THESSALONIKI

GREECE

DEA 2011

24 - 27 August

9th International Conference

on Data Envelopment Analysis

Data Envelopment Analysis and Performance Management

24-27 AUG 2011

University of Macedonia

Thessaloniki, Greece

http://www.deazone.com/DEA2011/

Letter from the Conference Organizing Committee

Dear Participants,

It is a great pleasure to welcome you all to the 9th International Conference on Data Envelopment Analysis (DEA2011), co-organized by the University of Macedonia, Thessaloniki Greece, Aston Business School of Aston University, Birmingham UK, the Fox School of Business of Temple University, Philadelphia, USA, and the iDEAs.

Over the years, the International DEA conference has grown not only in respect of volume of papers and number of delegates but also in terms of the variety of methodological contributions and areas of application. This year's conference features several firsts. It is the first DEA conference which will be associated with a Special Issue of a Journal, namely the Journal of the DEA Society. It is the first DEA conference in which the launch of a DEA Journal will take place; and it is the first DEA Conference in which the formation of the International DEA Society (IDEAS) will be launched. The conference is the largest yet of the series of DEA conferences with in excess of 150 delegates and accompanying persons from all corners of the globe. We believe that this is a wonderful opportunity, especially in the present challenging economic times, to bring together DEA researchers and practitioners to explore how the DEA community can contribute to addressing some of the key issues facing organizations at the present time.

We would also like to warmly welcome you to Thessaloniki, Greece's second largest city with a population close on 1 million. It is a beautiful city with a seafront stretching for miles. It has a long history with remnants stretching from Roman times through to Byzantine, Ottoman and modern day. You will have we hope some spare time to enjoy a seafront stroll in the warm early evening air or wonder through the modern shopping thoroughfares of the city. We hope this conference will also be an opportunity for all of us to exchange social and cultural experiences in this beautiful Byzantine city.

Last but not least, we would like to thank our sponsors, the University of Macedonia and PIM-DEA software and most of all, you the participants, for your contribution in making this conference successful. We wish you all an intellectually stimulating experience and an enjoyable stay.

Best Wishes,

Andreas Andronikidis, University of Macedonia

Rajiv D. Banker, Fox School of Business, iDEAS

Ali Emrouznejad, Aston Business School

Andreas C. Georgiou, University of Macedonia

Giannis Karagiannis, University of Macedonia

Emmanuel Thanassoulis, Aston Business School

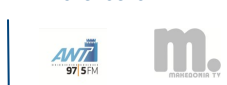The 9th DEA was made possible by the generous support of the following organizations:

ORGANIZED BY

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programme summary

12:00 - 20:30 Registration

19:00 - 20:30 Welcome Reception

09:00 - 09:50 Opening Ceremony (Grand Hall)

