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# Discrete Choice Modelling And Air Travel Demand Theory And Applications

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Revenue Management for Hospitality and  
Tourism

Discrete Choice Modeling of Environmental  
Security

Discrete Choice Modelling and Air Travel Demand  
Air Transport – A Tourism Perspective

15th International Conference, AAIM 2021, Virtual  
Event, December 20–22, 2021, Proceedings

Modeling Applications in the Airline Industry  
From Consumer Experience to Affective Loyalty:  
Challenges and Prospects in the Psychology of  
Consumer Behavior 3.0

Advanced Energy and Control Systems

Air Quality Integrated Assessment

Theoretical Analyses and Case Studies

Airport Ground Access Mode Choice Models

From Theory to Applications

Quantitative Problem Solving Methods in the  
Airline Industry

The Effectiveness of Ridesharing Incentives

Discrete-choice Models of Commuting in Southern California

Social Science and Policy

Choice Modelling

Theory and Applications

Statistics for Marketing and Consumer Research

A Modeling Methodology Handbook

Modeling Airline Passenger Choice

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A Bounded-size Likelihood Test for Non-nested

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Revealed Preference Approaches to

Environmental Valuation Volumes I and II

Theory and Applications

Applied Discrete-Choice Modelling

Development of Regional Airports  
Getting Started with Data Science  
HCSE, Florence, Italy, May 2017

*Discrete  
Choice  
Modelling  
And Air  
Travel  
Demand  
Theory And  
Applications*

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**HARRELL BREWER**

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**Revenue  
Management for  
Hospitality and  
Tourism**

Transportation  
Research Board  
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.

*Discrete Choice  
Modeling of  
Environmental Security*  
Edward Elgar  
Publishing

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.

Discrete Choice Modelling and Air Travel Demand MIT Press

The break-up of BAA and the blocked takeover of Bratislava airport by the competing Vienna airport have brought

the issue of airport competition to the top of the agenda for air transport policy in Europe. Airport Competition reviews the current state of the debate and asks whether airport competition is strong enough to effectively limit market power. It provides evidence on how travellers chose an airport, thereby altering its competitive position, and on how airports compete in different regions and markets. The book also discusses the main policy implications of mergers and subsidies.

**Air Transport - A  
Tourism Perspective**  
Elsevier

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.

15th International Conference, AAIM 2021, Virtual Event, December 20-22, 2021, Proceedings  
Routledge

This book contains a selection of the best theoretical and applied papers from the inaugural International Choice Modelling

Conference. The conference was organised by the Institute for Transport Studies at the University of Leeds and was held at Harrogate in Yorkshire in the North of England from 30 March to 1 April 2009. The conference brought together leading researchers and practitioners from across the many different areas in which choice modelling is a key technique for understanding behaviour and evaluating policy. The highlight of the conference was a presentation by Professor Daniel McFadden from the University of California at Berkeley, Nobel Prize laureate in Economics and chief architect of random utility modelling. The

conference also included keynote presentations by five other leading choice modellers, namely Professor Moshe Ben-Akiva, Professor Chandra Bhat, Professor Michel Bierlaire, Professor David Hensher, and Professor Riccardo Scarpa. The diversity of the field was reflected in presentations by both academics and practitioners, coming from six continents and various different fields, with a similar mix in non-speaking delegates

**Modeling Applications in the Airline Industry**

Springer Science & Business Media  
 Air Transport: A Tourism Perspective provides rigorous insights into the current complexities,

synergies and conflicts within air transportation and tourism, presenting a balanced, comprehensive, contemporary, and global analysis that thoroughly examines the links between theory and practice. The book offers readers a multi-sector, global perspective on the practical implications of the link between air transport and tourism. By using a novel approach, it systematically explores the successive stages of a tourist's trip—investigating reasons for flying, the airport experience, airline industry structures, competition and regulation, and air transportation and destination interrelationships. In addition, the book



explores current and salient debates on such issues as the influence of traveling to visit friends and family, the role of charters versus low cost carriers, public subsidies to support airport development, and much more. Presents insights from an international team of expert contributors with proven research and publication experience in their specialty area Includes cutting-edge analyses based on original research that identifies emerging research directions and policy and managerial implications Utilizes a multidisciplinary approach to fully explore theoretical and policy concepts and their effect on air transportation and tourism development

