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Welcome to NAPW X!

Dear Colleagues,

Welcome the the 10th North American Productivity Workshop, hosted by the Miami Business School at the University of Miami in beautiful Coral Gables. This year we are excited to have over 150 scholars across all six continents and over 30 countries represented on the program.

NAPW X will span four days. Tuesday, June 12th is the Young Researchers’ Workshop, providing an excellent opportunity for the rising stars in our field the opportunity to present their work to a dedicated audience and receive feedback from a renowned scholar in the field. The three main days of the conference cover Wednesday June 13th to Friday June 15th. We have a total of 48 parallel sessions along with four plenary sessions and a keynote speech.

Each day of the conference will have a plenary session featuring talks from two experts on similar topics. Our plenary sessions will be given by Cinzia Daraio (Sapienza University of Rome) and Timo Kuosmanen (Aalto University), Jaap Bos (Maastricht University) and Paul Wilson (Clemson University), Subal Kumbhakar (Binghamton University) and Peter Schmidt (Michigan State University), and Mette Asmild (University of Copenhagen) and Kostas Triantis (Virginia Polytechnic Institute and State University). Our keynote will be delivered by Amil Petrin (University of Minnesota) on Wednesday morning.

There is also a special session title “Efficiency Analysis for Regulation Purposes” chaired by Mark Andor (RWI - Leibniz Institute for Economic Research) which will take place on Thursday from 4:00-6:00pm.

Lastly, the local organizing committee would like to thank Loughborough University for Sponsoring NAPW X. We encourage you to stop by their booth in the main assembly hall to see what is in store for future meetings. Our main welcome reception on June 13th will be held at the Donna Shalala Student center overlooking Lake Osceola in the heart of campus and is sponsored in part by Loughborough University and the Economics Department. We hope you can attend.

All of us on the local organizing and scientific committees welcome you to Miami and hope that you enjoy your stay!

Christopher F. Parmeter
COMMITTEES AND SPONSORS

Local Organizing Committee, Miami Business School, University of Miami

Christopher F. Parmeter

Scientific Committee

Robert Chambers  University of Maryland  USA
Anthony Glass  Loughborough University  UK
William H. Greene  New York University  USA
William C. Horrace  Syracuse University  USA
Andrew L. Johnson  Texas A& M University  USA
Christopher F. Parmeter  University of Miami  USA
John Ruggiero  University of Dayton  USA
Robin Sickles  Rice University  USA
Spiro Stefanou  University of Florida  USA
Paul Wilson  Clemson University  USA

Sponsors

The School of Business and Economics, Loughborough University, UK
Conference Mechanics

Registration
Registration will be available all four days of the conference from 8:00am-5:00pm in the main lobby of the Storer Auditorium. The registration desk will also be available to provide any needed assistance each day throughout the conference.

Sessions
- All sessions, coffee breaks and lunches will take place at the Miami Business School.
- Internet access is free everywhere on campus and can be accessed through CanesGuest wifi. There is also an eduroam connection throughout campus.
- The majority of sessions contain three papers and each paper is allocated 30 minutes for the 90 minute session.
- The B parallel sessions are only for one hour. These sessions have four papers with each paper allocated 15 minutes.
- The chair of each parallel session is the last presenting author. Time cards of 10, 5, 1 and 0 minutes will be provided in each room. Please do not take these time cards with you when the session is over.
- In case a presenter is not present in the parallel session, the session will continue and finish early. In this setting the chair can give more time to each paper at his or her discretion.
- All sessions in this program are identified by day (W-Wednesday, T-Thursday, and F-Friday), time (A-D), and session number (1-5).

Catering
The following are included in the registration fee for all participants
- A light continental breakfast offered between 8:00am and 9:00am each day of the conference.
- Lunch each day of the conference.
- Tea, coffee and light refreshments served between each of the sessions every day of the conference.
- Drinks and hors d’oeuvres on Tuesday, June 12th at the Miami Business School.
- Drinks and hors d’oeuvres on Wednesday, June 13th at the Shalala Student Center.