10:00 - 11:00 Demonstration of DEA Software - PIM-soft | **Computer Room**

T.1.1: Banking | **Room A**

T.1.2: Health | **Room B**

T.1.3: Finance | **Room C**

T.1.4: Facets | **Room D**

T.1.5: Public Services | **Room E**

11:00 - 11:30 Coffee Break

11:30 - 12:30 T.2.1: Banking | **Room A**

T.2.2: Health | **Room B**

T.2.3: Finance | **Room C**

T.2.4: Electricity | **Room D**

12:30 - 13:15 Lunch Break

13:30 - 20:00 Trip to winery or trip to Vergina

programme summary

08:30 - 10:00	F.1.1: Banking | **Room A**
	F.1.2: Fuzzy | **Room B**
	F.1.3: MCDM | **Room C**
	F.1.4: Modelling | **Room D**
10:00 - 10:20	Coffee Break
10:20 - 11:50	F.2.1: Banking | **Room A**
	F.2.2: Regions-Methodology | **Room B**
	F.2.3: Productivity | **Room C**
	F.2.4: Modelling | **Room D**
	F.2.5: Public Services | **Room E**
11:55 - 12:40	Plenary 1 | **Room P**
	Chair: Giannis Karagiannis
	Invited Speakers:
	Rolf Fare, Shawna Grosskopf and
	Dimitris Margaritis
12:40 - 13:30	Lunch Break
13:30 - 15:00	F.3.1: Banking | **Room A**
	F.3.2: Regions | **Room B**
	F.3.3: Transport Systems | **Room C**
	F.3.4: Modelling | **Room D**
	F.3.5: Transport & MFG | **Room E**
15:00 - 15:30	Coffee Break
15:30 - 16:30	F.4.1: Farming | **Room A**
	F.4.2: Electricity | **Room B**
	F.4.3: IT - Modelling | **Room C**
	F.4.4: Modelling | **Room D**
16:35 - 17:30	Panel Session | **Room A**
	Panel Discussion: Getting Published
	Chair: Emmanuel Thanassoulis
	Rajiv Banker
	Ali Emrouznejad
	Victor Podinovski
	Emmanuel Thanassoulis
20:30 - late	GALA Dinner

09:00 - 10:00 Panel Session | **Room A**

Panel Discussion: Applying DEA in practice: Opportunities for reaching users , do's and don'ts in selling DEA

Chair: Rajiv Banker

Mike Graveney

Nikolaos Maniadakis

Ibrahim Osman

Maria Conceicao Portela

Emmanuel Thanassoulis

Rajiv Banker

10:00 - 10:20 Coffee Break

10:20 - 11:50 Demonstration of DEA software – Repeat PIMsoft | **Computer Room**

S.2.1: Agriculture | **Room A**

S.2.2: Education - Sport | **Room B**

S.2.3: Methodologies | **Room C**

S.2.4: DEA Applications | **Room D**

11:55 - 12:40 Plenary 2 | **Room P**

Chair: Emmanuel Thanassoulis

Invited Speaker:

Rajiv Banker

12:40 - 13:30 Lunch Break

13:30 - 15:00 S.3.1: Manufacturing-Reviews

| **Room A**

S.3.2: Methodological Contributions | **Room B**

S.3.3: Methodologies | **Room C**

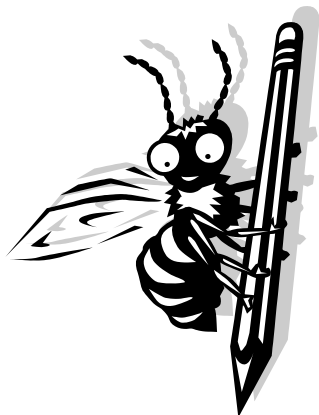S.3.4: Methodological Contributions | **Room D**

15:00 - 15:30 Coffee Break

15:30 - 16:00 Closing Ceremony | **Grand Hall**

sessions schedule

Thursday

Opening Ceremony | GRAND HALL

09:00 - 09:50

Host: E. Thanassoulis

09:00 – 09:10	Host welcomes and makes safety announcements
09:10 – 09:30	City authorities and Rector welcome the delegates
09:30 – 09:50	Rajiv Banker on JDEA and DEA Society

Session 1

10:00 - 11:00

DEMO | **Computer Room**

Demonstration of DEA software – PIMsoft

T.1.1 Banking | Room A
Chair: Loula- Eleni Triantafyllou

1. (104) Francisco Vargas, Luis Renteria, Cheng Gang and Panagiotis Zervopoulos, "Mexican Banking Productivity after NAFTA"

2. (193) Abdel Latef Anouze, Ibrahim H. Osman and Ali Emrouznejad, "Banks' Performance in Mena Region Before, During and After the Financial Crises"

3. (142) Loula- Eleni Triantafyllou, "Greek Banks and their Effectiveness (2004-2010): a Comparing Approach with Data Envelopment Analysis and Traditional Indicators"

T.1.2 Health | Room B
Chair: George Fragkiadakis

1. (121) Roxani Karagiannis, "Evaluating the Financial Performance of Public Hospitals in Greece"

2. (130) Aurore Pélissier, Martine Audibert, Jacky Mathonnat and Xiaoxian Huang, "Health Insurance Reform and Efficiency of Township Hospitals in Rural China: an Analysis from Survey Data"

3. (140) George Fragkiadakis, Michael Doumpos and Constantin Zopounidis, "Evaluation of Technical and Allocative Efficiency of Greek Hospitals: a Non-Parametric Methodology and Managerial Implications"

