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KEY=DISCRETE - TRUJILLO JOSE

DISCRETE CHOICE MODELLING AND AIR TRAVEL DEMAND

THEORY AND APPLICATIONS

Routledge In recent years, airline practitioners and academics have started to explore new ways to model airline passenger demand using discrete choice methods. This book provides an introduction to discrete choice models and uses extensive examples to illustrate how these models have been used in the airline industry. These examples span network planning, revenue management, and pricing applications. Numerous examples of fundamental logit modeling concepts are covered in the text, including probability calculations, value of time calculations, elasticity calculations, nested and non-nested likelihood ratio tests, etc. The core chapters of the book are written at a level appropriate for airline practitioners and graduate students with operations research or travel demand modeling backgrounds. Given the majority of discrete choice modeling advancements in transportation evolved from urban travel demand studies, the introduction first orients readers from different backgrounds by highlighting major distinctions between aviation and urban travel demand studies. This is followed by an in-depth treatment of two of the most common discrete choice models, namely the multinomial and nested logit models. More advanced discrete choice models are covered, including mixed logit models and generalized extreme value models that belong to the generalized nested logit class and/or the network generalized extreme value class. An emphasis is placed on highlighting open research questions associated with these models that will be of particular interest to operations research students. Practical modeling issues related to data and estimation software are also addressed, and an extensive modeling exercise focused on the interpretation and application of statistical tests used to guide the selection of a preferred model specification is included; the modeling exercise uses itinerary choice data from a major airline. The text concludes with a discussion of on-going customer modeling research in aviation. Discrete Choice Modelling and Air Travel Demand is enriched by a comprehensive set of technical appendices that will be of particular interest to advanced students of discrete choice modeling theory. The appendices also include detailed proofs of the multinomial and nested logit models and derivations of measures used to represent competition among alternatives, namely correlation, direct-elasticities, and cross-elasticities.

APPLIED DISCRETE-CHOICE MODELLING

Routledge Originally published in 1981. Discrete-choice modelling is an area of econometrics where significant advances have been made at the research level. This book presents an overview of these advances, explaining the theory underlying the model, and explores its various applications. It shows how operational choice models can be used, and how they are particularly useful for a better understanding of consumer demand theory. It discusses particular problems connected with the model and its use, and reports on the authors' own empirical research. This is a comprehensive survey of research developments in discrete choice modelling and its applications.

QUANTITATIVE PROBLEM SOLVING METHODS IN THE AIRLINE INDUSTRY

A MODELING METHODOLOGY HANDBOOK

Springer Science & Business Media This book reviews Operations Research theory, applications and practice in seven major areas of airline planning and operations. In each area, a team of academic and industry experts provides an overview of the business and technical landscape, a view of current best practices, a summary of open research questions and suggestions for relevant future research. There are several common themes in current airline Operations Research efforts. First is a growing focus on the customer in terms of: 1) what they want; 2) what they are willing to pay for services; and 3) how they are impacted by planning, marketing and operational decisions. Second, as algorithms improve and computing power increases, the scope of modeling applications expands, often re-integrating processes that had been broken into smaller parts in order to solve them in the past. Finally, there is a growing awareness of the uncertainty in many airline planning and operational processes and decisions. Airlines now recognize the need to develop 'robust' solutions that effectively cover many possible outcomes, not just the best case, "blue sky" scenario. Individual chapters cover: Customer Modeling methodologies, including current and emerging applications. Airline Planning and Schedule Development, with a look at many remaining open research questions. Revenue Management, including a view of current business and technical landscapes, as well as suggested areas for future research. Airline Distribution -- a comprehensive overview of this newly emerging area. Crew Management Information Systems, including a review of recent algorithmic advances, as well as the development of information systems that facilitate the integration of crew management modeling with airline planning and operations. Airline Operations, with consideration of recent advances and successes in solving the airline operations problem. Air Traffic Flow Management, including the modeling environment and opportunities for both Air Traffic Flow Management and the airlines.

THE ECONOMICS OF INTERNATIONAL AIRLINE TRANSPORT

Emerald Group Publishing The Economics of International Airline Transport provides a complete analysis of the economics of international air transportation by presenting research on the costs borne by air transportation companies due to pollution regulation in Europe, Australia and New Zealand.

