EURO|INFORMS

26TH EUROPEAN CONFERENCE ON OPERATIONAL RESEARCH

MMXIIIROME

ABSTRACT BOOK

ROME 1-4 JULY, 2013

SAPIENZA
UNIVERSITÀ DI ROMA

We analyze a multi-attribute procurement auction that uses yardstick competition to settle prices. Upon receiving the submitted bids the auctioneer computes the yardstick bids by a linear weighting of the other bids. The winner is compensated with the yardstick price. Any bidder with a yardstick bid higher than its submitted bid may weakly improve the chance of winning the auction by raising the price-bid. This however increases the chance of being excluded by bidders who lower their bid. Hence there is no equilibrium. By simulations we show that deviating from truth-telling is limited.

2 - A model of consumer behavior and utility formation with a behavior menu formed by society

Vladimir Matveenko, Center for market studies and spatial economics, National Research University Higher School of Economics, 3 The 10th Liniya Vasilievsky Island, 199034, St. Petersburg, Russian Federation, vmatveenko@hse.ru

It is shown that for each linear-homogeneous utility function on characteristics of goods there exists a unique set of weights of characteristics such that the function is represented as a solution of a problem of a choice of weights from the set. The latter is explained as a behavior menu of the individual. The behavior menu is formed by the society. In such way, a theory of consumer behavior is constructed in which the consumer makes a choice, first of all, of her attitude to life and only then of the consumed bundle of goods.

3 - An Hybrid model of multicriteria analysis for the OLAP systems: Application to the implantation of large areas of distribution

Omar Boutkhoum, Computer Science, Faculty of the Sciences Semlalia, Cadi Ayyad University, Bd. Prince My Abdellah, 2390 , Marrakech, Morocco, o.boutkhoum@uca.ma, *Mohamed Hanine*, *Abdessadek Tkniouine*

OLAP (On Line Analytical Processing) tools are among the technology decision offering the possibility of archiving, management, analysis and multidimensional modeling. However, they are limited in the consideration of the multicriteria and quality aspect of the decision problem. To overcome these limitations, we proposed in this research, a methodological approach for integrating multicriteria analysis in OLAP systems. This approach aims to create an hybrid model of data (OLAP / MCA) for the implementation of our case study dealing with the implantation of large areas of distribution.

4 - Comparing social choice properties of some positional voting systems

Teresa Peña, Economía Aplicada, Universidad de Valladolid, Valle esgueva, 6, 47011, Valladolid, Spain, maitepe@eco.uva.es, *Bonifacio Llamazares*

Scoring rules are a class of positional voting systems (PVS's) used in different decisional contexts. It is known that, in these PVS's, the winner may change depending on the scoring vector used. To avoid this shortcoming, some authors have proposed evaluating each candidate with the most favourable scoring vector for him/her. In this work we compare scoring rules with PVS's that allow to use different scoring vector for each candidate. To do this we consider several criteria relevant from social choice point of view such as monotonicity, Pareto-optimality, Condorcet consistency, etc..

■ MC-41

Monday, 12:30-14:00
Y12-5

DEA Applications VIII

Stream: DEA and Performance Measurement II
Invited session

Chair: *Andres Polo*, Facultad de Ingeniería, Universidad Agraria de Colombia, Calle 170 54 A 10, Bogotá, Colombia, polo.andres@uniagraria.edu.co

1 - Efficiency Analysis of Japanese Private Broadcasting Using Data Envelopment Analysis

Masatsugu Tsuji, Graduate School of Aplied Informatics, University of Hyogo, 1-3-3, Higashi-Kawasaki-cho, Chuou-ku, 650-0044, Kobe, Hyogo, Japan, tsuji@ai.u-hyogo.ac.jp

The objective of the paper is to analyze efficiency of Japanese TV stations. DMUs were local TV stations in regions and 24 stations were selected all over Japan, The period of analysis is 2002-2007, and there are 144 DMUs. Operating costs, wages and depreciation are utilized as input, while revenues and the number of households viewing TV programs are as output. DEA used is: SBM; VRS; and output-oriented model. The result shows 20% of DMUs obtained 1 and the average was 0.858. Next, we identified factors which influenced significantly efficiency of DMU by regression such as Tobit model.

2 - Monitoring performance of hydroelectric power plants

Clara Vaz, School of Technology and Management, Polytechnic Institute of Bragança, Campus de Santa Apolónia, Apartado 134, 5301 - 857, Bragança, Portugal, clvaz@ipb.pt, *Ângela Ferreira*

This study develops a methodology to provide insights regarding the efficiency and productivity of the hydroelectric power plants of an European player in the energy sector throughout the operation stage. DEA is used to measure the efficiency of utilities in generating electrical energy from the resources available and exogenous variables. This analysis enables the identification of the best practices of power plants which lead to improved performance. The Malmquist index, complemented with bootstrapping, is used to measure the changes in plants productivity between in the last years.

3 - Incorporating the Concept of DEA-DA into the Case-Based Distance Methods for Screening

Li-Ching Ma, Department of Information Management, National United University, No.1, Lienda, 36003, Miaoli, Taiwan, Taiwan, lcma@nuu.edu.tw, *Pei-Pei Hsu*

The case-based distance methods (CBDMs) for screening are useful methods to assist decision makers in eliminating alternatives which are unlikely to be chosen. However, most of these methods, based on selected cases and distance measurements, can only treat screening problems with positive weights of criterion. This study incorporates the concept of DEA-DA (Data Envelopment Analysis-Discriminant Analysis) into the CBDMs to solve screening problems involving negative weights. The results show that the proposed approach can increase hit rates because of relaxing restriction for positive weights.

4 - Measuring productivity in supply chains: Malmquist Index approach

Andres Polo, Facultad de Ingeniería, Universidad Agraria de Colombia, Calle 170 54 A 10, Bogotá, Colombia, polo.andres@uniagraria.edu.co

This paper develops a productivity index applicable when supply chains desire to improve cost and compensations. The index is inspired by the Malmquist index which is decomposed into technical and efficiency change. These decompositions provide a clearer picture of the root sources of productivity change to decision making in supply chains. The measurements were performed under the computational results of a supply chain mathematical model configured as non-integrated and integrated; to perform the results are computed using non-parametric mathematical programming.

■ MC-42

Monday, 12:30-14:00
Y12-3

Building a Decision Aiding Theory-of-practice: Empirical Research Concepts and Examples

Stream: Decision Processes
Invited session

Chair: *Gilberto Montibeller*, Dept. of Management, London School of Economics, Houghton Street, WC2A 2AE, London, United Kingdom, g.montibeller@lse.ac.uk