The Gala Banquet on Thursday, June 14th is optional and not included in the regular registration fee. The Gala Banquet is hosted this year at the Rusty Pelican and tickets for this event will be included in your registration packet if you elected to attend. Shuttle service to and from the Rusty Pelican will be provided from the NAPW X conference site.
Tuesday June 12th, Young Researchers’ Workshop – All Sessions in Storer Auditorium

8:00am-9:00am  Breakfast
9:00am-10:30am  Session I
10:30am-11:00am  Coffee Break
11:00am-12:30pm  Plenary Session I
12:30pm-1:30pm  Lunch
1:30pm-3:00pm  Session II
3:00pm-3:30pm  Coffee Break
3:30pm-5:00pm  Session III
5:00pm-6:00pm  Welcome Reception

Wednesday June 13th

8:00am-9:00am  Breakfast
9:00am-9:30am  Opening Remarks
9:30am-10:30am  Keynote Lecture
10:30am-11:00am  Coffee Break
11:00am-12:30pm  Parallel Session B
12:30pm-1:30pm  Lunch
1:30pm-3:00pm  Parallel Session C
3:00pm-3:30pm  Coffee Break
3:30pm-4:00pm  Plenary Session II
4:00pm-4:30pm  Coffee Break
4:30pm-6:00pm  Parallel Session D
6:00pm  Cocktail Reception

Thursday June 14th

8:00am-9:00am  Breakfast
9:00am-10:30am  Parallel Session A
10:30am-11:00am  Coffee Break
11:00am-12:30pm  Plenary Session III
12:30pm-2:00pm  Lunch
2:00pm-3:00pm  Parallel Session C
3:00pm-3:30pm  Coffee Break
3:30pm-5:00pm  Parallel Session C
4:00pm-4:30pm  Coffee Break
4:30pm-6:00pm  Parallel Session D
6:00pm  Pick up for Gala Banquet
### Friday June 15th

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<tr>
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<td>8:00am-9:00am</td>
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<td>6:00pm</td>
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SESSION SCHEDULES

Tuesday June 12th – Early Researchers’ Workshop.

All sessions will be held in Storer Auditorium
8:00am-9:00am: Arrival and continental breakfast

9:00am-10:30am: Session I
Chair: Spiro Stefanou
  Cost Efficiency and Climate Policy: Lessons from the German Manufacturing Sector, Maja Zarkovic
  Impacts on Efficiency of Merging the Swedish District Courts, Pontus Mattsson
  Efficiency Assessment of Sociotechnical Infrastructure Management Systems: The Case of Belgian Railroads, Taylan Topcu

10:30am-11:00am: Coffee Break

11:00am-12:30pm: Plenary Session I – Novel Applications of Efficiency Analysis
Chair: Jaap Bos
  Synergies in Joint Production of Multiple Outputs, Timo Kuosmanen
  New Perspectives on Estimation and Inference About Research Productivity, Cinzia Daraio

12:30pm-1:30pm: Lunch

1:30pm-3:00pm: Session II
Chair: Subal Kumbhakar
  Introducing the Targets-Based Nash-Bargaining Two-Tier Stochastic Frontier Framework, Alecos Papadopoulos
  Likelihood-Ratio Test for Two-Stage DEA: Theory and Application to Economic Growth, Manh Pham
  Deconvolution with Laplace Error of Unknown Variance, Jun Cai

3:00pm-3:30pm: Coffee Break

3:30pm-5:00pm: Session III
Chair: Daniel Henderson
Labor Misallocation and Income Differences: Beyond Cobb-Douglas, Jan Trenczek

As the Mercury Soars, is Your Bottom Line Melting?, Nora Pankratz

Bankers’ Pay: Market-Based versus Performance-Based Contracting, Natalya Zelenyuk

5:00pm-6:00pm: Welcome Reception
Wednesday June 13th.

8:00am-9:00am: Arrival and Continental Breakfast
8:00am-5:00pm: Registration

9:00am-9:30am: Welcome and Opening Remarks – Storer Auditorium

9:30am-10:30am: Keynote Lecture – Storer Auditorium
Chair: Robin Sickles

The Sources of Aggregate Productivity Growth According to Micro-level Manufacturing Data, Amil Petrin

10:30am-11:00am: Coffee Break

11:00am-12:30pm: Parallel Sessions I

Spatial SFA Theory – AGB 331
Chair: Anthony Glass

Estimation of Spatial Error Stochastic Frontier Models, Federico Belotti*, Giuseppe Ilardi, and Andrea Piano Mortari