T.1.3 Finance | Room C

Chair: Layla Ashoor

1. (86) Panagiotis Tziogkidis, "Post-Event Analysis of Greek Financial Intermediaries Using Bootstrap DEA"
2. (98) Layla Ashoor and Jian-Bo Yang, "Integrated Production Trade off DEA and MOLP Model"
3. (67) Khursid Djalilov and Jenifer Piesse, "Efficiency of Banking Institutions in Central Asia"

T.1.4 Facets | Room D

Chair: Hirofumi Amatatsu

1. (49) Tohru Ueda and Hirofumi Amatatsu, "Performance Evaluation Methods Based on Minimum Distance and Extrapolated Facets"
2. (75) Alireza Amirteimoori and Sohrab Kordrostami, "Generating Strong Defining Hyperplanes of Production Possibility Set in DEA"
3. (87) Hirofumi Amatatsu and Tohru Ueda, "Returns to Scale of Chemical Companies Using Facet Coordinates of the DEA"

T.1.5 Public Services | Room E

Chair: Rui Marques

1. (24) Masood Badri, Tarek El Mourad ,Khaled Al Safi, Aly Alaaeldin ,Rafic Makki and Saleh Al Hashemi , "The efficiency of Abu Dhabi public schools using Data Envelopment Analysis "
2. (144) Ricardo Souza, Marcos Lins and Rogerio Valle , "Assessing Brazilian waste collection services with Data Envelopment Analysis "
3. (145) Rui Marques and Pedro Simões , "Measuring the Performance of Portuguese Prisons: a Non-parametric Approach "

Session 2

11:30 - 12:30

T.2.1 Banking | Room A

Chair: Muhammad Maishanu

1. (12) Violeta Cvetkoska and Blagorodna Todosioska, "A Two-Stage Approach for Measuring the Efficiency of Banks with the Application of DEA and AHP"
2. (139) Anamaria Aldea, Luiza Badin and Carmen Lipara, "Efficiency Analysis of Commercial Banks Using a Nonparametric, Unconditional Quantile Approach"
3. (16) Muhammad Auwalu Haruna and Muhammad Maishanu, "Consolidation and Productivity Gains of the Nigerian Banking System"

T.2.2 Health | Room B
Chair: Rhory Fernandez

1. (148) Maria Portela, Emmanuel Thanassoulis and Mike Graveney, "Comparative Analysis of Referral and Drug Costs at the Level of Specialty: General Medicine and Geriatrics"
2. (195) Nurhan Davutyan and Murat Bilsel, "Hospital Efficiency with Risk Adjusted Mortality as Undesirable Output: the Turkish Case"
3. (102) Rhory Fernandez, "Technical Efficiency Measure of the Tertiary Public Hospitals Using Data Envelopment Analysis: Evidence from the national capital region, Philippines"

T.2.3 Finance | Room C
Chair: Karligash Kenjegalieva

1. (3) Mohammad Hemati, Seyyedabdolla Heydariyeh and Amir Mehdiabadi, "Representation a Combined Technique from DEA and Topsis in Order to Appraisal the Efficient industrials"
2. (45) Antonella Basso and Stefania Funari, "Relative Performance of SRI Equity Funds: An Analysis of European Funds Using Data Envelopment Analysis"
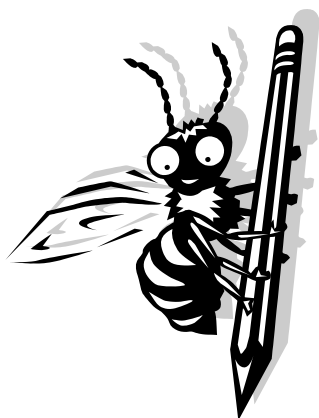
T.2.4 Electricity | Room D
Chair: Farhad Hosseinzadeh Lotfi

