, and can be expected to provide valuable insights as the research proceeds. While he is prolific, his work is always of the highest standards.

Hi David
Congratulations on your paper with Ken Train and Nina Shore that came out in the latest Economic Record. It's good to have economists like yourself in the Faculty**!** Jeffrey Sheen, Associate Professor, Discipline of Economics, School of Economics and Political Science April 4, 2006.

"…thank you very much for your amazing book: "Applied Choice Analysis", I have learnt many things from it, especially the mixed logit model." Nghia T Nguyen, PhD student at University of Wales, Bangor.

"I recently purchased you book *Applied Choice Analysis: A Primer* and started working through it today. I really enjoy the lay out and simplicity. I am going to try it out on my 15 year old son." Gary Kitchen, Corporate economist, Utah.

Discrete Choice Course 2007

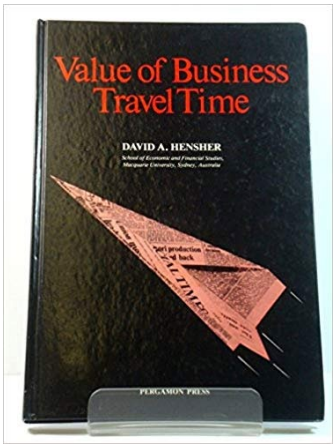
"I was recently privileged to attend the Choice Analysis course offered by ITLS at the University of Sydney. What a fantastic course !!! The course structure comprised introductory and advanced modules with theory immediately complemented by hands on lab sessions. We were all very impressed with every aspect of both course content and delivery. Prof. Hensher and his team (Drs Rose and Bliemer) went out of their way to ensure this complex and fast developing area was demystified with their attention to detail and clear and precise expositions of theory and practice. Highly detailed models such as Mixed Logit and advanced experimental designs were delivered with clinical precision enabling an immediate appreciation of these fickle methods. I would highly recommend this course to anyone who wishes to understand the analysis of choice modeling and experimental design in an intuitive, methodical and sequential manner". .Constantinos Menictas, 26 February 2007

"From: Peter Wolnizer, Sent: Sun 18/01/2009
To: All Staff (inc. ITS, ACIRRT, DoGS, Academics, General, SIO, Attendants, IT etc.)
Subject: Expression of Appreciation to Professors Gray and Hensher
Dear colleagues,
It is with sincere gratitude that I pay tribute to the contributions and achievements of Professors Sid Gray and David Hensher who have served our Faculty with great distinction as Associate Deans. Both colleagues concluded their service in that capacity at the end of 2008. They provide exemplary leadership and their sustained contributions have had - and will continue to have - high impact for good of our Faculty. I could write at length about the significant service and achievements of David and Sid, but I shall resist that temptation for I would not wish to embarrass them! It is particularly noteworthy, however, that while serving in Faculty leadership positions both David and Sid have also achieved the highest levels of scholarly and intellectual contributions. Their recurrent ARC grants, high order publications, and multiple PhD research supervisions are truly outstanding. I warmly invite you to peruse their CV's. They are wonderful role models for all who aspire to academic and organisational leadership positions. *David has been a tower of strength to me since my appointment as Dean ten years ago. He has been at the epicentre of the strategic transformation of our Faculty. From our first meeting - six weeks before I commenced as Dean - I saw in David not only an outstanding scholar, but a strategically-minded colleague who shared my high aspirations for our Faculty and who possessed the drive, determination and leadership to work with colleagues to make those aspirations a reality. While continuing to lead the outstanding successes of ITLS, David has served as Associate Dean (Postgraduate) for some nine years.* Of his own volition, he now gladly passes that baton to John Shields. After a long and sustained tour of duty in Faculty-wide leadership, David is devoting all his energies to building the future of ITLS - undoubtedly, his first love. David's professional service extends well beyond his intellectual contributions to his discipline and his Faculty-wide leadership responsibilities. He serves on several boards, panels and committees around the world most notably, perhaps, as a member of the Singapore Land Transport Authority International Advisory Panel (Chaired by the Minister of Transport), is Past President on the International Association of Travel Behaviour Research and a Vice Chair of the International Scientific Committee of the World Conference of Transport Research. He is the Executive Chair and Co-Founder of the International Conference in Competition and Ownership of Land Passenger Transport. In addition, David regularly advised governments and organisations on a wide range of matters pertaining to transportation. David and Sid - on behalf of all Faculty colleagues, I can but say a most sincere "thank you" for your sustained and effective leadership contributions as Associate Deans. It has been a great joy to work with you on the Executive Committee, and I am sure that all colleagues are delighted that you are remaining on faculty!
Kind regards, Peter, Peter W. Wolnizer, Dean and Professor of Accounting, Faculty of Economics and Business, The University of Sydney"

The Twenty Two (22) Most Significant Publications up to 2016

1. Hensher, D.A. (1977) *Valuation of Business Travel Time*, Oxford, Pergamon Press, 159pp

Completed at The University of Oxford; led to Hensher Formula for valuation of business travel time which is best practice in many countries; sanctioned by UK, Holland, Sweden and Norway Governments.



2. Hensher, D.A. (1986) Sequential and Full Information Maximum Likelihood Estimation of a Nested-Logit Model, *Review of Economics and Statistics*, Vol. LXVIII, No. 4, November; 657-667.

Showed the implications of losing crucial choice information through observation exclusion when using a sequential estimation method for nested logit modelling.

3. Hensher, D.A. (1984) Achieving Representativeness of the Observable Component of the Indirect Utility Function in Logit Choice Models: An Empirical Revelation, *Journal of Business*, Vol. 57, No. 2; 265-280.

4. Hensher, D.A. and Louviere, J.J. (1983) Using Discrete Choice Models with Experimental Design Data to Forecast Consumer Demand for a Unique Cultural Event, *Journal of Consumer Research*, Vol. 10, No. 3, December; 348-361. (149 citations as of December 2011)

The first article to develop choice experiments that are linked theoretically to random utility theory. The precursor to the literature today on stated choice methods.

5. Truong, T.P. and Hensher, D.A. (1985) Measurement of Travel Times Values and Opportunity Cost from a Discrete-Choice Model, *The Economic Journal*, Vol. 95, No. 378; 438-451. (146 citations as of December 2011)

6. Hensher, D.A. (1992) *Dimensions of Automobile Demand: A Longitudinal Study of Household Automobile Ownership and Use*, North-Holland, Amsterdam, 281 pp.

7. Hensher, D.A. (1994) Stated Preference Analysis of Travel Choices: The State of Practice, A special issue of *Transportation* on The Practice of Stated Preference Analysis, 21 (2), 106-134. (346 citations as of December 2011)

8. Hensher, D.A. and Waters, W.G. II (1994) Light Rail and Bus Priority Systems: Choice or Blind Commitment? in *Research in Transportation Economics*, Vol. III (ed. B. Starr Macmullen), JAI Press, Greenwich, Connecticut, 139-162.

9. Hensher, D.A., Daniels, R. D and De Mellow, I. (1995) A Comparative Assessment of the Productivity of Australia's Railway Systems, 1970/71-1991/92, *Journal of Productivity Analysis*, 6(3), September, 201-224

10. Hensher, D.A., Louviere, J.J. and Swait, J. (1999) Combining Sources of Preference Data, *Journal of Econometrics*, 89, 197-221. (248 citations as of December 2011)

    This article showed how unobserved heterogeneity can be accommodated in discrete choice models

11. Hensher, D.A. (1998) The Timing of Change for Automobile Transactions: A Competing Risk Multispell Specification .in Ortuzar, J.D., Hensher, D.A. and Jara-Diaz, S. (eds) *Travel Behaviour Research: Updating the State of Play*, Pergamon Press, Oxford, 487-506.