THE ROUTLEDGE COMPANION TO AIR TRANSPORT MANAGEMENT

Routledge The Routledge Companion to Air Transport Management provides a comprehensive, up-to-date review of air transport management research and literature. This exciting new handbook provides a unique repository of current knowledge and critical debate with an international focus, considering both developed and emerging markets, and covering key sectors of the air transport industry. The companion consists of 25 chapters that are written by 39 leading researchers, scholars and industry experts based at universities, research institutes, and air transport companies and organisations in 12 different countries in Africa, Asia-Pacific, Europe and North America to provide a definitive, trustworthy resource. The international team of contributors have proven experience of research and publication in their specialist areas, and contribute to this companion by drawing upon research published mainly in academic, industry and government sources. This seminal companion is a vital resource for researchers, scholars and students of air transport management. It is organised into three parts: current state of the air transport sectors (Part I); application of management disciplines to airlines and airports (Part II); and key selected themes (Part III).

AIRPORT GROUND ACCESS MODE CHOICE MODELS

Transportation Research Board This synthesis extends previous efforts to document the state of practice for airport ground access mode choice models. It examines the characteristics of existing models and discusses the issues involved in the development and use of such models to improve the understanding and acceptance of their role in airport planning and management. Information presented in this report may be of interest to a range of airport managers, airport and regional transportation planners, consultants and transportation modeling specialists, and researchers interested in issues involving airport ground access mode choice. For this synthesis, a comprehensive review of the relevant literature was undertaken. To document the extent of the recent use of airport ground access mode choice models and to identify sources of technical documentation on existing models, this literature review was supplemented by a survey of airport authorities, metropolitan planning organizations, consulting firms and research organizations, and other government agencies and industry organizations. Follow-up communications by telephone and e-mail were made where necessary.

AIR TRANSPORT AND REGIONAL DEVELOPMENT METHODOLOGIES

Routledge Air Transport and Regional Development Methodologies is one of three interconnected books related to a four-year European Cooperation in Science and Technology (COST) Action established in 2015. The action, called Air Transport and Regional Development (ATARD), aimed to promote a better understanding of how the air transport–related problems of core regions and remote regions should be addressed to enhance both economic competitiveness and social cohesion in Europe. This book discusses key methodological approaches to assessing air transport and regional development, outlining their respective strengths and weaknesses. These include input- output analysis, cost benefit analysis, computable general equilibrium models, data envelopment analysis, stochastic frontier analysis, discrete choice models and game theory. Air Transport and Regional Development Methodologies aims at becoming a major reference source on the topic, drawing from experienced researchers in the field, covering the diverse experience and knowledge of the members of the COST Action. The book will be of interest to several large groups. First, it will serve as an authoritative and comprehensive reference for academics, researchers and consultants. Second, it will advise policy- makers and government organizations at European, national and regional levels. Third, it presents invaluable insights to transport companies such as airports and airline operators. Along with the other two books (Air Transport and Regional Development Policies and Air Transport and Regional Development Case Studies), it fills a much-needed gap in the literature.

DISCRETE CHOICE METHODS WITH SIMULATION

Cambridge University Press This book describes the new generation of discrete choice methods, focusing on the many advances that are made possible by simulation. Researchers use these statistical methods to examine the choices that consumers, households, firms, and other agents make. Each of the major models is covered: logit, generalized extreme value, or GEV (including nested and cross-nested logits), probit, and mixed logit, plus a variety of specifications that build on these basics. Simulation-assisted estimation procedures are investigated and compared, including maximum stimulated likelihood, method of simulated moments, and method of simulated scores. Procedures for drawing from densities are described, including variance reduction techniques such as anithetics and Halton draws. Recent advances in Bayesian procedures are explored, including the use of the Metropolis-Hastings algorithm and its variant Gibbs sampling. The second edition adds chapters on endogeneity and expectation-maximization (EM) algorithms. No other book incorporates all these fields, which have arisen in the past 25 years. The procedures are applicable in many fields, including energy, transportation, environmental studies, health, labor, and marketing.