1. (51) Shane Mullarkey, Brian Caulfield, Aoife Foley, Biswajit Basu and Sarah Mccormack, "Efficiency Assessment of Electricity Power Generation on Ireland's Single Electricity Market (SEM) by Data Envelopment Analysis"
2. (73) Ke Wang and Yi-Ming Wei, "Total-Factor Energy and Environment Efficiency Evaluation of China: A DEA Based Approach"
3. (77) Farhad Hosseinzadeh Lotfi and Maryam Razavi, "A New Fuzzy Non-Radial Projection Method for Improving Efficiency in Data Envelopment Analysis: A Study on Regional Electric Companies in Iran"

sessions schedule

Friday

Session 1
08:30 - 10:00

F.1.1 Banking | Room A
Chair: Branka Tuskan

1. (36) Arash Aliakbari and Ahmad Makui, "Evaluating the Relation Between Efficiency Scores and Environmental Conditions"
2. (52) Mohsen Afsharian, Anna Kryvko and Peter Reichling, "Efficiency and its Impact on the Performance of European Commercial Banks"
3. (60) Mohammadreza Alirezaee, Ali Niknejad and Nassrin Alirezaee, "Bank Branches Evaluation using Data Envelopment Analysis: System Development Issue"
4. (83) Branka Tuskan and Maja Mihelja Zaja, "DEA Approach vs Accounting Approach as a Measure of Efficiency of Financial Institutions in the Republic of Croatia"

F.1.2 Fuzzy | Room B
Chair: Shavazipour Babooshka

1. (6) Madjid Zerafat Angiz E Langroudi, Adli Mustafa, Ali Emrouznejad and Joshua Ignatius, "Integrating Fuzzy DEA into TOPSIS Approach for Finding an Ideal Solution in Multiple Attribute Decision Making Problems"
2. (34) Mozhgan Mansouri Kaleibar and Sahand Daneshvar, "The Minimal Allocated Cost and Maximal Allocated Benefit for Fuzzy Data"
3. (70) Najmeh Malekmohammadi, Farhad Hosseinzadeh Lotfi and Hishamuddin Zainuddin, "Limited Resources in Fuzzy Data Envelopment Analysis"
4. (203) Shavazipour Babooshka, "Fuzzy Mixed Separate Data Envelopment Analysis Approaches for Measuring Efficiency and Effectiveness"

F.1.3 MCDM | Room C
Chair: Andreas C. Georgiou

1. (38) Yossi Hadad and Baruch Keren, "Combined Methods for Ranking DMUs via Performance Evaluation and Improvement Trend"
2. (42) Rita Markovits-Somogyi, "Modification of a DEA-AHP Based Method for Ranking the Decision Making Units"

3. (126) Gordana Savic, Marija Kuzmanovic and Milan Martic, "Conjoint Analysis based Approach to Criteria Selecion in Data Envelopment Analysis"

4. (179) Andreas Andronikidis, Andreas Georgiou, Katerina Gotzamani and Konstantina Kamvysi, "Integrating DEA Framework into QFD Methodology"

F.1.4 Modelling | Room D
Chair: Joseph C. Paradi

1. (124) Cecilio Mar-Molinero and Fabiola Portillo, "Weight multiplicity in DEA: causes and a proposed solution"

2. (90) Torbjørn Hanson and Finn R. Førsund, "Efficiency and productivity in operational units of the armed forces"

3. (129) Ahti Salo and Antti Punkka, "Ratio-Based Efficiency Analysis"

4. (194) Sanaz Sigaroudi and Joseph C. Paradi, "Numerical Approximation of Nonlinear Radial Efficiency Frontier in Presence of Ratio Variables"

Session 2
10:20 - 11:50

F.2.1 Banking | Room A
Chair: Juha Eskelinen

1. (85) Süleyman Kale, Mehmet Hasan Eken and Huseyin Selimler, "Efficiency of European Banks: A Risk and Profitability Approach"

2. (99) Nitish Datta, "Characteristics of High Growth and Growth Efficient Indian Commercial Banks: A Non Parametric Bank Level Analysis"

3. (100) Angana Deb and Nitish Datta, "Nature of the Managerial Behavior of Indian Commercial Banking Sector: An Empirical Investigation"

4. (106) Juha Eskelinen, Merja Halme and Markku Kallio, "Extending Value Efficiency Analysis - Case Bank Branch Sales Evaluation"

