

## Chapter 2 Data Envelopment Analysis Explained

Use of Data Envelopment Analysis in Accounting Applications Jean C. Bedard 1985

**Public Sector Efficiency Measurement** Joseph Augustine Ganley 1992  
The core problem tackled in this book is the measurement of public-sector efficiency with Data Envelopment Analysis (DEA). The book is intended to inject new ideas into the diverse academic literature which up till now has lacked a critical book-length exploration of DEA. The text is readable and intuitive making it suitable for a broad audience, including policy-makers and civil servants working on the control of public expenditure, privatisation etc. Graduates and advanced undergraduates should also find this book a valuable introduction to the nature and implementation of DEA. These will include students on economics, management science and accounting degrees. The book provides a realistic approach to DEA, acknowledging its problems such as the fundamental output measurement and variable selection problems which are rarely recognised in applied studies.

**Extensions and New Developments in Data Envelopment Analysis** William Wager Cooper 1996

*The study on selection of green supply chain partners in USA logistics industry* Tai Nguyen Van 2015-09-30 Thesis (M.A.) from the year 2014 in the subject Business economics - Supply, Production, Logistics, grade: 9, , language: English, abstract: The main purpose of this paper is to evaluation of performance measure for green supply chain partners in U.S.A logistics industry using Data development annalysis. To conduct a valid and reliable evaluation process while applying the logistics companies case in U.S.A, we integrated the slacks-based measure of super efficiency (super-SBM) and Malmquist index to directly handle the slacks, explore best performer, analyzed the inter- temporal efficiency change, which is decomposed into 'catch-up' and 'frontier-shift' effects and find influential factors in selecting green supply chain partners (GSCPs) criteria.

*Using Data Envelopment Analysis to Evaluate the Performance of Post-hurricane Electric Power Restoration Activities* Allison Coffey Reilly 2008  
The post-hurricane restoration of electric power is attracting increasing scrutiny as customers' tolerance for even short power interruptions decreases. Currently there are no standards for what constitutes an acceptably fast restoration. This paper introduces the use of data envelopment analysis to help evaluate post-hurricane restorations through comparison with the experiences of other companies in similar storms. The method accounts for the variable severity of the hurricane themselves, so that companies are not penalized for outages that are long only because the hurricane that caused them was particularly severe. The analysis is illustrated through an application comparing 19 recent post-hurricane restoration experiences across 9 different electric power companies in the United States. The method could be applied to other types of infrastructure systems and other extreme events as well. (Abstract).

**Neutrosophic data envelopment analysis based on the possibilistic mean approach** Kshitish Kumar Mohanta 2023-01-01 Data envelopment analysis (DEA) is a non-parametric approach for the estimation of production frontier that is used to calculate the performance of a group of similar decision-making units (DMUs) which employ comparable inputs to produce related outputs. However, observed values might occasionally be confusing, imprecise, ambiguous, inadequate, and inconsistent in real-world applications. Thus, disregarding these factors may result in incorrect decision-making. Thus neutrosophic sets have been created as an extension of intuitionistic fuzzy sets to represent ambiguous, erroneous, missing, and inaccurate information in real-world applications. In this study, we have proposed a technique for solving the neutrosophic form of the Charnes-Cooper-Rhodes (CCR) model based on single-value trapezoidal neutrosophic numbers (SVTrNNs). The possibilistic mean for SVTrNNs is redefined and applied the Mehar approach to transforming the neutrosophic DEA (Neu-DEA) model into its corresponding crisp DEA model. As a result, the efficiency scores of the DMUs are calculated using different risk parameter values lying in [0, 1]. A numerical example is given to analyze the performance of the all India institutes of medical sciences and compared it with Abdelfattah's ranking approach.

Data Envelopment Analysis William W. Cooper 2007-01-10 Data Envelopment Analysis: A Comprehensive Text with Models, Applications,

References, And DEA-Solver Software, 2nd Edition is designed to provide a systematic introduction to DEA and its uses as a multifaceted tool for evaluating problems in a variety of contexts. Each chapter accompanies its developments with simple numerical examples and discussions of actual applications. Emphasis is placed on the use as well as an understanding of DEA and the topics in this book have been selected and treated accordingly. The first nine chapters cover the basic principles of DEA and the final seven chapters are more advanced treatment of DEA. These final chapters were completely revised into new chapters, reflecting recent developments that greatly extend the power and scope of DEA and lead to new directions for research and DEA uses. Together with the first ten chapters of the basic principles, they will provide students and researchers with a solid understanding of the methodology, its uses and its potential.