ROAD USER AND MITIGATION COSTS IN HIGHWAY PAVEMENT PROJECTS

Transportation Research Board This synthesis report will be of interest to transportation agency planners; design, construction, and maintenance engineers; and administrators, managers, economists, and other decisionmakers involved in programming highway pavement projects. This synthesis describes current practice with regard to road user and mitigation costs in highway pavement projects. Information for the synthesis was collected by surveying U.S. and Canadian transportation agencies and by conducting a literature search of both domestic and foreign publications. This report of the Transportation Research Board provides detailed information on the various methods employed by transportation agencies to estimate user costs. The advantages and disadvantages of each are reported. Information on the various components of user costs (that is, time related, vehicle operating, safety, and environmental costs) is also included. In addition, the study reports on the various mitigation strategies available to agencies to reduce user costs. Information is also provided on how user costs and mitigation strategies have been applied to evaluate different alternatives; and how uncertainties, political considerations, and quality control contribute to the decisionmaking process.

THE ROUTLEDGE HANDBOOK OF TRANSPORT ECONOMICS

Routledge The Routledge Handbook of Transport Economics offers the first state of the art overview of the discipline of transport economics as it stands today, reflective of key research and policy. Transport is an important area of study and one which is problem rich, stimulating a great deal of debate in areas which impact on everyday lives. Much of this focuses on the practicalities of the modern-day phenomenon of mass movement and all of the issues which surround it. The discipline of economics is central to this debate, and consequently the study and application of transport economics has a chief role to play in seeking to address subjects relating to major transport issues. It can be argued that at the very heart of any transport issue or problem lies the underlying economics of the situation – understand that and you alleviate the problem. Featuring contributions from world-leading scholars and practitioners from across the globe, all of the chapters within this book are written from a practical perspective; theory is applied and developed using real-world examples. The book examines concepts, issues, ideas and practicalities of transport provision in five key topic areas: public transport public transport reform economic development and transport modelling transport and the environment freight transport. A real strength of the book is in linking theory to practice, and hence the ‘economics’ that are examined in this text are not the economics of the abstract, but rather the economics of everyday living. Practical and insightful, this volume is an essential reference for any student or researcher working in all areas of transport provision, ranging from planning, appraisal, regulation and freight; and for all practitioners looking to develop their professional knowledge and who are seeking professional accreditation.

REGIONAL AIRPORTS

WIT Press Regional Airports have become increasingly important elements of the air network system, both as feeders of hub-and-spoke services and as origins or destination of point-to-point services.Congestion at the main hubs and increasing demand for air transportation - both for passengers and freight services – necessitates revaluation of the overall air systems, with regional airports taking an ever expanding role. Optimisation of air transportation systems within the framework of other forms of transport plays an important part in the present quest for sustainability. Congestion nowadays is not only associated with countries such as the USA and those in the EU, but also a variety of other countries with fast developing economies where there is a strong increase in air transportation demand.The revolution of the existing airport system, including regional airports requires the developing of new optimisation tools which can simulate the whole process and produce optimal solutions. These models are also essential to predict future demands and, in particular the role that regional airports will play.The siting of new airports involves taking into consideration a variety of environmental, ecological, social and economic factors which transcend the problem of transportation resources optimisation itself. Regional Airports can be a powerful driving force behind the development of an area and conversely can result in major problems if they are wrongly sited.

SMART TRANSPORT NETWORKS

Edward Elgar Publishing This very interesting book with peer-reviewed chapters written by leading researchers in the field discusses recent research in the areas of market structure, sustainability and decision-making. It includes several contemporary topics, such as changes in port competition, adaptation of transport to climate change, changing market structures, the importance of changing consumers preferences, errors in forecasting, and trends in international goods transport. Bert van Wee, Delft University of Technology, The Netherlands Transport is debated by many, and liberalization processes, transport policy, transport and climate change and increased competition between transport modes are the subject of heated discussion. Smart Transport Networks illustrates that whether concerning road, water, rail or air, knowledge on the structure of transport markets is crucial in order to tackle transport issues. The book therefore explores key factors concerning the structure of transport markets, their environmental impact, and questions why decision makers often fail to tackle transport-related problems. Three of the key factors that underpin the relationship between transport and society are analysed in detail from a variety of perspectives, each with an empirical focus: market structure and the allocation mechanisms at work; sustainability, encompassing the characteristics of the physical environment, the availability of natural resources and the effects of transport activities; and decision making, detailing transport policy and attempts to change transport systems. Practical guidelines on how to effectively deal with complex transport issues are also presented. This book will prove an important resource read for academics, researchers, and students with an interest in economics particularly transport and public sector economics, geography and regional and urban studies. Policy makers and planners in the fields of transport, environment and regional planning will also find this book to be an invaluable reference tool.