Parametric Stochastic Frontier Models and Probability Statements with Spatial Errors, Ian Wright* and Christopher Parmeter

Real Economy Effects of the Financial Crisis: Evidence on U.S. Labor Matching Efficiency From a Dynamic Spatial Frontier, Anthony Glass*, Karligash Kenjegalieva, and William Horrace

Environment – AGB 332
Chair: Christopher Holt

Effect of Reducing Nitrogen Oxide Emissions (via 1990 Clean Air Act), and ISO Membership, on Cost Efficiency in the Electric Utility Industry, Gerald Granderson* and Finn Forsund

Estimates of the Marginal Cost of NOX and PM2.5 Emissions Reductions from U.S. Manufacturing from 1990 to 2014 with Projections to 2025, Jenny Thomas*

Shadow Price Estimation Using Convex Quantile Regression, Timo Kuosmanen and Xun Zhou*
Shadow Prices of CO2 Emissions in the U.S. Power Generation Industry, Christopher Holt*

Banking – AGB 333
Chair: Jim Sanchez

The Effect of Minority Foreign Ownership on Vietnamese Bank Efficiency: A One-Stage Stochastic Frontier Analysis Approach, Tran Trang*, David Tripe, and Jing Liao

Passing the Buck: Tax Distortions and Credit Crashes, Jaap Bos*

Inefficiency and Bank Failures: A Joint Bayesian Estimation of a Stochastic Frontier Model and a Hazards Model, Jim Sanchez*, Diego Restrepo Tobon, and Andrés Ramírez Hassan

Dairy Farming – AGB 335
Chair: Jose Zofio

The Impact of Innovation on Farm Level Productivity Growth: Evidence from the Irish Dairy Sector, Iordanis Parikoglou*, Gregory Emvalomatis, Fiona Thorne, and Doris Laepple

Estimating Technical, Revenue, Allocative, and Profit Efficiencies of Genetic Traits for Dairy Bulls and Cows, Christine Stephan*, Loren Tauer, and Heather Huson

Economic Inefficiency Measurement with Bad Outputs: Extensions of By-Production Models, Juan Aparicio, Magdalena Kapelko, and Jose L. Zofio*

DEA – AGB 336
Chair: Chao-Tzung Kang

A System of Incentives for Units in Multi-Group Organisations, Mohsen Afsharian*

Measuring Cost Efficiency in an Integrated Model of Production and Distribution: A Non-parametric Approach, Subhash Ray*

A Mixed Network DEA Model in the Presence of Shared Inputs and Shared Outputs, Chao-Tzung Kang*

12:30pm-2:00pm: Lunch

2:00pm-3:30pm: Plenary Session II – Topics on Stochastic Frontier Analysis – Storer Auditorium
Chair: William Horrace
Can Inefficiency Exist in the Presence of a Neoclassical Xorsist? A Response From the SF Bench, Subal Kumbhakar

The Use of Copulas in Stochastic Frontier Models, Peter Schmidt

3:30pm-4:00pm: Coffee Break

4:00pm-6:00pm: Parallel Sessions II

Network DEA – AGB 331
Chair: Antonio Peyrache

Modelling Firm Level Network Utility Costs with an Average System Model: A Simple Method to Control for Within Firm Heterogeneity in System Characteristics, David Saal*, Maria Nieswand, and Pablo Arocena

Pitfalls in Network DEA: The Case of DMUs with a Parallel or Series Internal Structure, Maria Silva*, and Dimitris Sotiros

The Regulation Impact on the Service Providers’ Efficiency in Brazil’s Sanitation Sector, Anne Carvalho, Raquel Sampaio, and Luciano Sampaio*

Network DEA: Summa Summarum, Antonio Peyrache* and Maria Silva

Advances – AGB 332
Chair: Andrew Johnson

Hinging Hyperplanes as a Nonparametric Estimator, Ole Olesen*, and John Ruggiero

A Bridge Too Far? The State of the Art in Combining the Virtues of Stochastic Frontier Analysis and Data Envelopment Analysis, Christopher Parmeter and Valentin Zelenyuk*

A Horse Racing Track to Compare Nonparametric and Parametric Efficiency Estimation Methods, Mark Andor and Stephan Sommer*