12. Hensher, D.A. (1998) Establishing a Fare Elasticity Regime for Urban Passenger Transport *Journal of Transport Economics and Policy*, 32 (2), 221-246.

13. Brewer, A. and Hensher, D. A. (2000) Distributed Work and Travel Behaviour: The Dynamics of Interactive

Agency Choices between Employers and Employees, *Transportation*, 27 (1), 117-148

14. Louviere, J.J., Hensher, D.A. and Swait, J. (2000) *Stated Choice Methods: Analysis and Applications in Marketing, Transportation and Environmental Valuation*, Cambridge University Press, Cambridge. (7797 citations as of July 2020)

Now regarded as the classic reference work in the field, with over 4,000 sales and extensive citations.

15. Hensher, D.A. and Greene, W.H. (2002) Specification and Estimation of the Nested Logit Model: Alternative Normalisations, *Transportation Research Part B – Methodological*, 36, pp 1-17.

16. Hensher, D.A. and Greene, W.H. (2003) The Mixed Logit Model: The State of Practice, *Transportation*, 30 (2), May 133-176. (579 citations as of December 2011) (Bill, David Your paper "The mixed logit model" continues to be one of top downloads - including being No 1 over the first nine months of 2011 and No 5 over the last 90 days! And David's and Tom Golob's 2008 BRT paper was No 8 for the first nine months of 2011 Great! Martin Richards, Editor-in-Chief *Transportation,* 9 February 2012). (1918 citations as of July 202018). It is the most cited paper in this journal.

The most cited paper on mixed logit models across many disciplines, and most downloaded paper of all papers ever published in Transportation.

17. Hensher, D.A. and Houghton, E. (2004) Performance-based quality contracts for the bus sector: delivering social and commercial value for money, *Transportation Research Part B - Methodological*, 38 (2), February 123-146.

Developed an innovative way of jointly maximising commercial and social objectives in context of establishing performance-based contracts in bus reform. It has had an influence on contract reform in Australia.

18. Jones, S. and Hensher, D.A. (2004) Predicting Firm Financial Distress: a Mixed Logit Model, *The Accounting Review* (American Accounting Association), Vol. 79, No. 4, October, 1011-1038.

The first paper to extend the mixed logit methods into finance and accounting and established a new benchmark for studies associated with choice making in finance and accounting.

19. Hensher, D.A. (2006) How do Respondents Process Stated Choice Experiments? – Attribute consideration under varying information load, *Journal of Applied Econometrics*, 21, 861-878.

The first of many papers by Hensher that has demonstrated the importance of attribute relevancy in contrast to the dominant focus in stated choice analysis on choice complexity.

20. Hensher, D.A. (2008) Joint estimation of process and outcome in choice experiments and implications for willingness to pay, *Journal of Transport Economics and Policy*, 42 (2), May, 297-322

21. Hensher, D.A., Greene, W.H. and Li, Z. (2011) Embedding Risk Attitude and Decisions Weights in Non-linear Logit to accommodate Time Variability in the Value of Expected Travel Time Savings, *Transportation Research Part B* 45, 954-972.

A major breakthrough in integrating extended expected utility theory into a random utility framework which allowed for risk attitude and perceptual conditioning in the presence of preference heterogeneity.

22. Hensher, D.A., Collins, A.T. and Greene, W.H. (2013) Accounting for attribute non-attendance and common-metric aggregation in a latent class mixed multinomial logit model: a warning on potential confoundment, *Transportation*, 40 (5), 1003-1020. DOI 10.1007/s11116-012-9447-0.

Four additional articles that have received a great deal of interest:

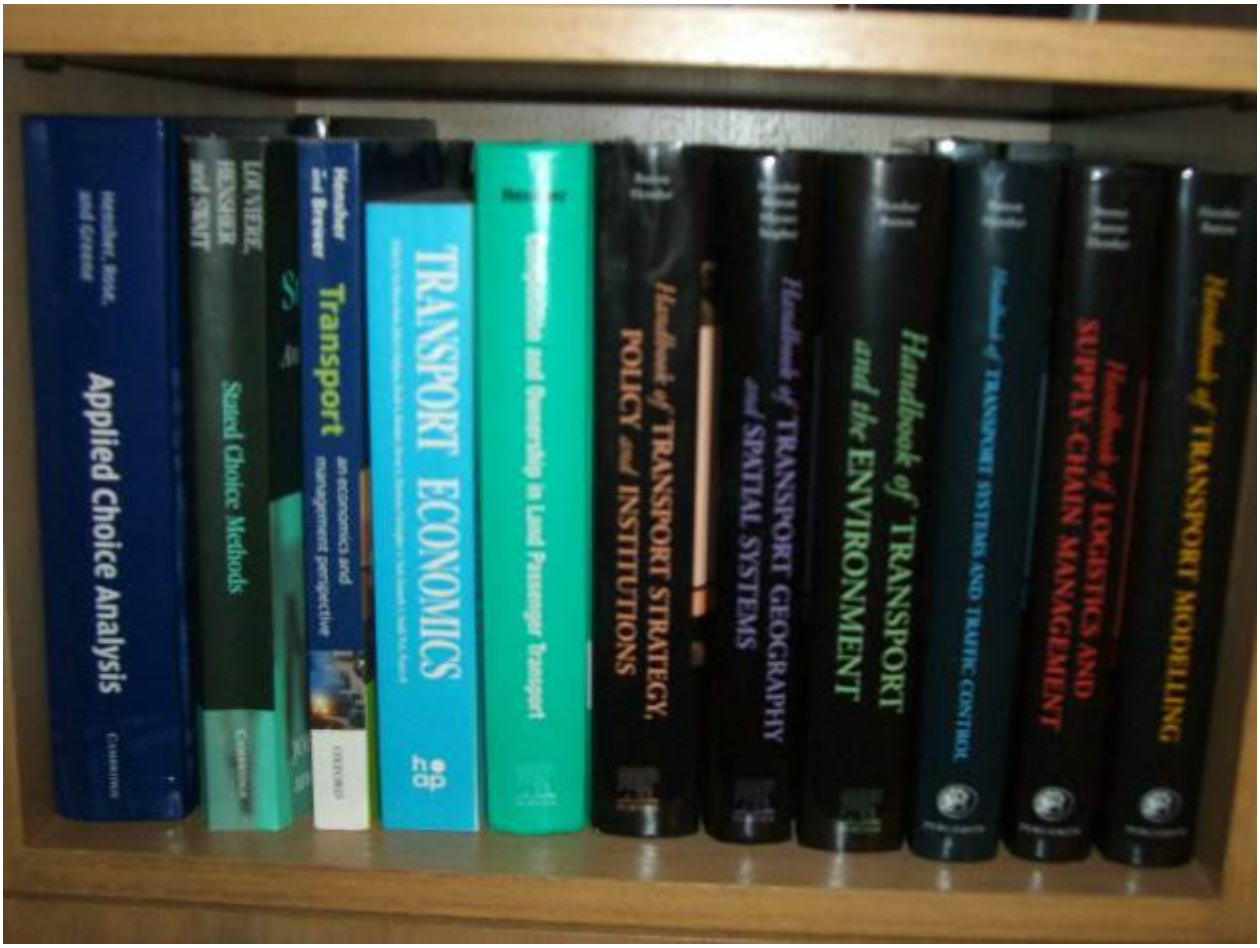
Hensher, D.A. and Mulley, C. (2014) Complementing distance based charges with discounted registration fees in the reform of road user charges: the impact for motorists and government revenue, *Transportation,* 41 (4), 697–715.

