

3 Day Seminar 18-19 September 2006

# Research to Improve Decision Making in Transport



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## Introduction

This full three-day programme is the result of the work of two European Transport Conference Programme Committees: Applied Methods in Transport Planning and Innovative Methods in Transport Analysis, Planning and Appraisal. Competition to appear in this programme is strong with the result that the seminar programme is of the highest quality.

The European Transport Conference is for researchers and practitioners and the reason for its continued success and increasing influence is that research and practice sit side-by-side. Delegates are encouraged to attend a variety of sessions and the timetable is designed to facilitate this.

The seminars to be included in the Research to Improve Decision Making in Transport section of the conference this year are:

- *Transport Economics*
- *Traffic Assignment*
- *Value of Time*
- *Advances in Discrete Choice Models*
- *Methods in Transport Planning*
- *Applied Methods in Transport Planning*
- *Methods in Transport Models*
- *Stated Preference*
- *Activity-Based Modelling*

## Programme Monday 18 September

### Opening Session 0930-1000

**Welcome from the Association for European Transport**

### Plenary Session 1000-1045

**The Review of the White Paper on Transport**

Zoltán Kazatsay, Deputy Director General, DG TREN,  
European Commission

### Session 1 1100-1300

#### Transport Economics

##### **Modelling and Appraising Road Pricing Schemes**

**Chair:** Niels Buus Kristensen, Danish Transport  
Research Institute, DK

**Dynamic optimal toll design problem - travel  
behavioural analysis including departure time choice  
and heterogeneous users**

D Joksimovic, Technical University of Delft, NL

**Cost-benefit analysis of the Stockholm congestion  
charging system using observed, real-world data**

J Eliasson, Transek, SE

**Socio-economic assessment of road pricing systems  
- results from two projects in the Copenhagen region**

J Rich, O Anker Nielsen, Centre for Traffic  
and Transport, Danish Technical University, DK;  
K Wrang, The Danish Environmental Assessment Institute, DK

European Transport Conference 2006

18-20 September Palais de la Musique et des Congrès, Strasbourg, France

## Traffic Assignment

### Assignment Solution Algorithms

**Chair:** Otto Anker Nielsen, CTT,  
Danish Technical University, DK

### An empirical comparison of alternative user equilibrium traffic assignment models

H Slavin, J Brandon, A Rabinowicz, Caliper Corporation, US

### An alternative approach to route choice simulation: the sequential models

G Gentile, University of Rome "La Sapienza", IT;  
A Papola, University of Naples "Federico II", IT

### An heuristic algorithm for dynamic user-optimal assignment in traffic simulation models

M Mahut, INRO Consultants, CA

## Value of Time

### Value of Time

**Chair:** John Polak, CTS, Imperial College London, UK

### An integrated approach to the estimation of the value of travel time saving

M Fosgerau, K Hjorth, S Vincent Lyk-Jensen,  
Danish Transport Research Institute, DK

### Non-linearities in discrete choice attribute valuations

N Tapley, M Wardman, G Whelan, ITS, University of Leeds, UK

### Non-linearity of utility function and value of travel time savings: empirical analysis of inter-regional non-business travel mode choice of Japan

H Kato, University of Tokyo, JP

## Session 2 1415-1545

## Transport Economics

### Microeconomic Foundation of Modelling

**Chair:** Mogens Fosgerau,  
Danish Transport Research Institute, DK

### From economies of density and network scale to multi-output economies of scale and scope: a synthesis

S R Jara-Diaz, L Basso, University of Chile, CL

### Strategic toll and capacity choices on simple transport network

Bruno de Borger, University of Antwerp, BE;  
Fay Dunkerley, Steff Proost, Catholic University of Leuven, BE