Axiomatic Nonparametric Production Functions: Relaxing Concavity and Homotheticity, Daisuke Yagi, Yining Chen, Andrew Johnson*, and Hiroshi Morita

Agriculture – AGB 333
Chair: Michael Tröster

Evaluating Russia’s Agricultural Performance, Nicholas Rada*
Assessing the Comparability Between SFA and LMM with Hierarchical Data: The Case of Technical Efficiency, Yashree Mehta*

Nutrient Use and Precision Agriculture Technology in the Corn Sector in the United States, Robert Mosheim* and David Schimmelpfennig

Integration of Transport Costs Into a Cost Function for Fertilizer Application and Effects on a Model Base Fertilizer Strategy, Michael Tröster*

Energy – AGB 334
Chair: Maryam Hasannasab

Cost Efficiency of Norwegian Electricity Distribution Companies: Disentangling Persistent and Transient Technical and Allocative Efficiency, Subal Kumbhakar, Ørjan Mydland*, Andrew Musau, and Gudbrand Lien

Resource Allocation in Multidivisional Multiproduct Firms: Examining the Divisional Productivity of Energy Companies, Binlei Gong and Robin C. Sickles*

User Cost of Capital and Factor Demand Modelling: Implications on Energy Demand and Technical Change Analysis, Sourour Baccar*

Benchmarking and Regulation: Scale Elasticity (SE) Measurement for Electricity Distribution Businesses (EBDs), Paul Rouse, Dimitris Margaritis, and Maryam Hasannasab*

Cross-Country Growth and Factor Bias – AGB 335
Chair: Daniel Henderson

Has the World Descended to Lower Economic Growth Path?, Ram Acharya*

Human Capital, Population Health and Economic Efficiency: A Two Stage Data Envelopment Analysis, Kai Du* and Valentin Zelenyuk

Firm Heterogeneous Factor-Biased Technological Change, Ruben Dewitte*

Factor Biased Technical Change: A Nonparametric Approach, Michele Battisti*, Massimo Del Gatto, and Christopher Parmeter

A Partial Elasticity of Substitution Production Function, Daniel Henderson* and Christopher Parmeter

Index Numbers – Storer Auditorium
Chair: Erwin Diewert
The Difference Approach to Productivity Measurement and Exact Indicators, Erwin Diewert* and Kevin Fox

Statistical Methods for Computing Proper Index Numbers, Chris O’Donnell*

A Complete Decomposition of Profit Change: Bennet and Luenberger Indicators, Juan Aparicio and Jose L. Zofio*

Industry Level Value Added and Productivity Decompositions, Kevin Fox, Erwin Diewert*, and Shipei Zeng

6:00pm-7:30pm: Cocktail Reception – Shalala Student Center
Thursday June 14th.

8:00am-9:00am: Arrival and Continental Breakfast
8:00am-5:00pm: Registration

9:00am-10:30am: Parallel Sessions III

**Education – AGB 331**
Chair: Panagiotis Ravanos

*The Effect of Additional Resources for Disadvantaged Students: Evidence from a Conditional Efficiency Model*, Kristof De Witte, Mike Smet, and Giovanna D’Inverno*

*Does the Efficiency of Higher Education Institutions Matter for Regional Economic Development?* Aleksei Egorov*

*The Transient and Persistent Efficiency of Italian and German Universities: A Stochastic Frontier Analysis*, Tommaso Agasisti* and Sabine Gralka

*A Value Efficiency Analysis BoD Model*, Panagiotis Ravanos* and Giannis Karagiannis

**SFA 2 – AGB 332**
Chair: Richard Hofler

*Distinguishing Heterogeneity and Inefficiency in a Panel Data Stochastic Frontier Model*, Christine Amsler*

*Estimation of a Production Frontier with Unobserved Managerial Ability*, Antonio Alvarez*, Carlos Arias, and William Greene

*Panel Data Extensions to Discrete Data Stochastic Frontier Models*, Richard Hofler* and Eduardo Fe

**Fisheries – AGB 333**
Chair: Andrew Ropicki


*Diversification, Efficiency and Productivity in Catch Share Fisheries*, Daniel Solís, Juan Agar*, and Julio del Corral
Evaluating the Impact of Individual Fishing Quota Management on Vessel Technical Efficiency in the Gulf of Mexico Grouper-Tilefish Commercial Fishery, Andrew Ropicki*, Larry Perruso, and Sherry Larkin