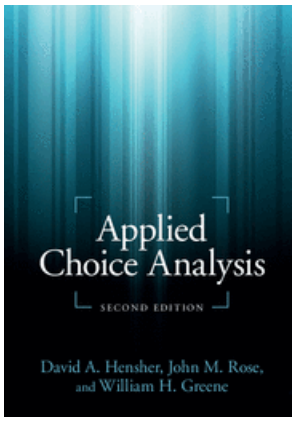
Hensher, D.A. (2015) Cost efficiency under negotiated performance-based contracts and benchmarking for urban bus contracts –are there any gains through competitive tendering in the absence of an incumbent public monopolist? *Journal of Transport Economics and Policy*, 49, Part 1, January, 133–148.

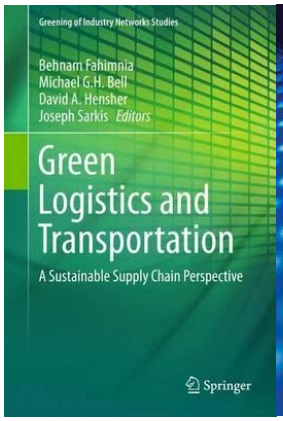
Hensher, D.A., Ho, C. and Mulley, C.M. (2015) Identifying resident preferences for bus-based and rail-based investments as a complementary buy in perspective to inform project planning prioritisation, *Journal of Transport Geography*, 46 (1), 1-9. http://dx.doi.org/10.1016/j.jtrangeo.2015.05.004

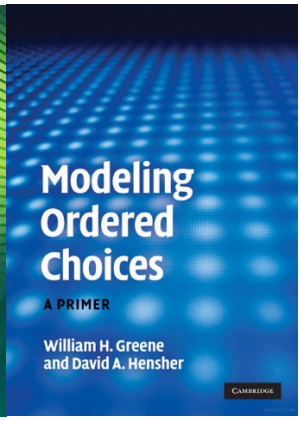
Hensher, D.A., Ho, C. and Liu, W. (2016) How much is too much for tolled road users: toll saturation and the implications for car commuter value of travel time savings? *Transportation Research Part* A, 94, 604-21. (This paper has generated extensive media interest – newspapers, radio and TV).

Note: David Hensher retains the numbers 1 most cited paper in Transportation (Springer) of all times as of July 2020.



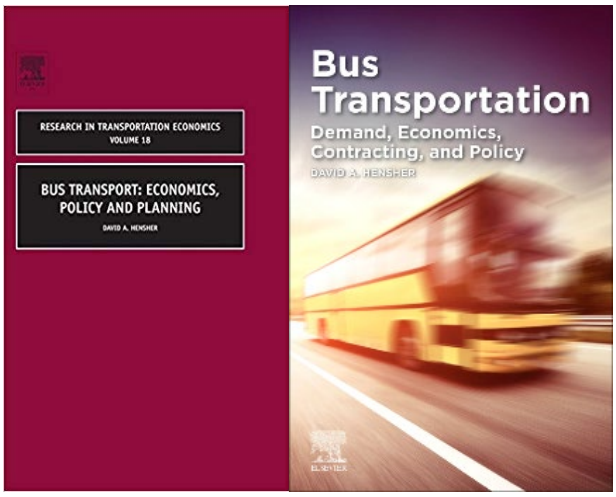






CAMBRIDGE UNIVERSITY PRESS

Reprinted by Routledge 2018



Two Bus Transport Books: Elsevier 2006 and 2020

"I hope you don't mind my contacting you out of the blue, but I am the commissioning editor for economics with the publishers Routledge. I am writing to enquire about your 2000 book published by Oxford University Press, *Transport: an Economics and Management Perspective*. I have visited over 150 economics departments over the past six years and have come across the book being used on courses in a number of places and I am therefore a little surprised that Oxford University Press has never persuaded you to write a new edition – if indeed it is interested in doing so. The fact that the book is still prominent is a testament to how highly it is regarded. If Oxford is not interested for one reason or another, I can assure you that Routledge would be only too happy to consider stepping in" Rob Langham, Senior Publisher - Economics and Finance, Routledge.

MaaS Book Elsevier 2020

"This book is an important contribution to the growing interest in MaaS and provides a thoroughly researched reference source. The book is an enjoyable read and should be on the bookshelves of all professionals interested in getting an up to date briefing of the MaaS journey to date. The authors have really gone through the materials existing to date and point out level of understanding we have at the moment. In particular the chapter 2.5 in which modal efficiency and the rationale for integration is discussed is an important contribution to knowledge. I commend the authors for this stimulating book." Sampo Hietanen, Founder CEO - MaaS Global

"This book is an important contribution to the growing interest in Mobility-as-a-Service (MaaS). It should be an important reference for academics as well as practitioners in clarifying the concept as well as providing an up to date summary of research on MaaS. Even though all chapters are important contributions, I found the chapter on institutional barriers and governance particularly interesting to read in that it not only describes the challenges associated with but proposes strategies by which the development and diffusion of MaaS could be addressed. I commend the authors for an interesting and stimulating book." I.C. MariAnne Karlsson, Professor and Head of Division of Design & Human Factors, Department of Industrial and Materials Science - Chalmers University of Technology

"This book is a critical examination of MaaS globally and shows a coherent depth of research that we have not seen to date. It will become the definitive source for MaaS and its honesty and analysis means that it will be a benchmark for the state of MaaS. The chapter on pilot programs for MaaS provides a holistic review of global initiatives that draws on some of the successes and limited wins for MaaS and shows why MaaS has started to work and in some instances why it hasn't succeeded as well as planned, but this feeds directly into the next chapter that then asks the critical question for businesses and cities alike 'What is the potential for MaaS'. I recommend that this book becomes essential reading and reference for all mobility professionals". Andy Taylor, Strategy Director - Cubic Transportation Systems, Inc.

Professor David Hensher wins the Smart 2013 Premier Award

At a gala dinner in Sydney attended by over 500 people on Thursday 27 June 2013, Professor David Hensher, Founding Director of the Institute of Transport and Logistics Studies (ITLS) in the Business School at The University of Sydney was recognised with the Smart 2013 Premier Award for Excellence. It is presented every two years to an individual in recognition of outstanding contribution to the profession of supply chain management in Australia.

Described as the Golden Logies award in Supply Chain Management, previous recipients are

1995 John David, MD of David's Holdings
1997 Gerry Hatton, MD of Mannesman Dematic Colby
1999 Major General Des Mueller AO, Vice Chief of Defence Force
2001 Dr John Gattorna, Managing Partner at Accenture
2003 Chris Corrigan, MD of Patricks Corp
2005 Keith Campbell OAM, National President of LAA
2007 Roger Corbett, CEO of Woolworths Ltd
2009 Lindsay Fox AO, Founder & Director of Linfox
2011 Air Vice Marshall Marg Staib AM, CSC, Chief of Joint Logistics Command

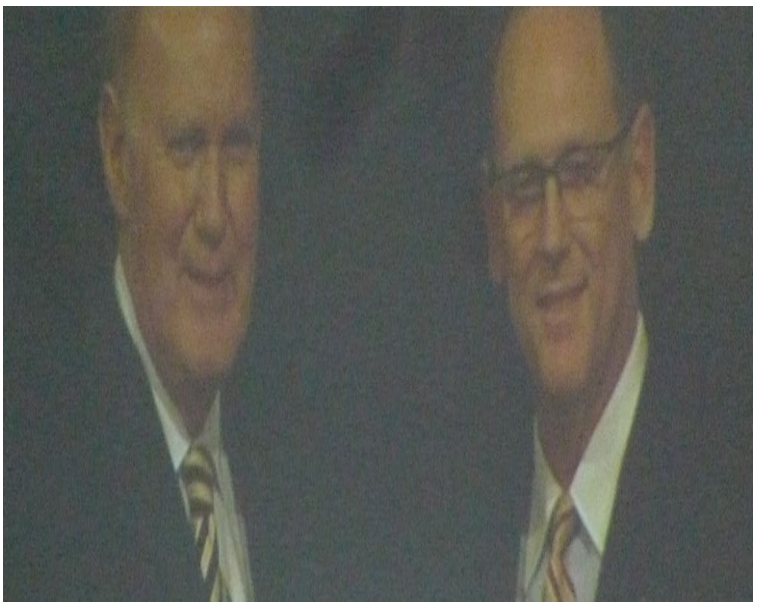
In presenting the Individual Award for Excellence award, the Chair of the Awards Committee (Allan A. Murray CSM) stated that the selection was based on "an individual who has more than 10 years in Procurement, Supply Chain or Logistics, has made a significant contribution to their field, and has demonstrated innovation and creativity (other than the traditional supply chain improvements), including business model innovation, innovative ways to reach new markets and creating opportunities for people engaged in supply chain."