## Traffic Assignment

### Freight Assignment

**Chair:** J Holguin-Veras, Rensselaer Polytechnic Institute, US

### A multi-flow/multi-modal assignment procedure on large freight transportation networks

B Jourquin, FUCaM, Catholic University of Mons, BE

### Route choice modelling for freight transport at national level

F Russo, A Vitetta, A Quattrone, DIMET,  
University of Reggio Calabria, IT

## Value of Time

### Travel Time Variation and Reliability

**Chair:** Frederic Oladeinde, Department for Transport, UK

### Forecasting travel time variability

J Eliasson, Transek, SE

### Valuing the reliability of arrival time by means of the risk premium

R Batley, ITS, University of Leeds, UK

## Session 3 1615-1815

## Transport Economics

### Microeconomic Foundation of Modelling

**Chair:** Jeppe Rich, Technical University of Denmark, DK

### Advances in modelling traffic generation

A Daly, S Miller, RAND Europe, UK

### Consistency of nested logit models with utility maximization

N Ibáñez, University of Seville, ES

### The complete goods-activities framework to model time assignment, consumption and discrete choices

S R Jara-Diaz, University of Chile, CL

## Traffic Assignment

### Congestion Assignment modelling

**Chair:** Michael Mahut, INRO Consultants, CA

### Extending horizontal queue modelling to whole routes of moving bottlenecks

N B Taylor, TRL, UK

### Modelling large, congested transport networks in meso - and microscopic simulation models

E Merritt, Royal Institute of Technology, KTH, SE;  
N M Rouphail, ITRE, North Carolina State University, US

### Modelling queues in static traffic assignment

M Bunschuh, P Vortisch, PTV AG, DE;  
T van Vuren, Mott MacDonald, UK

## Value of Time

### Value of Time

**Chair:** Cinzia Cirillo, FUNDP, BE

### **Representation of taste heterogeneity in willingness-to-pay indicators: past mistakes, state-of-the-art and future directions**

S Hess, IVT-ETH Zurich, CH;  
S Mabit, Technical University of Denmark, DK;  
S Caussade, Steer Davies Gleave, CL

### **Assessment of the value of travel time from stated choice surveys - the treatment of lexicographic answering**

E J van de Kaa, TRAIL Research School, NL

### **Prospect theory and the value of time**

M Fosgerau, Danish Transport Research Institute, DK

## Programme Tuesday 19 September

**Plenary Session** 0900-0945

### TRANSTOOLS

**Session 4** 1000-1130

## Advances in Discrete Choice Models

### Mixed Logit, Confounding

**Chair:** TBA

### **Development and application of the mixed ordered response logit model**

G Whelan, N Tapley, M Wardman, ITS, University of Leeds, UK

### **Confounding between taste heterogeneity and error structure in discrete choice models**

S Hess, J Polak, CTS, Imperial College London, UK;  
M Bierlaire, Ecole Polytechnique Fédérale de Lausanne, CH

## Applied Methods in Transport Planning

### Land Use and Transport Modelling

**Chair:** Michael Cusack, 4cast BV, NL

### **Residence locations and mobility tool ownership during the life course: results from a retrospective survey in Switzerland**

S Beige, K W Axhausen, IVT ETH Zurich, CH

### **Modelling land use in the GUM-model**

M de Bok, B Zondag, E Petersen, RAND Europe, NL

## Methods in Transport Planning

### **Measuring Transport Benefits using Discrete Choice Models**

**Chair:** Peter Davidson, Peter Davidson Consultancy, UK

### **Use of logsums in welfare estimation: PRISM application**

S Kohli, Mott MacDonald, UK; Andrew Daly, ITS, University of Leeds/RAND Europe, UK/NL

### **Evaluating a replacement ferry for the Isles of Scilly using a discrete choice model framework**

C Rohr, M Kouwenhoven, S Miller, A Daly, RAND Europe, UK/NL;  
J Laird, ITS, University of Leeds, UK

**Session 5** 1150-1320

## Advances in Discrete Choice Models

### Mixed Logit, Non Parametric

**Chair:** Stephane Hess, IVT - ETH Zurich, CH

### **A practical test for the choice of mixing distribution in discrete choice models**

M Fosgerau, Danish Transport Research Institute, DK;  
M Bierlaire, Ecole Polytechnique Fédérale de Lausanne, CH

### **Estimating mixed logit with non-parametric random variables**

C Cirillo, F Bastin, P L Toint, FUNDP-GRT, BE

## Applied Methods in Transport Planning

### Impact of Transport on Workers and Businesses

**Chair:** David Simmonds, David Simmonds Consultancy, UK

### The impact of transport on business location decisions

J Swanson, A Davies, Steer Davies Gleave, UK;  
R Harris, Department for Transport, UK