Productivity – AGB 334
Chair: Ryan Macdonald

Productivity Dynamics in Portugal: Did the Financial Crisis Have a Cleansing or Scarring Effect, Daniel Dias*

Analysis of Sectoral Productivity: Evidence from Developing and Developed Countries of Asia-Pacific, Niti Garg*

Intangible Capital in Canada: Recent Trends and its Contribution to Economic and Labour Productivity Growth, Ryan Macdonald* and Wulong Gu

Patents – AGB 335
Chair: Danny Leung

Patent Citation Network and Firm Productivity: The Case of Photovoltaic, Jong-Rong Chen*

A Two-Step Approach for Identifying the Optimal Innovation policy direction, Panagiotis Tziogkidis*

Measures of Innovation: Patent Statistics and Intangible Investments, Danny Leung* and Wulong Gu

Efficiency and the Environment – AGB 336
Chair: Finn Forsund

Parametric Latent Class Analysis with Färe-Primont TFP Decomposition: Application to French Grazing Livestock Farms, Hervé Dakpo*, Yann Desjeux, Philippe Jeanneaux, and Laure Latruffe

Competitiveness, Productivity and Efficiency Measurement... Do We Agree? A Critical Exploration Illustrated with Wood Industry Philippe Vanden Eeckaut*, Eliegbo Amouzou, and Anne-Laure Levet

Measuring Efficiency when Producing Intended Outputs and Generating Unintended Ones, Finn R. Forsund*

10:30am-11:00am: Coffee Break
11:00am-12:30pm: Plenary Session III – Frontiers in Banking – Storer Auditorium
Chair: Subal Kumbhakar

*Why Estimating Bank Efficiency is a Real Challenge*, Jaap Bos

*US Banking in the Post-Crisis Era*, Paul Wilson

12:30pm-2:00pm: Lunch

2:00pm-3:30pm: Parallel Sessions IV

**Applications of DEA – AGB 331**
Chair: Alfons Oude Lansink

*Modelling Production Technologies with Multiple Scalable Component Processes*, Ole Olsen, Victor Podinovski*, and Cláudia Sarrico

*Cardinality Constraints for Variable Selection in DEA*, Chris Rose, Antonio Peyrache*, and Gabriela Sicilia

*Dynamic Inefficiency of the European Union Meat Processing Industry*, Magdalena Kapelko, James Mutambo, and Alfons Oude Lansink*

**Plant Level Studies – AGB 332**
Chair: Gianluca Antonecchia

*An Input-Oriented Version of Johansen’s Plant-Capacity Measure*, Giovanni Cesaroni*

*Plant Capacity and Attainability: Exploration and Remedies*, Kristiaan Kerstens*, Jafar Sadeghi, and Ignace Van de Woestyne

*Productivity and Price-Setting by Multiproduct Firms*, Gianluca Antonecchia*

**Agriculture – AGB 333**
Chair: Simone Pieralli

*Vineyard Efficiency and Regulation On the Consequences of the 2008 EU Wine Policy Reform*, Stefan Seifert* and Marica Valente

*Efficiency of Prosecco Growers: A Panel Data Quantile Regression Approach*, Cristina Salvioni*
Estimating the Impacts of Changes in Weather Circadian Rhythms on French Agricultural Productivity, Simone Pieralli*

Novel Insights – AGB 334
Chair: Minyan Zhu

Network Competition and Team Chemistry in the NBA, Hyunseok Jung*, William Horrace, and Shane Sanders

Infrastructure, Resource Allocation, and Productivity Growth, Luis Orea*, Alberto Gude, and Luis Servén

A Nonparametric Measure for Competition in the UK Residential Mortgage Markets, Minyan Zhu* and Antonio Peyrache

Well-Being – AGB 335
Chair: Nicky Rogge

An Individual-Level Benefit-of-the-Doubt Composite Indicator Approach: Measuring Multidimensional Wellbeing in EU Member States, Pim Verbunt*

Efficiency and Subjective Well-Being in Heterogeneous Contexts: A Cross-Nation Study, Jose Cordero*, Cristina Polo, and Javier Salinas