Professor David Hensher with chair of the 2013 Smart Awards Allan Murray.

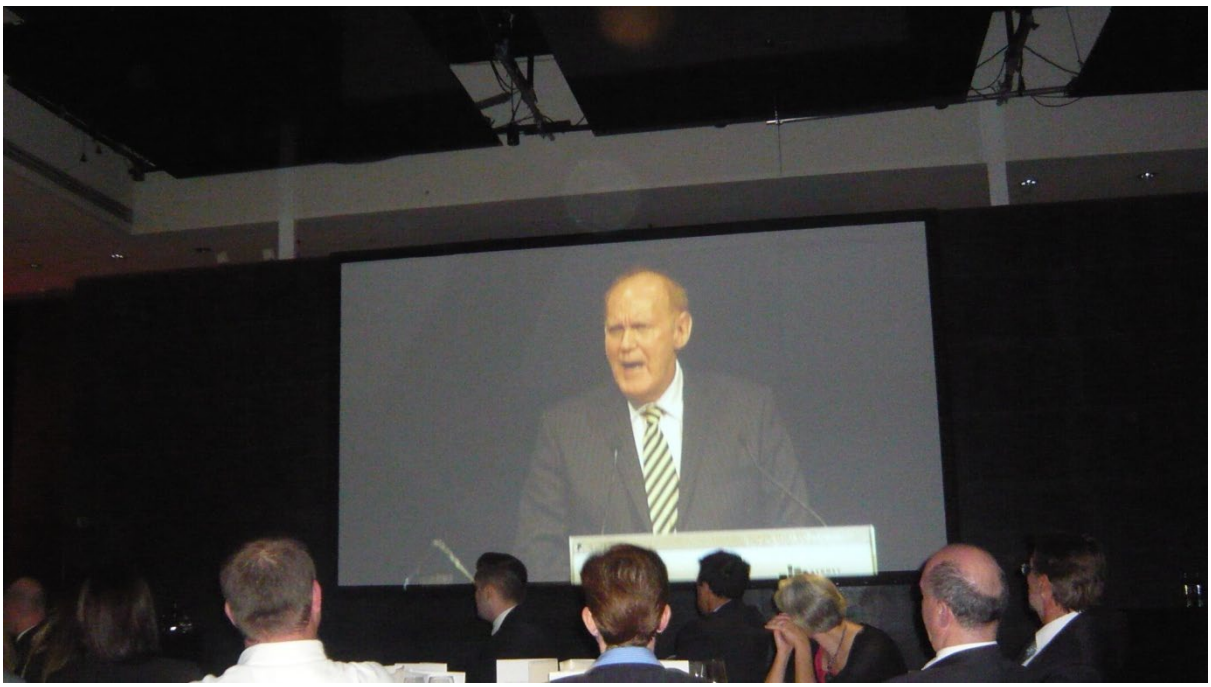
Official announcement of winner

Our award recipient for 2013 conducted research at Oxford University in the 1970s that remains influential today, founded Australia's key centre for teaching and research in transport management and now offers post-graduate qualifications to the industry, and is a significant contributor to public debate on transport management within NSW. He is Professor of Management and Founding Director of the Institute of Transport and Logistics Studies at the University of Sydney Business School.

Winner: **Professor David A. Hensher**



Professor David Hensher and Allan Murray



Vice-Chancellor's (Inaugural) Award for Excellence for Outstanding Research, 2016

The award was judged on: Excellence or quality of contribution, Novelty or distinctiveness of the contribution and Cumulative impact of contribution, including over a sustained period of time. Over a sustained period of 30 years, in the fields of transportation and economics David has pioneered: (i) the development of new theoretical methods to value travel time savings, the major user benefit in travel demand forecasting and appraisal of transport projects; (ii) the development of choice experiments as a most general representation of stated preference methods; (iii) the development of interactive agency choice experiments as a recognition of the interactions between decision makers in choice experiments; and (iv) the incorporation of information processing as a precursor to outcomes in discrete choice models. "Recognition through citation of his research is phenomenal: he has over 43,500 citations of his contributions in Google Scholar. David is ranked third in the world for economists in the field of discrete choice models, as of July 2016 (https://ideas.repec.org/top/top.dcm.html), 7th in the field of Utility Models and Prospect Theory (https://ideas.repec.org/top/top.upt.html). His Google Scholar H-index is 93 and Scopus index is 55."

Celebrating 30 years of the Thredbo Series, 2019

Dear David A. Hensher,
We'd like to inform you that Research.com, a leading academic platform for researchers, has just released the ***2022 Edition of our Ranking of Top 1000 Scientists in the field of Economics and Finance***. We are sure you will be very happy to learn that you have ranked #67 in the world ranking and **#1 in Australia**. The ranking is based on the H-index metric provided by Microsoft Academic and includes only leading scientists with an H-index of at least 30 for academic publications made in the area of Economics and Finance. The full world ranking is available here: research.com/scientists-rankings/economics-and-finance
The full ranking for Australia is available here: research.com/scientists-rankings/economics-and-finance/au
Please accept our sincere congratulations. Being present in our ranking is definitely a great achievement for you and your university or research institution. Feel free to share and publicize your accomplishment in any way you see fit.
With Best Regards,
Imed Bouchrika, PhD
Research.com

David Hensher hits the top of the top 2% scientists in "Logistics & Transportation" in the world

17 October 2022

Professor David Hensher, Founder and Director of the Institute of Transport and Logistics Studies (ITLS) at the University of Sydney Business School has been named in September 2022 as the top Logistics and Transport scientist in the world. The recognition is based on contributions to research output and impact in the specialist field which has 19,216 **scientists** whose primary field is "Logistics & Transportation" as reported by Stanford University analysis of impact citations over their career to date. The top 10 scientists in Logistics and Transportation are from Australia (1), USE (6), UK (2) and Hong Kong (1).
https://docs.google.com/spreadsheets/d/1FFatMl_ZjG8jC-rFDLuRl0VpVpdzeBzD-hZrrt_pv_M/htmlview