## Methods in Transport Planning

### Car Ownership Model

**Chair:** Gerard Whelan, ITS, University of Leeds, UK

### DYNAMO: dynamic automobile market model for the Netherlands

H Meurs, R Haaijer MuConsult, NL;  
R Smit, AVV, Ministry of Transport, NL; K Geurs, MNP, NL

### Hedonic prices for cars: an application to the Spanish car market, 1980-2005

A Matas, J L Raymond, Universitat Autònoma de Barcelona, ES

## Session 6 1430-1600

### Advances in Discrete Choice Models

#### Discrete Route Choice Models

**Chair:** TBA

#### The effect of correlated value of travel time savings in public transport networks

S Mabit, O Anker Nielsen, CTT, Technical University of Denmark, DK

#### A latent route choice model in Switzerland

M Bierlaire, E Frejinger, J Stojanovic, Ecole Polytechnique Fédérale de Lausanne, CH

### Applied Methods in Transport Planning

#### Air transport

**Chair:** TBA

#### Airport and access mode choice in Germany: a generalised neural logit model approach

M Gelhausen, German Aerospace Centre, DE

#### Stated preference models for airport and airline choice

S Hess, IVT-ETH Zurich, CH;  
T Adler, Resource Systems Group, US

### Methods in Transport Planning

#### Large Scale Modelling

**Chair:** Sonal Ahuja, Mott MacDonald, UK

#### Overcoming data deficiencies through advanced modelling techniques

E Petersen, A Daly, J Fox, S Miller, RAND Europe, UK/NL

#### ANTONIN: updating and comparing a transport model for the Paris region

L Debrincat, Syndicat des Transports d'Ile de France, FR;  
M Pieters, J G Tuinenga, RAND Europe, NL

## Session 7 1630-1830

### Advances in Discrete Choice Models

#### Innovations in the Use of Mixed Models

**Chair:** TBA

#### Solving singularity issues in the estimation of discrete choice models

M Bierlaire, M Thémans, Ecole Polytechnique Fédérale de Lausanne, CH

#### Recognising respondents' attribute processing strategies in discrete choice modelling

S Hess, D Hensher, J Rose, IITLS, University of Sydney, AU

#### Policy implications of mixture models: an analytical and empirical investigation of elasticities

J L Walker, Boston University, US

### Applied Methods in Transport Planning

#### Modelling Demand for Air Services

**Chair:** Rachel Risely, Accent, UK

#### Welfare effects of capacity constraints at Schiphol Airport - A new model to forecast air demand

M Kouwenhoven, E Kroes, RAND Europe, NL

#### A multivariate ARIMA model for the forecast of the air transport demand

A Andreoni, M N Postorino, Mediterranean University of Reggio Calabria, IT

#### Analysis of US airline passengers' cancellation behaviour across multiple carriers

L Garrow, D C Iliescu, Georgia Institute of Technology, US;  
R A Parker, Boeing, US

## Methods in Transport Planning

### Matrix Estimation and Data Fusion

**Chair:** Howard Slavin, Caliper Corporation, US

### How can we trust in the o-d matrix correction procedure using traffic counts?

A Papola, V Marzano, University of Naples "Federico II", IT

### Traffic model for Copenhagen; updating of the trip matrices

O Anker Nielsen, C Overgård Hansen, Technical University of Denmark, DK;

G Vuk, Danish Transport Research Institute, DK

### Using Bayesian belief networks and process metadata to address large scale data integration problems

J Polak, R Krishnan, C Lindveld, M Logie,

A Westlake, CTS, Imperial College London, UK;

K Axhausen, ETH Zurich, CH;

E Cornelis, FUNDP, BE; M Collop, Transport for London, UK;