Provides case studies from around the globe in each chapter  
From Consumer Experience to Affective Loyalty: Challenges and Prospects in the Psychology of Consumer Behavior 3.0  
Cambridge University Press  
[Truncated] Over the last decade, airline markets around the world have been reshaped dramatically by the rapidly growing low-cost carriers and new forms of distribution channel. Significant reduction in searching cost brought by the web-based distribution has made fare product comparison and purchasing an easier task. As a result, traditional demand models based on independent (fare class) demand

assumption has been violated. A better understanding of passenger choice behaviour is now needed since the development of new generation revenue management (RM) system requires inputs of demand based on dependent fare classes. Early studies on dependent demand mainly focused on the buy-up and buy-down behaviour for single-leg flights. With the introduction of discrete choice modelling, more recent studies are beginning to incorporate competitions between flights and carriers into the model. In a discrete choice model, a customer is assumed to weigh up service levels of a fare product against its price. The fare option with the

highest satisfaction is the one being chosen. As all the components taken into consideration by a traveller may not be readily at hand for the analyst, the satisfaction or utility of a fare product is measured by way of a systematic component - the observed utility - and a random component - the unobserved utility. As such, the choice decision is modelled up to a probability. Discrete choice models are theoretically sound for fare product demand forecasting, as they directly work on the decision making process of air travellers. Currently, the most widely applied discrete choice model in revenue management is the multinomial logit model

(MNL), within which the unobserved utility of each alternative is independently and identically distributed (IID). Such a structure leads to the independence from irrelevant alternatives or IIA property. That is, the ratio of probabilities for two alternatives is independent from the existence of any other alternative in the choice set. However, the biggest limitation of IIA is the resulting proportional substitution pattern, which suggests that an improvement in the attributes of one alternative reduces the probabilities for all other alternatives by the same percentage. This highly restricted structure is unlikely to hold in the context of real airline markets.

This is because the behaviour of compensatory travellers is likely to vary among the population, and to capture these variations advanced DCMs should be applied. *Advanced Energy and Control Systems* 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.

*Air Quality Integrated Assessment* Cambridge University Press

The presence of overpopulation or unsustainable population growth may place pressure on the food and water supplies of countries in sensitive areas of the world. Severe air or water pollution may place additional pressure on these resources. These pressures may generate both internal and international conflict in these areas as nations struggle to provide for their citizens. Such conflicts may result in United States intervention, either unilaterally, or through the United Nations. Therefore, it is in the interests of the

United States to identify potential areas of conflict in order to properly train and allocate forces. The purpose of this research is to forecast the probability of conflict in a nation as a function of its environmental conditions. Probit, logit and ordered probit models are employed to forecast the probability of a given level of conflict. Data from 95 countries is used to estimate the models. Probability forecasts are generated for these 95 nations. Out-of sample forecasts are generated for an additional 22 nations. These probabilities are then used to rank nations from highest probability of conflict to lowest. The results indicate that the

dependence of a nation's economy on agriculture, the rate of deforestation, and the population density are important variables in forecasting the probability and level of conflict. These results indicate that environmental variables do play a role in generating or exacerbating conflict. It is unclear that the United States military has any direct role in mitigating the environmental conditions that may generate conflict. A more important role for the military is to aid in data gathering to generate better forecasts so that the troops are adequately prepared when conflicts arise.

**Theoretical Analyses and Case Studies** IGI Global

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

[Airport Ground Access Mode Choice Models](#)

Frontiers Media SA

This major reference book comprises specially commissioned surveys in environmental and resource economics written by an international team of experts. Authoritative yet accessible, each entry provides a state-of-the-art summary of key areas that will be invaluable to researchers, practitioners and advanced students.