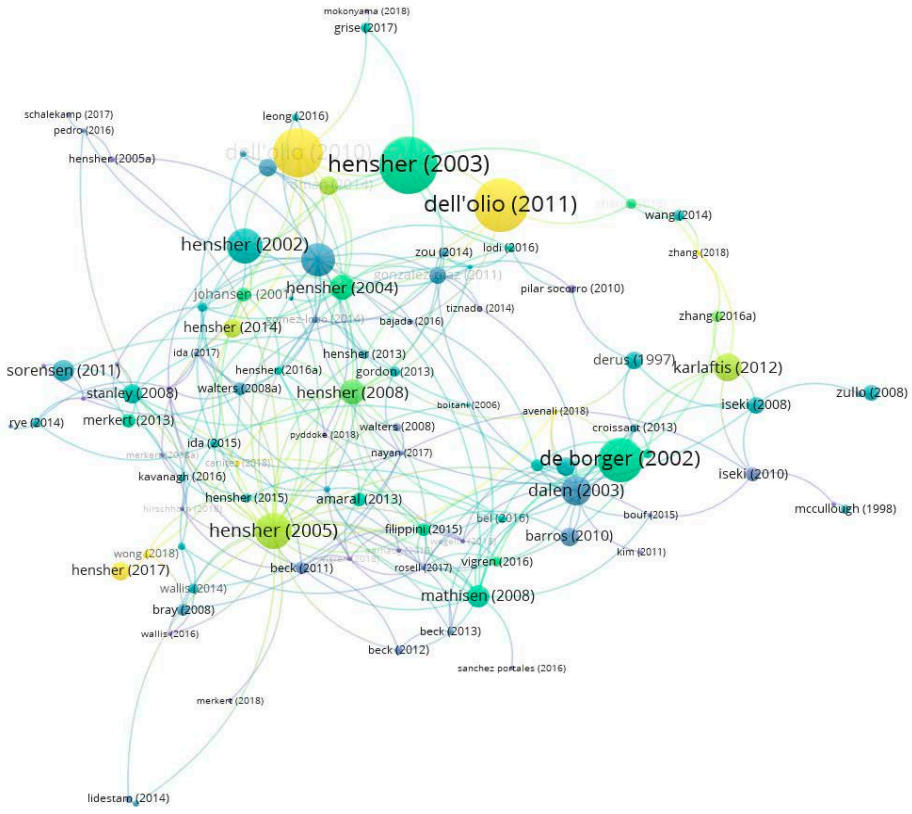
Rank	authfull	inst_name
1	Hensher, David A.	The University of Sydney Business School
2	Daganzo, Carlos F.	University of California, Berkeley
3	Bhat, Chandra R.	The University of Texas at Austin
4	Cervero, Robert	University of California, Berkeley
5	Flyvbjerg, Bent	University of Oxford, Saïd Business School
6	Train, Kenneth E.	University of California, Berkeley
7	Yang, Hai	Hong Kong University of Science and Technology
8	Mokhtarian, Patricia	Georgia Institute of Technology
9	Handy, Susan	University of California, Davis
10	Banister, David	Oxford Social Sciences Division

In commenting on this recognition, David has said that such an accolade of success is in part due to wonderful team of academic, government and industry partners that have supported his research over many years.