F.2.2 Regions - Methodology | Room B
Chair: Dimitris Despotis

1. (89) George Vlontzos, Garyfallos Arabatzis and Basil Manos, "Investigation of the Relative Efficiency of Leader+ in Rural Areas of Northern Greece"

2. (66) Nikos Pettas and Ioannis Giannikos, "Measuring the Administrative Efficiency of EU Leader Development Programmes with DEA: An Application in the Local Implementation of Greek Leader+"

3. (97) Francesco Porcelli, "Can Local Governments Buy a Good Performance Evaluation? Theory and Evidence from the Comprehensive Performance Assessment of English Local Authorities"

4. (55) Dimitris Despotis and Dimitris Sotiros, "Max-Normalized DEA Models: Meaning and Properties"

F.2.3 Productivity | Room C
Chair: Dimitris Giraleas

1. (31) Shabnam Razavyan and Ghasem Tohidi, "The Productivities Comparing of Units at Two Different Points in Time Using Global Cost Malmquist Index"

2. (56) Mohsen Afsharian and Gerhard Wäscher, "A New Malmquist-Type Index for Measuring Productivity Changes Over Time"

3. (10) Bernhard Mahlberg and Mikulas Luptacik, "Efficiency Change Over Time in a Multisectoral Economic System"

4. (164) Dimitris Giraleas, "Aggregate Productivity Growth Measurement: Comparisons Between Growth Accounting and Frontier-Based Measures"

F.2.4 Modelling | Room D
Chair: Alireza Amirteimoori

1. (165) Mette Asmild, Jens Leth Hougaard and Dorte Kronborg, "Is the Distribution of Efficiency Scores Independent of the Input Mix? A Statistical Test"

2. (173) Rajiv Banker, Mihir Mehta and Kikyoung Song, "Citizens' Happiness and National Performance Scorecard"

3. (175) Farhad Hosseinzadeh Lotfi, Gholamreza Jahanshahloo, Alireza Amirteimoori and M. Moghaddas, "Non-Radial Piecewise Linear DEA model"

4. (176) Sohrab Kordrostami, Alireza Amirteimoori and Farhad Hosseinzadeh Lotfi, "Efficiency Analysis in Production Systems With Imprecise Data"

F.2.5 Public Services | Room E
Chair: Panagiotis Zervopoulos

1. (21) Monica De La Paz-Marin, and Carlos Garcia-Alonso "Evaluation of R&D public policy in the European Union: an Expert Knowledge-based and two stage DEA Approach"

2. (74) Xiaopeng Yang and Hiroshi Morita, "Efficiency Improvement in the Case of Multiple Perspectives"

3. (116) Bhaskar Roy Karmaker, Ankit Narsaria, Ayan Mukhopadhyay and Suman Tiwari , "Comparative Performance of Asymmetric DEA as Bankruptcy Predictor: An Empirical Evidence from Indian Context"

4. (133) Markos Anastasopoulos and Panagiotis Zervopoulos , "Introducing a Data Generation Process to Tackle the Dimensionality Problem of Non-Parametric Techniques: Evidence from Data Envelopment Analysis"

Plenary 1 | **Room P**

11:55 - 12:40

Chair: Giannis Karagiannis

Invited Speakers: Rolf Fare, Shawna Grosskopf and Dimitris Margaritis, "Coalition Formation and Pricing of Decision Making Units"

Session 3

13:30 - 15:00

F.3.1 Banking | **Room A**

Chair: Mohammad-Reza Alirezaee

1. (113) Mohammad Reza Alirezaee and Masoume Rajabi Tanha, "Large Loans Management: Loan Portfolio Selection"

2. (132) Mohammad Reza Alirezaee and Seyede Hoda Shajari, "Large Loan Management: Loan Package Calculation"

3. (14) Mohammad Hemati and Vahideh Zabihi, "Represent an Approach for Integrating Different Models of Data Envelopment Analysis by Using of Linear Assignment Method"

4. (200) Mariana Rodrigues De Almeida, Enzo Barbeiro Mariano and Daisy Nascimento Rebelatto, "Measuring Efficiency of Government-Sponsored R&D Projects"