TRAVEL DEMAND, 2005

" No. 1921 addresses a system for modeling commercial vehicle movements in a Canadian city [Calgary, Alberta, Canada], a proposal to incorporate trip-chaining behavior in network equilibrium models, the importance of parking cost in determining mode choice, and forecasting travel demand with a multimodal activity-based system developed for use in Florida."--pub. website.

QUALITATIVE CHOICE ANALYSIS

THEORY, ECONOMETRICS, AND AN APPLICATION TO AUTOMOBILE DEMAND

MIT Press This book addresses two significant research areas in an interdependent fashion. It is first of all a comprehensive but concise text that covers the recently developed and widely applicable methods of qualitative choice analysis, illustrating the general theory through simulation models of automobile demand and use. It is also a detailed study of automobile demand and use, presenting forecasts based on these powerful new techniques. The book develops the general principles that underlie qualitative choice models that are now being applied in numerous fields in addition to

transportation, such as housing, labor, energy, communications, and criminology. The general form, derivation, and estimation of qualitative choice models are explained, and the major models - logit, probit, and GEV - are discussed in detail. And continuous/discrete models are introduced. In these, qualitative choice methods and standard regression techniques are combined to analyze situations that neither alone can accurately forecast. Summarizing previous research on auto demand, the book shows how qualitative choice methods can be used by applying them to specific auto-related decisions as the aggregate of individuals' choices. The simulation model that is constructed is a significant improvement over older models, and should prove more useful to agencies and organizations requiring accurate forecasting of auto demand and use for planning and policy development. The book concludes with an actual case study based on a model designed for the investigations of the California Energy Commission. Kenneth Train is Visiting Associate Professor in Economics at the University of California, Berkeley, and Director of Economic Research at Cambridge Systematics, Inc., also in Berkeley. Qualitative Choice Analysis is included in The MIT Press Transportation Studies Series, edited by Marvin L. Manheim.

THE CASE FOR COORDINATION

EQUITY, EFFICIENCY AND PASSENGER IMPACTS IN AIR TRAFFIC FLOW MANAGEMENT

In this thesis, we develop multi-resource integer optimization formulations for coordinating Traffic Flow Management (TFM) programs with equity considerations. Our multi-resource approaches ignore aircraft connectivity between flights, but allow a single flight to utilize multiple capacity-controlled resources. For example, when both Ground Delay Programs (GDPs) and Airspace Flow Programs (AFPs) are simultaneously in effect, a single flight may be impacted by a GDP and one or more AFPs. We show that due to the similarity with current practice, our models can be applied directly in the current Collaborative Decision-Making (CDM) environment. In the first part of the thesis, we develop these formulations as extensions of a well-studied, existing nationwide TFM formulation and compare them to approaches utilized in practice. In order to make these comparisons, we first develop a metric, Time-Order Deviation, for evaluating schedule fairness in the multi-resource setting. We use this metric to compare approaches in terms of both schedule fairness and allocated flight delays. Using historical scenarios derived from 2007 data, we show that, even with limited interaction between TFM programs, our Ration-by-Schedule Exponential Penalty model can improve the utilization of air transportation system resources. Skipping ahead, in the last part of the thesis, we develop a three-stage sequential evaluation procedure in order to analyze the TFM allocation process in the context of a dynamic CDM environment. To perform this evaluation we develop an optimization-based airline disruption response model, which utilizes passenger itinerary data to approximate the underlying airline objective, resulting in estimated flight cancellations and aircraft swaps between flight legs. Using this three-stage sequential evaluation procedure, we show that the benefits of an optimization-based allocation are likely overstated based on a simple flight-level analysis. The difference between these results and those in the first part of the thesis suggests the importance of the multi-stage evaluation procedure. Our results also suggest that there may be significant benefits to incorporating aircraft flow balance considerations into the Federal Aviation Administration's (FAA's) TFM allocation procedures. The passenger itinerary data required for the airline disruption response model in the last part of the thesis are not publicly available, thus in the second part of the thesis, we develop a method for modeling passenger travel and delays. In our approach for estimating historical passenger travel, we develop a discrete choice model trained on one quarter of proprietary booking data to disaggregate publicly available passenger demand. Additionally, we extend a network-based heuristic for calculating passenger delays to estimate historical passenger delays for 2007. To demonstrate the value in this approach, we investigate how passenger delays are affected by various features of the itinerary, such as carrier and time of travel. Beyond its applications in this thesis, we believe the estimated passenger itinerary data will have broad applicability, allowing a passenger-centric focus to be incorporated in many facets of air transportation research. To facilitate these endeavors, we have publicly shared our estimated passenger itinerary data for 2007.