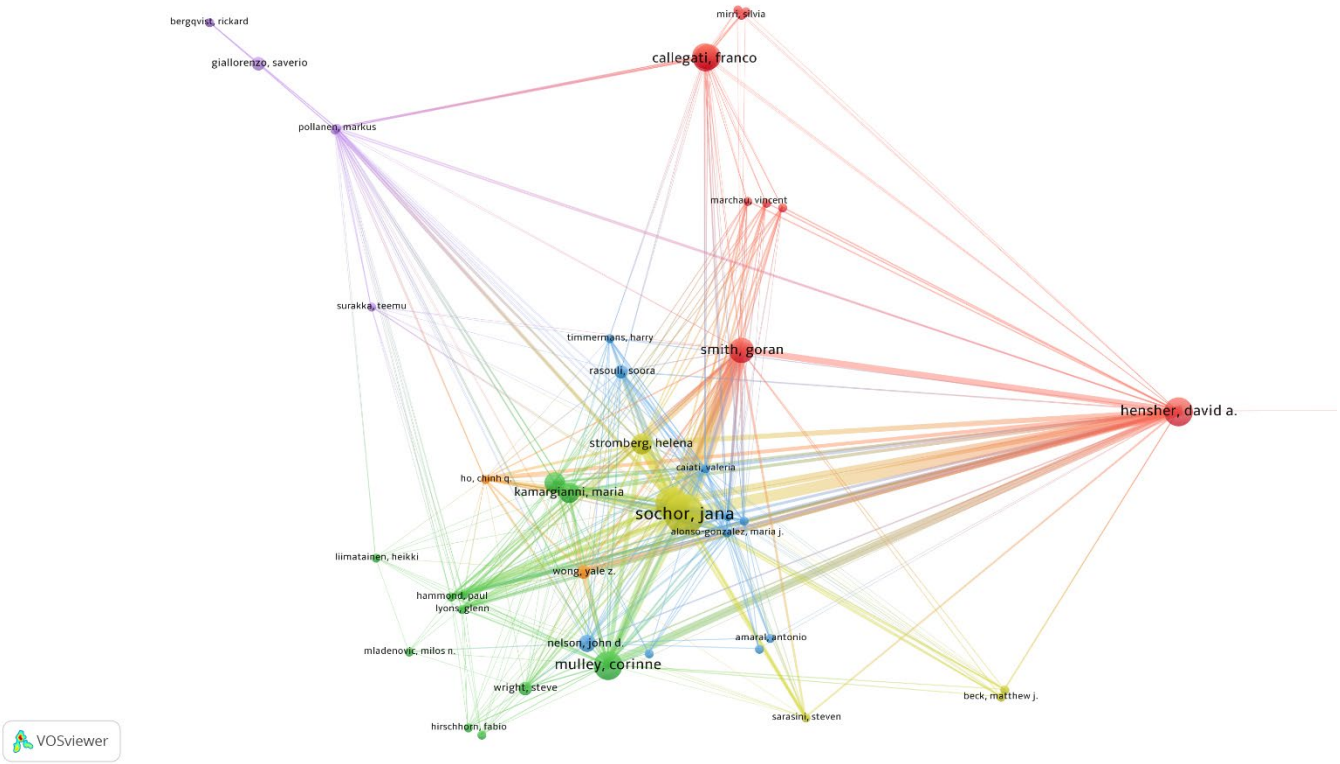
Thredbo 16, Singapore October 2019

Thredbo 17, Sydney October 2022

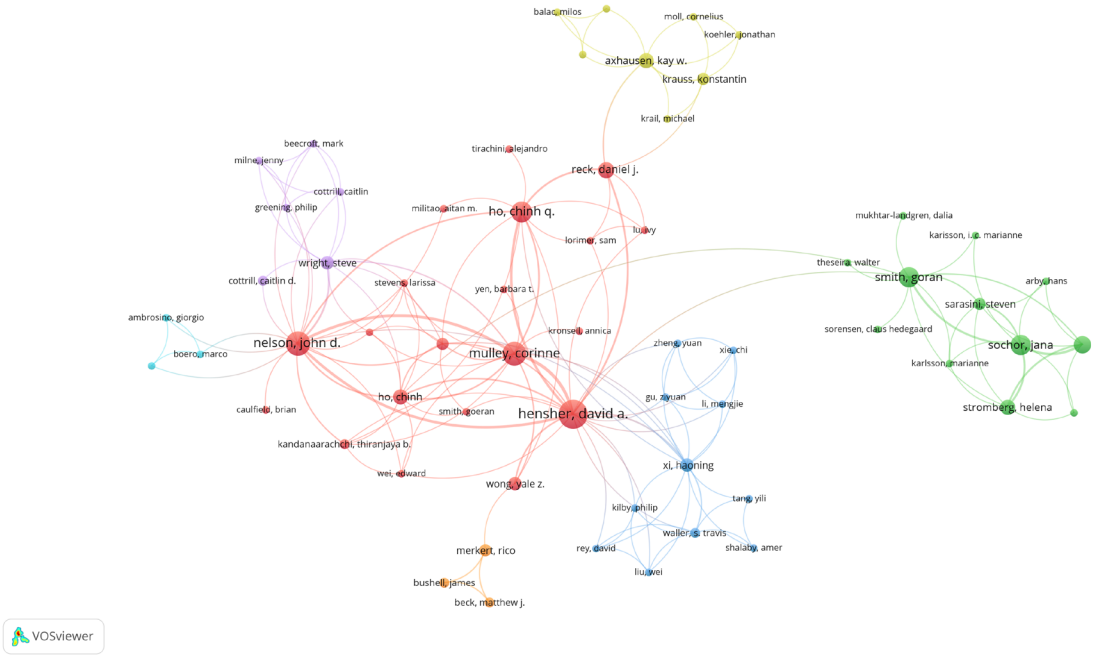
Thredbo 18, Cape Town October 2024



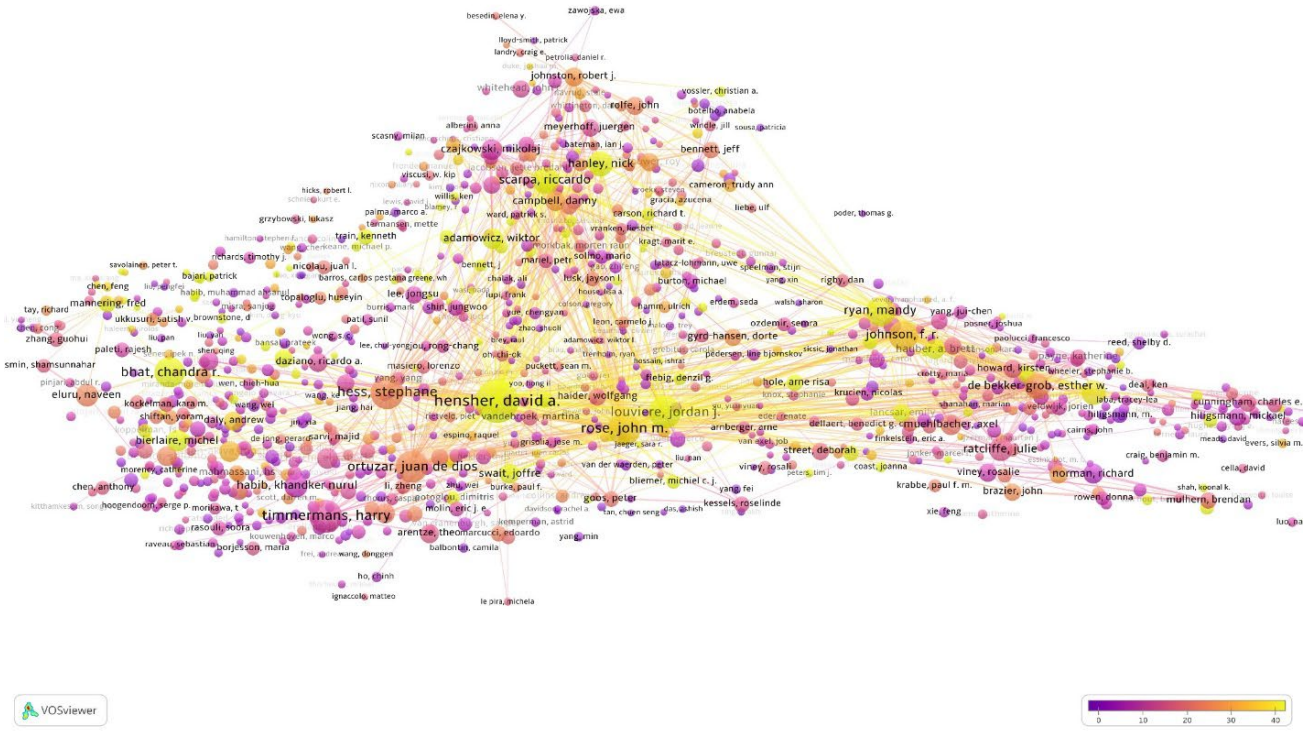
Citation Analysis and impacts in the bus contracting literature 1990-2019



Contributors to research on Mobility as Service (MaaS), as of June 2020



Contributors to research on Mobility as Service (MaaS), as of October 2025



Bibliographic coupling of authors (overlaid with average number of citations per document for each author) in choice modelling as of June 2020

A record of the main researchers in the field of Discrete Choice Models at *the first International Choice Modelling Conference*, held in 2009. From left to right: Moshe Ben-Akiva, Stephane Hess, Andrew Daly, Daniel McFadden, Riccardo Scarpa, David Hensher, Chandra Bhat, Michel Bierlaire.

Short history of ITLS

In early 1991, David Hensher was asked by the Director of the then Graduate School of Management and Public Policy (subsequently the Graduate School of Business), Professor Murray Wells OA, to establish a Centre for Transport Studies. It was subsequently agreed that it should be called the Institute of Transport Studies (ITS), in recognition of a desire to be associated with the Institute of Transportation Studies at the University of California (Berkeley, Irvine and Davis), and the Institute for Transport Studies at the University of Leeds. ITS commenced in March 1991 with a Director (Professor David Hensher), three research staff (Dr Nariida Smith,Frank Milthorpe and Julie Gee), with Rhonda Daniels Helen Battellino and (now Dr) joining soon after. The initial funding was provided by the Very Fast Train Joint Venture who had already invested over $1m in support to David Hensher and his team prior to setting up ITS, and who continued with another $400,000. This money was the seed funding that secured the very beginning for ITS. Within a year of its existence, ITS had established a Master of Transport Management (with an initial intake of 23 part time students), and a doctoral program with its first doctoral student, now Dr Michael Nyathi, from Zimbabwe. The initial success grew into a major recognition of its continuing role nationally and internationally when in 1995 ITS was recognised as a National Key Centre of Excellence by the Australian Federal Government, and formed a partnership with Monash University's Transport Research Group, renamed ITS (Monash). A Masters Program in Logistics Management was added soon after the Key Centre status.

ITS changed its name to The Institute of Transport and Logistics Studies (ITLS) in 2005 in recognition of its it diversified role, and in 2008 set up ITLS (Africa) in partnership with the University of Johannesburg. In May 2010 ITLS was successful in partnership with Pontificia Universidad Católica de Chile (PUC), Massachusetts Institute of Technology (MIT), Technical University of Lisbon, and EMBARQ - The WRI Center for Sustainable Transport, in winning a major 5 year (extended later to 10 years) multi-million dollar competitive grant from the Volvo Research and Educational Foundations (VREF) to establish the Bus Rapid Transit (ALC-BRT) Centre of Excellence.

ITLS is ranked amongst the top five institutes in the world in transportation and logistics research and education. It is home to some of Australia's, and the world's, leading academics in transportation, logistics and supply chain management. The Institute enjoys frequent visits from internationally renowned scholars and practitioners who come to teach in programs and work on collaborative research projects. In addition to the industry program (including bus and coach operator accreditation) and executive courses locally and offshore such as the Jiaotong Shanghai supply chain program, ITLS offers a fully integrated and articulated coursework and research program for graduates and non-graduates with industry experience. ITLS alumni serve in senior management and advisory positions, within Australia and internationally, for prestigious organisations and as senior executives in national and state governments. ITLS enjoys a high level of research success both in terms of winning highly competitive grants and contract funding from government and industry and in its influence on policy and practice by the dissemination of research outcomes through publication in prestige international journals and an extensive working paper series, presentations and workshops at global conferences, active engagement with industry and government; and through a highly successful leadership and policy seminar series which draws speakers of renown from around the world to talk about their latest cutting edge research, attracting audiences from academia, industry and government. Research in fields as diverse as discrete choice modelling, geographical information systems, travel behaviour research, reverse logistics, value chain management, performance of transport businesses, institutional reform and contracting, global warming and transport, social exclusion and mobility, and public transport reforms and bus rapid transit versus rail are areas where ITLS has made a significant global contribution to debate and practice.

ITLS has extensive links to leading transport and logistics institutes around the world and in Australia and has a number of quality partnerships with government and industry, including the NSW Government Funded Chair in Public Transport. The Board of Advice comprising leaders from the private and public sectors worldwide and academics actively supports the continued development and utilisation of ITLS as a centre of excellence, adding value to the community through advising the Director of new initiatives and funding opportunities. The academic and commercial membership of the Board gives ITLS a broad network for the sharing of expertise and experience.