F.3.2 Regions | Room B
Chair: Monica Matei

1. (92) Evangelia Desli and Emmanouil Chatzigiannis, "Testing EU Efficiency at Country Level Versus Regional Level"
2. (109) Spyros Niavis, Serafeim Polyzos and Triantafyllos Pnevmatikos, "Evaluating the Efficiency of Greek Prefectures by Using Data Envelopment Analysis"
3. (125) Yücel Özkara, Bilal Toklu and Dursun Balkan, "Regional Efficiency Measurement of Turkey's Manufacturing Industry with Electricity Input Using DEA"
4. (135) Monica Matei and Anamaria Aldea, "Regional Innovation Systems Impact on Labour Market Using Robust Non-Parametric Frontier Estimators"

F.3.3 Transport Systems | Room C
Chair: Elke Hermans

1. (94) Eleni Dikaiou and George Botzoris, "Athens Urban Transport Organisation's Efficiency Assessment Using Data Envelopment Analysis"
2. (107) Nicole Adler, Gianmaria Martini and Nicola Volta, "Moving towards a Greener Fleet: A DEA Estimation of the Aircraft Environmental Production Frontier"
3. (114) Yongjun Shen, Elke Hermans, Tom Brijs, Da Ruan, Geert Wets and Koen Vanhoof, "Development of a Multiple Layer DEA Model with Applications in Road Safety Performance Evaluation"
4. (115) Elke Hermans, Yongjun Shen, Tom Brijs, Geert Wets and Koen Vanhoof, "Road Safety Target Setting in Europe based on a Combined Data Envelopment Analysis and Time Series Analysis Approach"

F.3.4 Modelling | Room D
Chair: Kristof de Witte

1. (178) Ahmad Shahvarani, Leila Khoshandam and Alireza Amirteimoori, "A Data Envelopment Analysis Model for Centralized Decision Processes"
2. (184) R Ramya and Muthiah Palani Natha Raja, "Defects Minimization through Principal Component Analysis (PCA)- Data Envelopment Analysis (DEA)"
3. (186) Babooshka Shavazipour and Vahid Asrami "Ranking Using Ideal Decision Making Unit in Data Envelopment Analysis"
4. (187) Kristof De Witte and Benny Geys, "Evaluating Efficient Public Good Provision: Theory and Evidence from a Generalised Conditional Efficiency Model for Public Libraries"

F.3.5 Transport Systems & Manufacturing | Room E

Chair: Akbar Khodabakhshi

1. (162) Francesco Russo and Corrado Rindone , "Data Envelopment Analysis to Compare Investments on Hub Ports"
2. (44) Akbar Khodabakhshi and Mohammad Jafari , "Measuring of the Efficiency of the Iranian Railway Companies by Using Data Envelopment Analysis"
3. (158) Susila Munisamy and Noor Asiah Ramli , "Environmental Efficiency: A Range Adjusted Measure for Malaysian Manufacturing Sector "
4. (204) Ming-Miin Yu, Bo Hsiao and Shaw Yu Li , "Using Multi-Activity Network DEA Model to Measure Container Ports with Harbor Management, Stevedoring and Warehousing Activities "

Session 4

15:30 - 16:30

F.4.1 Farming | Room A

Chair: Alexandros Theodoridis

1. (48) Sofia Kourtesi, Apostolos Polymeros and Panos Fousekis, "Robust Technical Efficiency Comparisons With Application to Greek Olive Farms"
2. (57) Alexandros Theodoridis and Athanasios Ragkos, "A Restricted DEA Approach of Dairy Farms in Greece"

F.4.2 Electricity | Room B

Chair: Rajiv D. Banker

1. (84) Hasan Bal and Mehmet Güray Unsal, "Integrating of Multi Dimensional Scaling Algorithm To PCA-DEA and Electricity Efficiency Evaluation of OECD Countries"
2. (137) Trishit Bandyopadhyay, "Improving the Efficiency of a Multi-unit Coal Based Thermal Power Corporation in the Presence of Undesirable Outputs - A Case Study Employing Data Envelopment Analysis"
3. (172) Rajiv D. Banker, Ana Lucia Miranda Lopes and Daqun Zhang, "Empirical Consideration of Returns to Scale in Incentive Regulation"