Spatial SFA Applications – AGB 337
Chair: Oliver Haase

Spatial Dependence in Technical Efficiency Due to Common Farm Consultants: An Application to Spanish Dairy Farms, Inmaculada Álvarez, Luis Orea, and Alan Wall*

Government Investment and Water Quality: A Spatial Stochastic Frontier Analysis, Carolina Crispin Fory*

Dairy Farm Efficiency Measurement Using Spatial Stochastic Frontiers, Oliver Haase* and Bernhard Brümmer

3:30pm-4:00pm: Coffee Break

4:00pm-6:00pm: Parallel Sessions V
Special Session – Efficiency Estimation for Incentive Regulation – Storer Auditorium
Chair: Mark Andor

Futuristic Regulation: Incentivizing Innovative Technologies and New Markets in electricity Distribution, Roar Amundsveen and Hilde Marit Kvile*

The Cost of Regulatory Decentralization, Peter Bogetoft and Per Agrell*

Incentive Regulation of Electricity Distribution Networks in Finland, Timo Kuosmanen*

Combining Uncertainty with Uncertainty to Get Certainty? Efficiency Estimation for Regulatory Oversight, Mark Andor*, Christopher Parmeter and Stephan Sommer

Meta-Frontier – AGB 332
Chair: Ligia Melo

Assessing the Relative Efficiency of Individual Incentives and Profit-Sharing Plans in Non-team and Team-based Organizations, Marco Barrenechea-Mendez* and Jonathan Calleja-Blanco

The Price is Right! Profitability, Productivity and Capacity Utilization with Environmental Considerations, John Walden* and Min-Yang Lee

Energy Efficiency Performance of U.S. States: A Meta-Frontier Directional Technology Distance Function Approach, Osman Zaim*

The Effect of Taxes on the Performance of Firms. A Metafrontier Approach, Ligia Melo*

Banking – AGB 333
Chair: Diego Restropo-Tobon

Market Power and Efficiency in Banking: The Case of USA and Canada Salah U-Din*, David Tripe, and Md. Humayun Kabir

Efficiency and Productivity Dynamics of Indian Bank Branches, Abhiman Das*, Kankana Mukherjee and Subhash Ray

Credit Ratings and Cost Efficiency: Russian Banks, Irina Ipatova and Anatoly Peresetsky*

Non-Standard Profit Efficiency in Banking: A Copula Approach, Vivian Cruz Castaneda, Diego Restrepo Tobon, and Jim Sanchez Gonzalez
Geography, Bank Business Strategies, and Efficiency, Diego Restropo-Tobon*, Subal C. Kumbhakar, and Christopher F. Parmeter

Environmental Efficiency – AGB 334
Chair: Sebastian Riera

Environmental and Technical Efficiency in Spanish Ports, Beatriz Tovar* and Alan Wall

Environmental Efficiency Measurement: The Case of Small Holder Rubber Production in Sumatra, Indonesia, Bernhard Dalheimer* and Bernhard Brümmer

Performance Evaluation of Italian Water Utilities by Accounting for Quality and Environmental Issues, Laura Carosi*, Giovanna D’Inverno, Andrea Guerrini, and Giulia Romano

Environmental Efficiency of Grapevine Production in Arid Argentina, Sebastian Riera* and Bernhard Brümmer

Directional Distance – AGB 335
Chair: Felipe de Figueiredo Silva

How Important are Directions in Directional Distance Function Efficiency Measures? Saleem Shaik* and Joseph Atwood

Testing the Farm Size and Productivity in Nicaragua: A Non-parametric Analysis, Alexandre Almeida* and Boris Bravo-Ureta

Commodity Misallocation in Indian Agriculture: Revenue Potential from Productive Inefficiency, Flavius Badau* and Nicholas Rada

Land Use in the Brazilian Amazon: The Opportunity Cost of Preserving the Forest, Felipe de Figueiredo Silva*, Richard Perrin, and Lilyan Fulginiti

6:00pm-10:00pm: Gala Dinner – Rusty Pelican
Friday June 15th.