The graduate coursework programs in transport and logistics have, in the last 30 years, graduated over 700 students. Currently there are 24 full time doctoral students, the largest program of its kind in Australia.

https://business-comms.sydney.edu.au/pub/pubType/EO/pubID/zzzz5fa1d4f8a734c668/interface.html

Launch of Transport Management Program

The Chancellor, Sir James Rowland, announced the establishment of the Institute of Transport Studies in the Graduate School of Management and Public Policy on 7 November.

The School's research activities in transport management will now be consolidated under the umbrella of the Institute (to be known as ITS-Sydney). This would include current work on such things as the Very Fast Train project and Competitive Tendering and Corporatisation within the transport industry as well as a range of new areas all connected with Australia's transport.

Sir James referred to negotiations that were well advanced with the Institutes of Transport Studies at the Universities of Leeds and California for close co-operation and collaborative research. 'Thus, ITS-Sydney will become the third point in an international triangle with opportunities for joint research studies, staff exchanges and a constant flow of ideas and support flowing between the three members of the network,' said Sir James.

The first Director of the Institute is Professor David Hensher, a Fellow of the Chartered Institute of Transport. He joined the School early this year as Professor of Management at the School and Director of the Management Research Centre. He is Chairman of the Australasian Transport Research Forum and was an adviser in the review of the NSW transit legislation which has led to the 1990 Passenger Transport Act for NSW.

Sir James said the Institute already had strong support from industry and government. The Bus and Coach Association of NSW has endowed a Senior Lectureship in Transport Management and the State Transit Authority of NSW (South-West Division) has endowed a position of Senior Systems Analyst in Transport.

The Graduate School's Transport Management Program was also officially launched at the function. The School will offer the Master of Transport Management for the first time in 1991. The Program will also include the Graduate Diploma and the Certificate in Transport Management. The certificate courses will be run in co-operation with the University's Centre for Continuing Education. A brochure outlining the Institute's program and giving details of transport courses will soon be available. Information can also be obtained from Cheryl St George on 550 8635.

In an earlier issue of the *News* (9 October 1990), the lead article overviewed Professor Hensher's involvements in transportation research, including the Very Fast Train project which is funded by $220,000 from the partners in the venture, TNT, BHP, Kumagai and, until recently, Elders.

Pictured at the launch, from left, are: Mr David Stewart, General Manager, Road Network, Roads and Traffic Authority of NSW; Professor Hensher, Director of the new Institute of Transport Studies; the Chancellor, Sir James Rowland; and Professor Murray Wells, Director of the Graduate School.

AWEUS officers elected

At the AWEUS (Association of Women Employees, University of Sydney) Annual General Meeting on 5 November, the following officers were elected for 1991: President — Sandy McDonald (Bursar — Asset Management, ext 3741); Treasurer — Louise Maral (Registrar's Publications, ext 3720); Secretary — Dorothea Sophia (Fac. Science, ext 3021); Committee Members — Barbara Murphy (EEO Unit, ext 2212), Elizabeth Elenius (Optical Fibre Technology Centre, ext 4670) and Anne Gray (Institute of Educ., ext 280). The position of Vice-President (academic) has yet to be filled.

The next AWEUS meeting will be held at the University Club (Mungo MacCallum Bldg.) on Tuesday 4 December. Drinks and a farewell to Mary MacLeod will follow.

304 — The University of Sydney News, 20 November 1990

ITLS Milestones 1990-2020

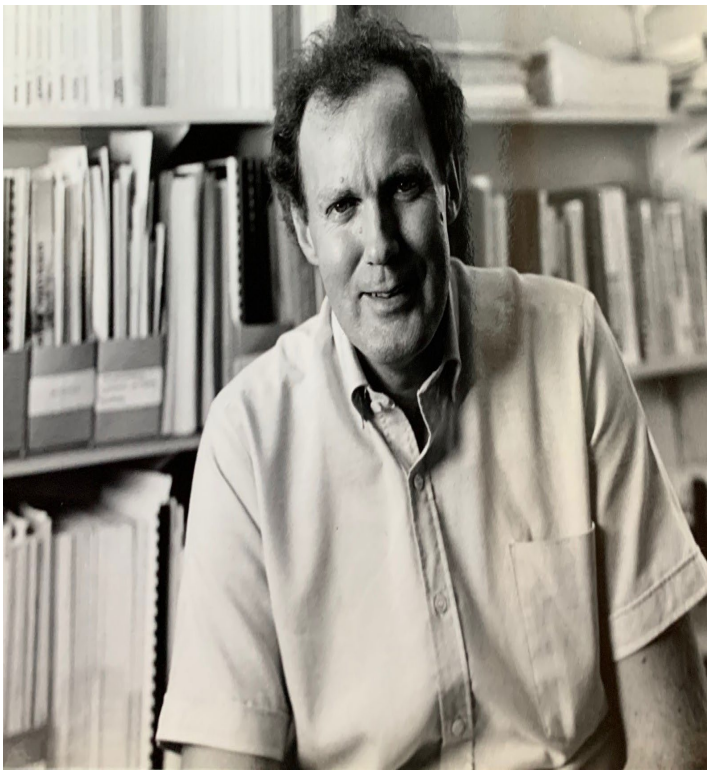
Year	Activity	Staff
1991	ITS established and first offering of a transport management program	10 staff
1994	• Announcement of the NSW Department of Transport Visiting Professor role • Board of Advice established (Paul Brown, CEO of TNT inaugural Chair)	11 staff
1995	• Awarded status of a Commonwealth Key Centre of Teaching and Research by the Federal Government in partnership with Monash University	18 staff

	• Department of Transport Management established within the Graduate School of Business with Professor Hensher as Head of Department • Introduction of Master of Logistics Management (MLM) • Professor Hensher elected a Fellow of the Academy of Social Sciences in Australia • Inaugural NSW Department of Transport Visiting Professor of Transport Planning, Jonathan Richmond	
2005	• ITLS repositioned as a Centre of Excellence in Transport and Logistics with name change and new logo. • New Board of Advice established, chaired by Dr Alastair Stone.	24 staff
2007	The NSW Government (through the Hon John Watkins, Minister of Transport and Deputy Premier of NSW) forms a partnership with ITLS-Sydney to establish a Chair in Public Transport.	22 staff
2008	• Professor Corinne Mulley appointed the inaugural Chair in Public Transport • MoU signed with University of Johannesburg (SA) establishing a partnership between ITLS Sydney and ITLS Africa.	27 staff
2009	• Professor Hensher honoured with the Lifetime Achievement Award from the International Association of Travel Behaviour Research (IATBR) • Professor Hensher presented with the award for Outstanding Contribution to the NSW Bus and Coach Industry • Release of ITLS Strategic Business Plan, 2010-2014	27 staff
2010	• First Transport Opinion Survey (TOPS) launched • Highest ranking for Excellence in Research for Australia assessment • Establishment of a Volvo Research and Educational Foundations Grant for a Centre of Excellence in Bus Rapid Transit (US$3.5 million)	26 staff
2012	• Move to CBD (Philip St Law Building) • 21st Year Celebration	30 staff
2013	• Professor Hensher awarded SMART Premier Award for Excellence • ITLS launches new logistics, transport, infrastructure, aviation and maritime specialisations	27 staff
2014	• ITLS involved in the establishment of the Training Centre for Food and Beverage Supply Chain optimisation • Master of Logistics Management rebadged as Master of Logistics and Supply Chain Management	28 staff
2015	• Maintains highest ranking for Excellence in Research for Australia assessment • Move back to main campus • Professor Rico Merkert appointed Deputy Director • Release of ITLS Strategic Business Plan, 2015-2019	25 staff
2018	• Establishment of TRANSW and Future Transport Research Group via Michel Bliemer • Member of iMOVE CRC • Maintains highest ranking for Excellence in Research for Australia assessment • Ranked 1st in Australia and 6th in the world for Transportation Science and Technology in ARWU rankings.	25 staff
2019	• Professor John Nelson takes up appointment as Chair in Public Transport	28 staff