F.4.3 IT - Modelling | Room C

Chair: Guiwu Wei

1. (64) Pooria Niknazar and Anders Hjalmarsson, "Evaluating Information Technology Impact on Firm Performance Using BSC-DEA Method"

2. (170) Yahuza Kassim, Jason Underwood and Benny Raphael, "Data Envelopment Analysis Model of Information Technology Business Value in Engineering Organisation: Benchmarking IT induced Productivity"
3. (123) Guiwu Wei and Jiamin Wang, "Stochastic Super Efficiency Analysis"

F.4.4 Modelling | Room D
Chair: Ray Subhash

1. (209) Ray Subhash, "Scale Economies and Capacity Utilization in U.S. Manufacturing"
2. (208) Førsund Finn "Weight Restrictions in DEA: Misplaced Emphasis?"
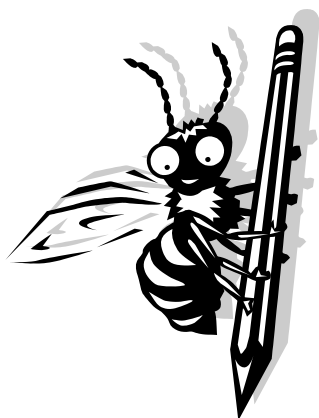
Panel Session | Room A
16:35 - 17:30

Panel Discussion: Getting Published
Chair: Emmanuel Thanassoulis

Rajiv Banker, Ali Emrouznejad, Victor Podinovski, Emmanuel Thanassoulis

sessions schedule

Saturday

Panel Session | Room A

09:00 - 10:00

Panel Discussion: Applying DEA in Practice: Opportunities for reaching users, dos and don'ts in selling DEA
Chair: Rajiv Banker

Mike Graveney, Nikolaos Maniadakis, Maria Conceicao Portela, Emmanuel Thanassoulis, Rajiv Banker, Ibrahim Osman

Session 2

10:20 - 11:50

DEMO | Computer Room

Demonstration of DEA software – Repeat PIMsoft

S.2.1 Agriculture | **Room A**
Chair: Roma Debnath

1. (59) Kazim Baris Atici and Victor V. Podinovski, "The Integration of Production Trade-offs in Farm Efficiency Evaluation with DEA and into Elasticity Measurement on DEA Efficient Frontiers"
2. (96) Evangelia Pappa and Theodosios Palaskas, "Measuring Efficiency of Greek Meat Industry: A Double Bootstrap DEA Analysis"
3. (117) Athanasios Theocharopoulos, Katerina Melfou and Evangelos Papanagiotou, "Efficiency Analysis under Different Production Technologies: An Application to the Greek Agricultural Sector"
4. (118) Roma Debnath, Ravi Shankar and Surender Kumar, "A Happy Planet: An Application of Data Envelopment Analysis"

S.2.2 Education - Sport | **Room B**
Chair: Giannis Karagiannis

1. (7) Jean-Marc Huguenin and Alessio Ishizaka, "DEA does not Like Positive Discrimination: The Case of Primary Schools in the State of Geneva, Switzerland"

2. (23) Milagros Baldemor, "Performance Efficiency of Colleges and Institutes : A Data Envelopment Analysis Study"

3. (20) John Ruggiero, Trevor Collier and Leslie Douglas, "Nonparametric Efficiency Measurement: An Application to the Field of Soccer"

4. (127) Thanasis Bouzidis and Giannis Karagiannis, "Efficiency Decomposition in Two-Stage Data Envelopment Analysis: An Application to Greek Football League"

S.2.3 Methodologies | Room C
Chair: F. Hosseinzadeh Lotfi

1. (25) Amarnath Bose and Gokulananda Patel, "Local Efficiency in DEA – an Approach based on Clustering"

2. (29) Sahand Daneshvar, Alireza Javadi and Mozhgan Mansouri Kaleibar, "Sensitivity Analysis on Modified BCC Model Using Facet Analysis"