T Haupt, PTV AG, DE

## Programme Wednesday 20 September

### Plenary Session 0900-0945

#### Current Research in Transport Methodology

Stef Proost, Professor, Katholieke Universiteit Leuven, Belgium

### Session 8 1000-1130

## Advances in Discrete Choice Models

### Fundamentals of Random Utility Theory and its Application

**Chair:** Michel Bierlaire, EPFL, CH

### From random utility to random expected utility: theory and application to departure time choice

J Polak, X Liu, Centre for Transport Studies, Imperial College London, UK

### Competing methods for representing random taste heterogeneity

S Hess, IVT-ETH Zurich, CH; M Fosgerau, Danish Transport Research Institute, DK

### An empirical estimation of the value of travel time reliability for commuters in Barcelona

J Asensio, A Matas, Universitat Autònoma de Barcelona, ES

## Methods in Transport Models

### Uncertainties in Traffic Models

**Chair:** Karin Brundell-Freij, University of Lund, SE

### Errors in functions of the parameters of statistically estimated models

A Daly, G de Jong, ITS, University of Leeds, UK and RAND Europe, NL

### Uncertainty in traffic models

O Anker Nielsen, M Aagaard Knudsen, CTT, Technical University of Denmark, DK

## Stated Preference

### Freight Stated Preference

**Chair:** Lori Tavasszy, TNO Mobility and Logistics, NL

### The value of freight travel time savings and reliability improvements - recent evidence from Great Britain

T Fowkes, T Whiteing, ITS, University of Leeds UK

### Analyzing freight transports' qualitative attributes from stated orders of preference

M Beuthe, C Bouffieux, Catholic University of Mons, BE

## Activity-Based Modelling

### Spatial Choices

**Chair:** John Bowman, Independent Consultant, US

### Toward a comprehensive, unified, framework for analysing spatial location choice

A Sivakumar, RAND Europe, UK; C R Bhat, The University of Texas at Austin, US

### Analyzing the effect of land use policies on travel behaviour using activity-based modelling

Y Shiftan, Technion, IL

## Session 9 1200-1300

### Methods in Transport Models

#### Model Validation

**Chair:** Remko Smit, AVV, Ministry of Transport, NL

#### The validation of the UK National Transport Model: a backcasting approach

H Gunn, Hugh Gunn Associates, UK;  
P Burge, S Miller, RAND Europe, UK

#### How does modelling perform in real life?

V Kovacevic, Highways Agency, UK;  
P Richards, Atkins, UK

### Stated Preference

#### Design of Stated Preference Surveys

**Chair:** TBA

#### The influence of stated preference (SP) design on the incentives to bias in responses

H Lu, A Fowkes, M Wardman, ITS, University of Leeds, UK

#### Optimal design of stated preference (SP) experiments when using mixed logit models

A Tudela, G Rebollo, Universidad de Concepcion, CL

### Activity-Based Modelling

#### Applications

**Chair:** Christian Overgaard Hansen, Technical University of Denmark, DK

#### The Sacramento activity-based travel demand model: estimation and validation results

J L Bowman, M A Bradley, Independent Researchers and Consultants, US

#### Comparing a conventional travel demand model to an activity-based travel demand model: a case study of Copenhagen

E Peterson, RAND Europe, NL;  
G Vuk, Danish Transport Research Institute, DK

## Session 10 1500-1700

### Methods in Transport Models

#### Generalised Extreme Value

**Chair:** TBA

#### On the covariance structure of generalised extreme value models

A Papola, V Marzano, University of Naples "Federico II", IT

#### The importance of synthetic datasets in empirical testing: comparison of NL models and MNL with error components models

L Garrow, T D Bodea, Georgia Institute of Technology, US

#### The estimation of generalised extreme value models from choice-based samples

M Bierlaire, Ecole Polytechnique Fédérale de Lausanne, CH;  
D Bolduc, Université Laval, Québec, CA;  
D McFadden, University of California, Berkeley, US

### Stated Preference

#### Stated Preference Valuations

**Chair:** TBA

#### On the value of service frequency (for fixed timetable transport systems)

E Kroes, RAND Europe, NL

#### What influences the value of aircraft noise?

A Bristow, Loughborough University, UK;  
M Wardman, ITS, University of Leeds, UK

#### A stated choice experiment: valuing aircraft noise in the context of the Athens Airport relocation

S Thanos, M Wardman, ITS, University of Leeds, UK;  
A Bristow, Loughborough University, UK

### Activity-Based Modelling

#### Activity based modelling

**Chair:** Goran Vuk, Danish Transport Research Institute, DK

#### Modelling congestion with travel derived from activities

P Davidson, P Clarke, I Sverdllov, Peter Davidson Consultancy, UK

#### Modelling activity-type choice using multi-days travel diary - only provisionally accepted

C Cirillo, FUNDP, BE;  
K W Axhausen, ETH Zurich, CH

#### Determining sequentiality in activity-based models

E Petersen, RAND Europe, NL;  
P Vovsha, PB Consult, US

## European Transport Conference - at the heart of transport in Europe

The European Transport Conference is the focus of the activities of the Association for European Transport and is the key annual event for European transport practitioners and researchers. The Conference is a "meeting of minds", where transport professionals come together to keep up-to-date with policy issues, research findings and best practice across a broad spectrum of transport. Papers are presented by active professionals, selected by the most respected members of the transport profession in Europe.