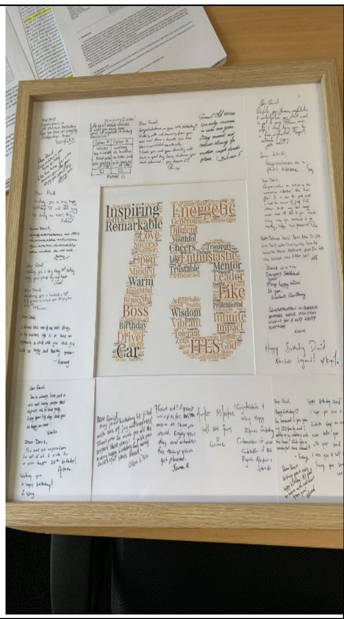
	• Professor Hensher's research assessed as high impact by ARC Engagement and Impact Assessment • Professor Hensher awarded John Shaw Medal • Release of ITLS Business Strategic Plan, 2020-2024	
2020	• Move to permanent home in the Merewether Building on main campus • Record number of academic media appearances across television, print, radio and online • Move graduate programs to online with great success and student numbers up over 100% compared to 2019 despite COVID-19 • Extensive webinar activity under the 'new normal'	28 staff
2021	• Launch of report on inaugural Sydney MaaS Trial project • The continuation of important COVID-related projects	22 staff

Once upon a time

2024 recipient of University of Sydney Business School award for Excellence in Research.



Eric Miller, Hani Mahmassani, Chandra Bhat, David Hensher and Juan de Dios Ortuzer


Inspiring
Remarkable
Energetic
75


Thredbo 17
NSW


iMOVE
CONFERENCE 2022
Collaborating our way to a sustainable transport future
#iMOVE22
iMOVE
ITLS
NSW GOVERNMENT
Transport for NSW
AusIndustry
Cooperative Research Centres Program


THE UNIVERSITY OF SYDNEY
Institute of Transport and Logistics Studies

With the Hon Jenny Atchinson, NSW Minister of Regional Transport and Roads, 24 May 2024

Bus NSW event December 2024 with the ED Matt Threlkeld

AITPM 30 May 2024

2025 ITLS Awads evening

Plenary speaker at Bus Industry Confederation (BIC) November 2024 Hobart with panel of CEOs of major bus companies (Keolis Downer, Transdev, CDC, Transit Systems, Kinetic)

Congratulations to @Professor David Hensher and the @Institute of Transport and Logistics Studies at the Business School for the recognition as leaders in the field of transportation research in @The Australian's 2024 Research Magazine.The magazine, produced by The Australian and its partner League of Scholars, has identified top researchers and research institutions in 250 research fields. @The University of Sydney has emerged as the leading research institution in 20 research fields, and 18 University of Sydney researchers have been acknowledged as leaders in their respective areas.
Read more here: https://www.sydney.edu.au/news-opinion/news/2023/11/08/sydney-researchers-lauded-as-national-leaders.html

Number 1 in Field 2022-2024

Professor David Hensher, Founding Director of the Institute of Transport and Logistics Studies in the University of Sydney Business School has topped the list in the *Logistics & Transportation* field for the recently released "Updated science-wide author databases of standardized citation indicators" by John Ioannidis (Stanford). David is #1 in the world with a Scopus index of 75 and 64,000 Google citations overall. His colleague Professor Mike Bell also made the Top 20, coming in at #19. Congratulations to you both. This is a great example of your career-long research impact.

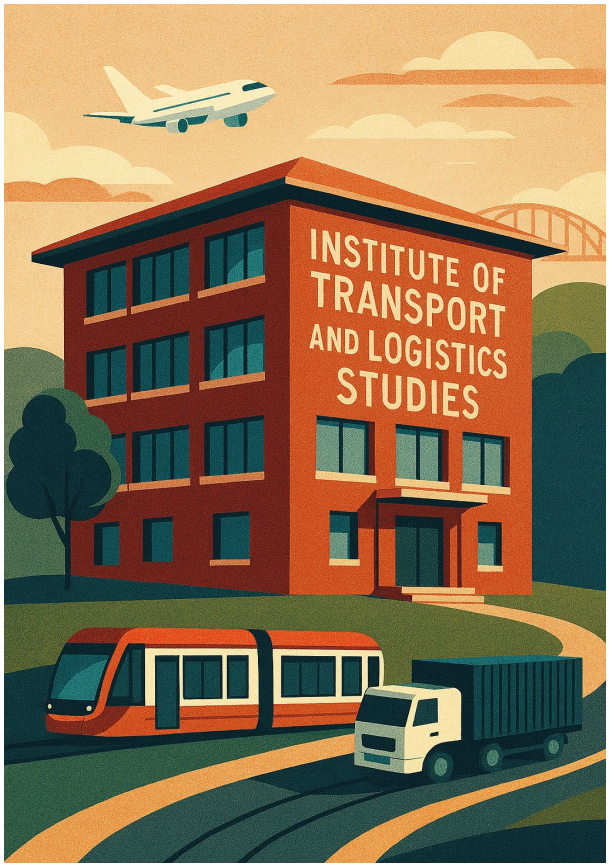
Top 2% scientists in "Logistics & Transportation" and "Operations Research" subfields across career through 2021 - Google Drive

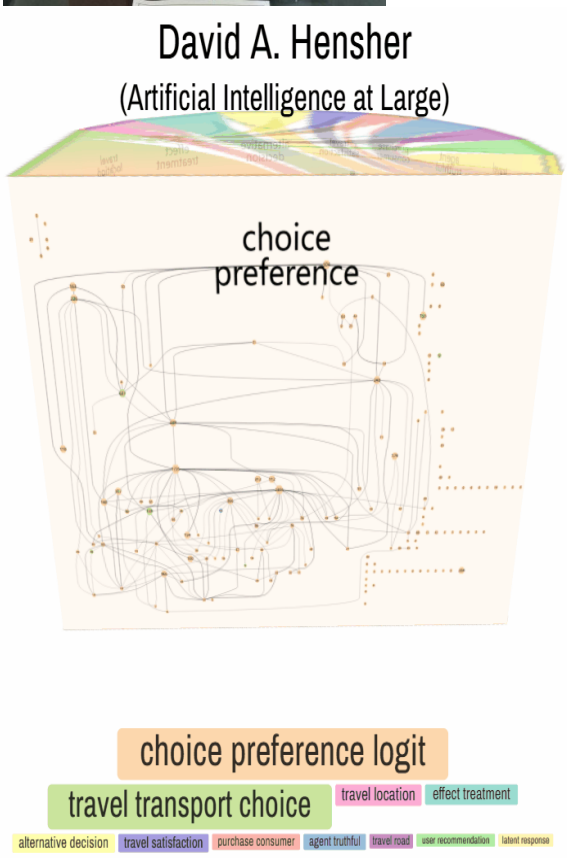
ORDER of AUSTRALIA

25 January 2023

We are honoured to be able to share with you the magnificent news that **Professor David Hensher**, (PhD, FASSA), The Founding Director of ITLS and a major player in transport, logistics and supply chain management over many years, has been recognised as a Member (AM) of the Order of Australia (OA) (General Division) as approved by the Governor-General in his capacity as Chancellor of the Order of Australia. We are thrilled for David and this recognition is so deserved. David is the architect of what has become a significant globally recognised research and teaching and

engagement Institute in the University of Sydney Business School.
https://www.linkedin.com/feed/update/urn:li:activity:7024104772882374656/





Institute of Transport and Logistics Studies (ITLS)