TRANSPORT SYSTEMS AND POLICY

Edward Elgar Pub Transport and mobility are critical for the economic development of cities and regions and are a key factor in achieving sustained economic growth. This collection brings together Peter Nijkamp's influential work in the areas of transport systems and transport policy. The first part offers new theoretical insights and a review of the state-of-the-art in transportation science. The essays address issues such as the costs and benefits of transport, the role of price in transport demand, the impact of information and the potential of congestion pricing. The second part focuses attention on the modelling of transport systems. The third part comprises papers on transport infrastructure and includes studies on the impact of infrastructure and superstructure on economic growth, the costs of infrastructure construction, the evaluation of airport expansion and airport efficiency. The final part considers issues of public policy, including governance principles for sustainable urban transport, welfare implications of information policy, the economic consequences of airline deregulation, the use of policy scenarios for the far future and the transferability of transport policy to other areas. This collection will be essential reading for scholars and students interested in all aspects of transport research and policy.

STATISTICS

GROWING DATA SETS AND GROWING DEMAND FOR STATISTICS

BoD – Books on Demand Since data grows faster than ever, the role of statistics becomes more and more crucial nowadays, and there is no doubt that statistics will be even more critical in the future. The application of statistics is extensive, and in our daily lives there is almost no human activity where the use of statistics is not needed. In this limited volume, we try to cover as many as different and multidisciplinary fields in statistics as possible and aim to present recent developments and applications of statistical analysis. Therefore, this book is organized into three sections: "The Role of Statistics on Quantification," "Applications of Statistics on Economics and Development," and "Applications of Statistics on Various Topics."

DISCRETE CHOICE ANALYSIS

THEORY AND APPLICATION TO TRAVEL DEMAND

MIT Press Discrete Choice Analysis presents these results in such a way that they are fully accessible to the range of students and professionals who are involved in modelling demand and consumer behavior in general or specifically in transportation - whether from the point of view of the design of transit systems, urban and transport economics, public policy, operations research, or systems management and planning. The methods of discrete choice analysis and their applications in the modelling of transportation systems constitute a comparatively new field that has largely evolved over the past 15 years. Since its inception, however, the field has developed rapidly, and this is the first text and reference work to cover the material systematically, bringing together the scattered and often inaccessible results for graduate students and professionals. Discrete Choice Analysis presents these results in such a way that they are fully accessible to the range of students and professionals who are involved in modelling demand and consumer behavior in general or specifically in transportation - whether from the point of view of the design of transit systems, urban and transport economics, public policy, operations research, or systems management and planning. The introductory chapter presents the background of discrete choice analysis and context of transportation demand forecasting. Subsequent chapters cover, among other topics, the theories of individual choice behavior, binary and multinomial choice models, aggregate forecasting techniques, estimation methods, tests used in the process of model development, sampling theory, the nested-logit model, and systems of models. Discrete Choice Analysis is ninth in the MIT Press Series in Transportation Studies, edited by Marvin Manheim.