### Profile of Attendance

- *Policy-makers, planners and engineers from central and local government*
- *Providers of technical advice and consultancy*
- *Researchers, lecturers and students from universities, institutes and research bodies*
- *Analysts and advisers from banking and investment houses*
- *Managers and planners from public transport companies and authorities*
- *Environmentalists and lobbyists*

### Venue

The Conference will be held in the Palais de la Musique et des Congrès: a 10 minute tram ride from the city centre. The congress centre provides a range of lecture theatres and teaching rooms and will be the daytime base for the conference. Registration for the conference will take place here.

## The Association for European Transport

The Association promotes international understanding, co-operation, discussion, research and development related to all aspects of transport. Its membership is encouraged to participate in the European Transport Conference by joining committees, which plan the conference programmes, and by attending the Conference itself. Further details of membership can be obtained from Sally Scarlett or by visiting the AET web-site: [www.aetransport.org](http://www.aetransport.org)

### PTRC - conference organisers

The Association has appointed PTRC to manage the European Transport Conference. PTRC has a world-wide reputation for the quality and professionalism of its events aimed at the international transport community. Further details of its UK and international training programme, projects and publications can be obtained from Helen Marshall or from the PTRC web-site: [www.ptrc-training.co.uk](http://www.ptrc-training.co.uk)

### Visas and entry requirements

Delegates who think they will need a visa to attend the Conference are recommended to make early application to the French Embassy in their country, as the processing of visas can take some time.

### Hotel Accommodation

Delegates are responsible for reserving, guaranteeing and paying for their own hotel accommodation. Delegates are advised to make bookings as early as possible. Details of some hotels offering competitive room rates to ETC delegates will be available in the Notes for Participants and on the web-site.

It is also possible to book rooms through the Strasbourg Tourist Office,  
17 place de la Cathédrale, F-67082 Strasbourg-Cedex.

Tel.: +33 3 88 52 28 28. Fax: +33 3 88 52 28 29.

Or visit the web-site: <http://www.strasbourg.com>

## Social Events and Leisure Time

The evening base of the Conference will be the Hotel Maison Rouge. This is situated close to the Place Kléber and Place de l'Homme de Fer, the intersection of the four tram lines (A, B, C and D).

### "SpEXtacular"

Monday 18 September, 1815 to 1930 hours

After the sessions have finished, there will be a drinks reception in the Exhibition area, to allow delegates to meet the exhibitors and each other over a leisurely drink. There will be some entertainment and prizes sponsored by the exhibitors. All delegates present on Monday evening are welcome to attend.

### Conference Dinner at the Auberge du Kochersberg

Tuesday 19 September 1930 hours

The Conference Dinner will be held on the evening of Tuesday 19 September at the beautiful Auberge du Kochersberg, the oldest "Auberge" in Alsace, 25 minutes from Strasbourg. Originally built as a hunting lodge it was bought by Horst Dassler, the founder of Adidas, to entertain guests from all over the world. This will be an authentic Alsatian experience!

To book a place, please complete the appropriate section of the booking form. The cost is Euro 95 or £70 per person.

### Pre-Conference Tour

Sunday 17 September

Strasbourg lies nestled between the Vosges hills on the French side and the Black Forest on the German. Both these areas offer beautiful forest walks, fascinating castle ruins and vineyards at the right time of year. Simon Hayman will again organise a walk in the surrounding area for those interested in seeing a little of rural Alsace.

Further details are available from Sally Scarlett: [info@aetransport.org](mailto:info@aetransport.org)

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The most important topics in transport, the best-informed speakers, the most animated discussions

For full and up-to-date details of the seminars and the speakers at the Conference, please visit the AET web-site: [www.aetransport.org](http://www.aetransport.org)