Four Essays on Technology, Productivity and Environment Jan Larsson 2006

*Government Reports Annual Index: Keyword A-L* 1987

**Improving the Sensitivity of Data Envelopment Analysis by Reducing Dimensionality** Kevin J. Fox 1996

Proceedings of the Third International Conference on Knowledge Discovery and Data Mining David Heckerman 1997

*Introduction to Data Envelopment Analysis and Its Uses* William W. Cooper 2006-03-20 Introduction to Data Envelopment Analysis and Its Uses: With DEA-Solver Software and References has been carefully designed by the authors to provide a systematic introduction to DEA and its uses as a multifaceted tool for evaluating problems in a variety of contexts. The authors have been involved in DEA's development from the beginning. William Cooper (with Abraham Charnes and Edwardo Rhodes) is a founder of DEA. Lawrence Seiford and Kaoru Tone have been actively involved as researchers and practitioners from its earliest beginnings. All have been deeply involved in uses of DEA in practical applications as well as in the development of its basic theory and methodologies. The result is a textbook grounded in authority, experience and substance.

**Performance Benchmarking in Public Transport Sector. The Data Envelopment Analysis (DEA) method** Andreas Davidek 2017-11-28

Seminar paper from the year 2015 in the subject Business economics - Controlling, grade: 1,3, , course: Performance Benchmarking and Operations Research, language: English, abstract: The non-parametric approach is a common method for measuring the relative efficiency in the area of performance benchmarking and operations research. This approach does not require the a priori specification of a function. The estimation of the frontier of the production set only requires that the production set satisfies some properties, such as input and output factors. The Data Envelopment Analysis (DEA) method is a non-parametric approach that uses mathematical programming to estimate production frontiers and calculate efficiency scores. The above technical explanation is necessary, as the present seminar paper deals with the application of the DEA approach in the field of the public transport. The objective of this paper is to review the state of the art in performance benchmarking in terms of different DEA-based framework and criteria to measure efficiency in the environments of public transport. To contribute to this goal, the ambition is to provide a systematic analysis of the performance criteria of the DEA models. Consequently, the main focus of this paper is to examine and classify the performance criteria.

**Vikalpa** 2004

*Advanced Research on Industry, Information System and Material Engineering, IISME2011* Helen Zhang 2011-02-21 Selected, peer reviewed papers from the 2011 International Conference on Industry, Information System and Material Engineering (IISME 2011), April 16-17, 2011, Guangzhou, China

*Mathematical Reviews* 2006

**Data Envelopment Analysis (DEA) as an Approach to Exploring Technical Efficiency in Higher Education** Yingquan Song 2005

Graphical Presentations of Data Envelopment Analyses Anand Desai 1987

*Data Envelopment Analysis: Theory, Methodology, and Applications* Abraham Charnes 2013-12-01 This book represents a milestone in the progression of Data Envelopment Analysis (DEA). It is the first reference text which includes a comprehensive review and comparative discussion of the basic DEA models. The development is anchored in a unified

mathematical and graphical treatment and includes the most important modeling extensions. In addition, this is the first book that addresses the actual process of conducting DEA analyses including combining DEA and 1 parametric techniques. The book has three other distinctive features. It traces the applications driven evolution and diffusion of DEA models and extensions across disciplinary boundaries. It includes a comprehensive bibliography to serve as a source of references as well as a platform for further developments. And, finally, the power of DEA analysis is demonstrated through fifteen novel applications which should serve as an inspiration for future applications and extensions of the methodology. The origin of this book was a Conference on New Uses of DEA in 2 Management and Public Policy which was held at the IC Institute of the University of Texas at Austin on September 27-29, 1989. The conference was made possible through NSF Grant #SES-8722504 (A. Charnes and 2 W. W. Cooper, co-PIs) and the support of the IC Institute.

*Fuzzy Applications in Industrial Engineering* Cengiz Kahraman 2006-06-13 Industrial Engineering (IE) is concerned with the design, improvement, and installation of integrated systems of people, material, equipment, and energy. Industrial engineers face many problems with incomplete and vague information in these systems since the characteristics of these problems often require this kind of information. Fuzzy sets approaches are usually most appropriate when human evaluations and the modeling of human knowledge are needed. IE brings a significant number of applications of fuzzy set theory. After an introductory chapter explaining the recent status of fuzzy sets in IE, this volume involves application chapters on the major seven areas of IE to which fuzzy set theory can contribute. These major application areas are Control and Reliability, Engineering Economics and Investment Analysis, Group and Multi-criteria Decision-making, Human Factors Engineering and Ergonomics, Manufacturing Systems and Technology Management, Optimization Techniques, and Statistical Decision-making. Under these major areas, every chapter includes didactic numerical applications. The authors Among many authors in this book, some examples are H.-J. Zimmermann, Janusz Kacprzyk, Hideo Tanaka, Waldemar Karwowski, F. Herrera, C. Kolski, P. Paul Wang, E. Herrera-Viedma, Hung T. Nguyen, Vladik Kreinovich, Jose L. Verdegay, Tomoe Entani, Nikos Tsourveloudis, F. Jimenez.

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