INTERCITY PASSENGER TRAVEL DEMAND ANALYSIS AND FORECASTING

THE CONFERENCE PROCEEDINGS OF THE 1997 AIR TRANSPORT RESEARCH GROUP (ATRG) OF THE WCTR SOCIETY

UNDERSTANDING DECISION-MAKING PROCESSES IN AIRLINE OPERATIONS CONTROL

Routledge Previous studies conducted within the aviation industry have examined a multitude of crucial aspects such as policy, airline service quality, and revenue management. An extensive body of literature has also recognised the importance of decision-making in aviation, with the focus predominantly on pilots and air traffic controllers. Understanding Decision-Making Processes in Airline Operations Control focuses instead on an area largely overlooked: an airline's Operations Control Centre (OCC). This serves as the nerve centre of the airline and is responsible for decision-making with respect to operational control of an airline's daily schedules. The environment within an OCC is extremely intense and a key role of controllers is to make decisions that facilitate the airline's recovery from frequent, highly complex, and often multiple disruptions. As such, decision-making in this domain is critical to minimise the operational, commercial and financial impact resulting from disruptions. The book examines many aspects of individual decision-making in airline operations, and addresses the deficiencies found by presenting to the reader an examination of the relationships among situation awareness, information completeness, experience, expertise, decision considerations and decision alternatives in OCCs. The text utilises a multiple case study approach and proposes a number of relevant and important implications for OCC management. Practical outcomes highlight the need for enhancing training programs enabling existing controllers to readily identify and classify elements of situation awareness and decision considerations as a means of improving the decision-making process. They also draw attention to the need for airline OCCs to understand the extent to which industry

experience and expertise of controllers is important in the selection of future staff.

DYNAMIC MODELLING AND PRICING STRATEGY EVALUATION IN INTERCITY AIR TRAVEL

INTERNATIONAL TOURISM POLICY

Van Nostrand Reinhold Company

JOURNAL OF TRANSPORT ECONOMICS AND POLICY

THE MULTI-AGENT TRANSPORT SIMULATION MATSIM

Ubiquity Press The MATSim (Multi-Agent Transport Simulation) software project was started around 2006 with the goal of generating traffic and congestion patterns by following individual synthetic travelers through their daily or weekly activity programme. It has since then evolved from a collection of stand-alone C++ programs to an integrated Java-based framework which is publicly hosted, open-source available, automatically regression tested. It is currently used by about 40 groups throughout the world. This book takes stock of the current status. The first part of the book gives an introduction to the most important concepts, with the intention of enabling a potential user to set up and run basic simulations. The second part of the book describes how the basic functionality can be extended, for example by adding schedule-based public transit, electric or autonomous cars, paratransit, or within-day replanning. For each extension, the text provides pointers to the additional documentation and to the code base. It is also discussed how people with appropriate Java programming skills can write their own extensions, and plug them into the MATSim core. The project has started from the basic idea that traffic is a consequence of human behavior, and thus humans and their behavior should be the starting point of all modelling, and with the intuition that when simulations with 100 million particles are possible in computational physics, then behavior-oriented simulations with 10 million travelers should be possible in travel behavior research. The initial implementations thus combined concepts from computational physics and complex adaptive systems with concepts from travel behavior research. The third part of the book looks at theoretical concepts that are able to describe important aspects of the simulation system; for example, under certain conditions the code becomes a Monte Carlo engine sampling from a discrete choice model. Another important aspect is the interpretation of the MATSim score as utility in the microeconomic sense, opening up a connection to benefit cost analysis. Finally, the book collects use cases as they have been undertaken with MATSim. All current users of MATSim were invited to submit their work, and many followed with sometimes crisp and short and sometimes longer contributions, always with pointers to additional references. We hope that the book will become an invitation to explore, to build and to extend agent-based modeling of travel behavior from the stable and well tested core of MATSim documented here.

SYNTHESIS OF HIGHWAY PRACTICE

MODELLING TRANSPORT

John Wiley & Sons Already the market leader in the field, Modelling Transport has become still more indispensible following a thorough and detailed update. Enhancements include two entirely new chapters on modelling for private sector projects and on activity-based modelling; a new section on dynamic assignment and micro-simulation; and sizeable updates to sections on disaggregate modelling and stated preference design and analysis. It also tackles topical issues such as valuation of externalities and the role of GPS in travel time surveys. Providing unrivalled depth and breadth of coverage, each topic is approached as a modelling exercise with discussion of the roles of theory, data, model specification, estimation, validation and application. The authors present the state of the art and its practical application in a pedagogic manner, easily understandable to both students and practitioners. Follows on from the highly successful third edition universally acknowledged as the leading text on transport modelling techniques and applications Includes two new chapters on modelling for private sector projects and activity based modeling, and numerous updates to existing chapters Incorporates treatment of recent issues and concerns like risk analysis and the dynamic interaction between land use and transport Provides comprehensive and rigorous information and guidance, enabling readers to make practical use of every available technique Relates the topics to new external factors and technologies such as global warming, valuation of externalities and global positioning systems (GPS).