[From Theory to Applications](#) SAGE Publications

In this two volume collection the editors have chosen a sample

of some of the most essential and inspirational articles and papers for understanding revealed preference methods to value environmental amenities. The papers cover the gamut of methods that are typically classified as revealed preference approaches - including: recreation demand models, hedonic methods, and averting behavior methods, as well as efforts to combine stated and revealed preferences. While this collection is far from exhaustive, the editors have included papers they believe will represent the state of the art in the theory and application of revealed preference methods, contribute to development of the

state of the art, or raise fundamental challenges and insights that will drive the research agenda in the coming years.

Quantitative Problem Solving Methods in the Airline Industry Elsevier

This book is open access under a CC BY 4.0 license. This book reports on the results of an extended survey conducted across Europe within the framework of the APPRAISAL FP7 project to determine the extent to which an integrated assessment approach to air quality is being adopted, on the one hand, by regional and local authorities to develop air quality plans and, on the other, by researchers. Following a detailed analysis of the role and structure of the components of

an integrated assessment study, the results of the survey are considered from a variety of perspectives. Above all, the book discusses the new light the survey sheds on emission abatement policies and measures planned at regional and local scales, and on their synergies/trade-offs with measures implemented at the national scale. Detailed consideration is given to the currently available modeling methodologies for identifying emission sources, assessing the effectiveness of emission reduction measures, and evaluating the impacts of emission abatement measures on human health. Current strengths and weaknesses revealed

by the survey are explored, and the application of an integrated assessment tool in two case studies (in Brussels and Porto) is discussed. The book will appeal to all those interested in the use of integrated assessment in connection with the sources, effects and control of air pollution.

### **The Effectiveness of Ridesharing**

#### **Incentives** SAGE

This book gathers selected research papers presented at the Third International Conference on Energy Systems, Drives, and Automations (ESDA 2020). It covers a broad range of topics in the fields of renewable energy, power management, drive systems for electrical machines, and automation. In a span of about a few



interesting articles, effort had gone in to critically discuss about the control system, energy management and distribution in a unified approach common to electrical, Control and mechanical engineering. This book also comprehensively discusses a variety of related tools and techniques and will be a valuable resource for researchers, professionals, and students in electrical and mechanical engineering disciplines. *Discrete-choice Models of Commuting in Southern California* Springer Nature 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.

Ashgate Publishing, Ltd.

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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

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Social Science and Policy MIT Press

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**Choice Modelling**

Ashgate Publishing, Ltd.

This book constitutes the proceedings of the 15th International

Conference on Algorithmic Aspects in Information and Management, AAIM 2021, which was held online during December 20-22, 2021. The conference was originally planned to take place in Dallas, Texas, USA, but changed to a virtual event due to the COVID-19 pandemic. The 38 regular papers included in this book were carefully reviewed and selected from 62 submissions. They were organized in the following topical sections: approximation algorithms; scheduling; nonlinear combinatorial optimization; network problems; blockchain, logic, complexity and reliability; and miscellaneous. Theory and

Applications Routledge  
Written by leading academic and industry experts actively engaged in revenue management, research and teaching this is a new and original treatment of the whole field for students and professionals.

Statistics for Marketing and Consumer Research Routledge  
Balancing simplicity with technical rigour, this practical guide to the statistical techniques essential to research in marketing and related fields, describes each method as well as showing how they are applied. The

book is accompanied by two real data sets to replicate examples and with exercises to solve, as well as detailed guidance on the use of appropriate software including: - 750 powerpoint slides with lecture notes and step-by-step guides to run analyses in SPSS (also includes screenshots) - 136 multiple choice questions for tests This is augmented by in-depth discussion of topics including: - Sampling - Data management and statistical packages - Hypothesis testing - Cluster analysis - Structural equation modelling

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- If Animals Kissed Good Night By Ann Whitford

Paul

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- Reminders Of Him: A Novel
- The Covenant Of Water (oprah's Book Club) By Abraham Verghese