8:00am-9:00am: Arrival and Continental Breakfast
8:00am-12:00pm: Registration

9:00am-10:30am: Parallel Sessions VI

**Topics on Health – AGB 332**
Chair: Diogo Ferreira

*A DEA Study of Cost Efficiency in Treating Empyema at a UK Childrens’ Hospital*, Emmanuel Thanassoulis* and Alexander Takamura-Tweedy

*Efficiency vs. Quality and Access: The Case of Portuguese Public Hospitals* Rui Marques* and Diogo Ferreira

*Does Hospital Efficiency and Productivity Depend on Hospital Type?* Gary Ferrier, Hervé Leleu, Vivian Valdmanis, and Michael Vardanyan*

*Bundled Payments: Optimizing Tariffs for Health Care Systems Sustainability*, Diogo Ferreira*, Rui Marques, and Alexandre Nunes

**SFA 3 – AGB 334**
Chair: Alexander Stead

*Allocative Inefficiency under Heterogeneous Technology in Bolivian Agriculture*, Travis McArthur*

*A Double Hurdle Stochastic Earnings Frontier Model*, Khalid Maman Waziri

*Stochastic Frontier Analysis with Missing Data*, Alexander Stead* and Phill Wheat

**Firm Productivity – AGB 335**
Chair: Michele Battisti

*R&D and Firm Productivity Performance*, Michael Willox*

*Firm Productivity, Technological Heterogeneity and Endogenous Exports*, Emir Malikov*

*Technology-Specific Production Functions*, Michele Battisti, Filippo Belloc, and Massimo Del Gatto*
DEA 3 – AGB 336
Chair: Joseph Atwood

Inference in Dynamic, Nonparametric Models of Production: A Central Limit Theorem for Malmquist Indices, Alois Kniep, Leopold Simar, Paul Wilson*


Enhancements in Implementing Sub-Sample Bootstrapping in DEA and Quantile DEA Applications, Joseph Atwood*

China and the Environment – AGB 336
Chair Atakelty Hailu

Green Growth and Structural Change in Chinese Agricultural Sector During 1997-2014, Zhiyang Shen, Tomas Balezentis*, Xueli Chen, and Vivian Valdmanis

Marginal Abatement Cost Curve of CO2 Emissions in China’s Power Industry: An Engineering and Economic Combined Approach, Yujiao Xian and Ke Wang*

Economic Gains From Alternative Approaches to Carbon Control in China: Analysis Using Provincial Carbon Abatement Curves Derived From Bayesian Estimated Distance Functions, Atakelty Hailu* and Chunbo Ma

Applications of DEA – AGB 337
Chair: Magdalena Kapelko

Analyzing the Efficiency of Health Care Centers in Pakistan: An Application of Data Envelopment Analysis, Sadia Farooq

Directional Distance Function Technical Efficiency of Chili Production in Thailand, Wirat Krasachat* and Suthathip Yaisawarng

Dynamic Inefficiency Under By-production Framework and Determinants Influencing Corporate Responsibility Specific Inefficiency, Tadesse Getacher Engida*, Rao Xudong, and Alfons Oude Lansink

Corporate Social Responsibility and Operational Inefficiency: A Dynamic Approach, Encarna Guillamon-Saorin, Magdalena Kapelko*, and Spiro Stefanou

10:30am-11:00am: Coffee Break
11:00am-12:30pm: Plenary Session IV – Topics on Data Envelopment Analysis – Storer Auditorium
Chair: John Ruggiero

*Large-Scale DEA Applications for Policy Making in Agriculture, Mette Asmild

*Efficiency Driven System Design, Konstantinos Triantis

12:30pm-2:00pm: Lunch

2:00pm-3:30pm: Parallel Sessions VII

**Malmquist – AGB 331**
Chair: Jesus Pastor

*Cost Malmquist Productivity Index: From Output to Group, Walheer Barnabe*

*Total Factor Productivity Change Based on Partial Productivities: An Application to the Measurement of Input-Specific Productivity Change, Bernhard Mahlberg*, Juan Aparicio, and Jesús T. Pastor

*Productivity Growth and its Components in Chinese Agriculture, Wenqiang Bao* and Subhash Ray

*The Local Circularity Test for the Bilateral Malmquist Index, Jesus Pastor* and Knox Lovell

**Agriculture – AGB 333**
Chair: Saleem Shaik

*Determinants of Technical Efficiency in Brazilian Agriculture: A Regional Study of Corn and Soybean Crops, Pedro Soares* and Humberto Spolador