JOURNAL OF TRAVEL RESEARCH

A CONSTRAINT LOGIC PROGRAMMING APPROACH TO TRAVEL DEMAND MODELLING

TRANSPORTATION RESEARCH RECORD

METHODOLOGY FOR EVALUATING HIGHWAY AIR POLLUTION DISPERSION MODELS

Transportation Research Board National Research

PRINCIPLES OF TRANSPORTATION ECONOMICS

Prentice Hall Principles of Transportation Economics is an introduction into the distinctive elements of transportation economics, describing how the standard pieces of economic analysis are applied in the transport sector. Boyer's text reflects transportation economics as it is taught and practiced today. Unlike its many predecessors, its arguments do not discuss the practice of economic regulation. Legal issues and concerns of regulatory process are no longer a central part of transportation economics, and this book reflects this shift. The analysis covers the modern developments of subsidy-free pricing and stand-alone costing.

TRANSPORTATION SYSTEMS PLANNING AND MANAGEMENT

Transportation Research Board

PASSENGER DEMAND FOR AIR TRANSPORTATION IN A HUB-AND-SPOKE NETWORK

TRANSPORTATION ENERGY FORECASTS AND ANALYSES FOR THE 2009 INTEGRATED ENERGY POLICY REPORT

FINAL STAFF REPORT

IMPACT OF JAPANESE HIGH-SPEED RAIL EXTENSION ON AVIATION

A CASE STUDY

Since the 1964 introduction of high-speed rail in Japan, intercity transportation has largely been provided by high-speed rail and aviation. As new lines have been added to the high-speed rail network-further enhancing convenience and shortening travel times- more and more passengers prefer it. On the other hand, aviation has also increased in importance with the increase in airport capacity and the entrance of new, low-cost carriers. One major focus is the Tokyo-Sapporo route, which is one of the busiest domestic flight routes in the world. Intercity transportation in Japan may be about to change, however, since high-speed rail is expected to be extended in 2030 that directly links central Tokyo and Sapporo. To develop an optimal strategy for high-speed rail planning, predicting the effect of the high-speed rail extension is essential. The objective of this thesis is to clarify the effect of high-speed

rail extension on air transportation and predict the modal share for the Tokyo-Sapporo route. This thesis consists of two sections. In the first section, the relationship between high-speed rail and air transportation is analyzed through several case studies. The result shows that airlines reacted differently depending on the route, improving operational efficiency by changing aircraft size, flight frequency, and airfares. In the second section, discrete choice models are introduced for predicting the effect of the high-speed rail extension. To analyze the growing effect of low-cost carriers, a nested logit model is used. The results show that in-vehicle travel time is the most significant factor in passengers' mode choice, implying that high-speed rail will increase its modal share by reducing in-vehicle travel time. The modal share for high-speed rail between Tokyo and Sapporo is estimated through the simulation. The results suggest that travel time and cost have different characteristics in terms of elasticity, indicating the importance of travel time in the increase of high-speed rail's modal share. Although accurately predicting the share is difficult due to uncertainty about emerging demand for low-cost carriers and high-speed rail travel times, the modal share of high-speed rail is estimated.

CANADIAN JOURNAL OF CIVIL ENGINEERING

STATED CHOICE METHODS

ANALYSIS AND APPLICATIONS

Cambridge University Press Multidisciplinary graduate and practitioner guide offering the theory and application of stated choice methods.

AVIATION, A WORLD OF GROWTH

PROCEEDINGS OF THE 29TH INTERNATIONAL AIR TRANSPORT CONFERENCE, AUGUST 19-22, 2007, IRVING, TEXAS

Amer Society of Civil Engineers This collection contains 21 papers presented at the 29th International Air Transport Conference, held in Irving, Texas, Aug 19-22, 2007.

TRAFFIC ENGINEERING & CONTROL