3. (30) Ghasem Tohidi and Shabnam Razavyan, "Classification of Interval Data in Data Envelopment Analysis"

4. (206) G. R. Jahanshahloo, F. Hosseinzadeh Lotfi, H. Jahanshahloo and P. Firoozi Shahmirzadi, "Meta Malmquist Index Based On Modified Cross Meta Efficiency Method In DEA"

S.2.4 DEA Applications | Room D
Chair: F. Rolando Manuel Valdivia

1. (26) Laura Jubran, Aparecido Jorge Jubran and Flavio Almeida De Magalhães Cipparrone, "Application of Data Envelopment Analysis: a Study of the Efficiency of Insurance Companies"

2. (35) H. Hasan ÖrkcÜ and Hasan Bal, "Cross Efficiency Method Based on Minimization of Weights And Evaluation of Turkey Cities"

3. (131) Dorcas Mbuvi, Kristof De Witte and Sergio Perelman, "Water Sector Performance Determinants: Stepwise Bias-Corrected Efficiency and Effectiveness Analysis"

4. (183) Rolando Manuel Valdivia, "The Efficiency and Productivity Analysis in the Bolivian Petroleum Refinery Industry: Case of Study"

Plenary 2 | Room P

11:55 - 12:40

Chair: Emmanuel Thanassoulis

Invited Speaker: Rajiv Banker, "Advances in DEA"

Session 3

13:30 - 15:00

S.3.1 Manufacturing - Reviews | Room A
Chair: Kostas Triantis

1. (151) Kankana Mukherjee, "Capacity Utilization in Indian Manufacturing: A Non-Parametric Analysis of State Level Data"
2. (32) Kostas Triantis, Saeideh Fallah-Fini and Andy Johnson, "Dynamic Efficiency Performance: State-of-the-Art"
3. (65) Pooria Niknazar, "Application of DEA in Evaluation of Preventive Maintenance Efficiency in a Factory"
4. (33) Kostas Triantis, "Engineering and Performance Measurement: Issues and Future Research Opportunities"

S.3.2 Methodological Contributions | Room B
Chair: Victor Podinovski

1. (72) Panagiotis Zervopoulos and Miltiades Filippou, "Developing a Hybrid Comparative Optimization Model for Short-Term Forecasting: An 'Idle Time Interval' Roadmap for Operational Units' Strategic Planning"
2. (37) Baruch Keren and Yossi Hadad, "ABC Inventory Classification via DEA Ranking Methods and Linear Discriminant Analysis"
3. (47) Luka Neralic, Masoud Asgharian and Mohammad Khodabakhshi, "Congestion in Stochastic Data Envelopment Analysis: An Input Relaxation Approach"
4. (53) Victor Podinovski, "CRS Technologies with Exogenously Fixed Factors"

S.3.3 Methodologies | Room C
Chair: Hasan Bal

1. (11) Reza Kazemi Matin, "A Modified Additive Model in Dealing with Negative Data"
2. (58) Bozana Zekan, "Efficient Tourism Destinations & Optimal Benchmarking Variables: Is There Such a Thing?"
3. (93) Maryam Reshadi, "Ranking in DEA by Using Different Efficiency Levels"
4. (95) Hasan Bal and Ayhan Gölcükcü, "A Computerized Follow up for DEA Literature"

S.3.4 Methodological Contributions | Room D
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1. (103) Celik Parkan, Jiamin Wang, Desheng Wu and Guiwu Wei, "Data Envelopment Analysis based on Maximin Relative Efficiency"
2. (192) Ibrahim H. Osman, Abdel Latef Anouze, Zahir Irani, Habin Lee, Tunc, D. Medeni, Asim Balci and Vishanth Weerakkody, "A New Cobras-DEA Framework to Evaluate e-Government Services: A Citizen Centric Perspective"
3. (88) Nor Hasni Osman, Rushami Zein Yusoff and Norlena Hasnan , "Small Business Performance Measurement: A Case in Kedah State of Malaysia"
4. (79) Subhash C Ray and Lei Chen, "A Normative Interpretation of the Tornqvist Productivity Index"

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15:30 - 16:00

Host: E. Thanassoulis

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