*The Scope for Improvement Among Norwegian Crop Farms Accounting for Farm Management and Socio-economic Factors: A Stochastic Frontier Analysis, Habtamu Alem*, Gudbrand Lien, J. Brian Hardaker

*Does Variability in Traditional (Title I) and Crop Insurance (Title X) Programs Affect Efficiency and Productivity? Saleem Shaik*

**Labor Productivity – AGB 334**
Chair: Suresh Aggarwal
A Half-Century of Stagnation: Labour Productivity in Ontario’s Gold Mining Industry, Karl Skogstad* and Robert Petrunia

Measuring Effectiveness of Public Employment Agencies, Markku Talonen*

Slowdown in Productivity Among BRIICS Countries - Pre and Post Financial Crisis, Suresh Aggarwal*

**Banking – AGB 335**
Chair: Ana Lozano-Vivas

Good and Bad Outputs in Bank Performance Modelling: A Relational Network DEA Approach, Stavros Kourtzidis*, Roman Matousek, and Nickolaos Tzeremes

Evaluating the Performance of Indian Domestic Banks Through the Lens of Pareto-Koopmans Efficiency, Karan Khati

Does Bank Market Value Depend on Banking Performance and Capital Structure? Claudia Curi and Ana Lozano-Vivas*

**Italy – AGB 336**
Chair: Camilla Mastromarco

Does Migrant Labor Inflate Productivity of Farmlands in Southern Italy? Marica Valente*

Local Governments’ Efficiency and its Heterogeneity: Empirical Evidence From a Panel Stochastic Frontier Analysis of Italian Municipalities 2010-2015 Tommaso Agasisti* and Francesco Porcelli

Just(ice) in Steady State, Angelo Zago* and Antonio Peyrache

Predicting Recessions in Italy: A Nonparametric Discrete Choice Models for Time Series, Camilla Mastromarco*, Leopold Simar, and Valentin Zelenyuk

**Financing – AGB 337**
Chair: Viktor Khanzhyn

Identifying Financing Constraints from Production Behavior, Laurens Cherchye, Bram De Rock, Annalisa Ferrando, Klaas Mulier, Marijn Verschelde*

LBO’s by Private Equity: Is it a Win-Win for Investors and Employees? Jaap Bos, Matteo Millone, Christopher Parmeter, and Paulo Rodrigues*
**Relationship Between Credit Conditions and Efficiency in Real Sector: Firm-Level Evidence**, Viktor Khanzhyn*

3:30pm-4:00pm: Coffee Break

4:00pm-5:30pm: Parallel Sessions VIII

**SFA Applications – AGB 331**
Chair: Surender Kumar

*Efficiency Analysis of the Indian Insurance Industry*, Subir Sen*

*Measuring Inventory Turnover Efficiency in Small & Medium-sized Retail Firms*, Jørgen Breivik*, Sverre Braathen Thyholdt, Øystein Myrland

*The Comparison of Stochastic Frontier Analysis with Panel Data Models*, Anbes Kidane*

*Cross-Country Variability in Impact of Climate Change on Total Factor Productivity*, Surender Kumar* and Madhu Khanna

**Regional Efficiency – AGB 332**
Chair: Stefanie Vanneste

*Effect of “Negative Clusters” on Productivity: The Case of Ukrainian Manufacturing Firms*, Volodymyr Vakhitov*

*A Conditional Efficiency and Visual Analytics Approach to Regional Smart Specialization*, Marco Angelini*, Cinzia Daraio, Francesco Leotta, Giuseppe Santucci, and Pierluigi Toma

*Local Government Efficiency and the Political Characteristics*, Stefanie Vanneste*

**Well Being – AGB 333**
Chair: Daniela Puggioni

*A Longitudinal Analysis of the Social Performance of Mining Firms Using Composite Indicators and the Malmquist Index*, Ana Camanho*, Renata Oliveira, and Andreia Zanella

*Measuring Income Inequalities: Beyond Gini*, Eduard Nežinský*

*The Maximization of World Human Development*, Daniela Puggioni* and Antonio Peyrache

**China – AGB 334**
Chair: Zhezhi Hou
How to Survive and Compete: The Impact of Information Asymmetry on Productivity, Man Jin*, and Subal Kumbhakar

Productivity, Markup and Price Dispersion: Evidence from China, Shunan Zhao*, Subal Kumbhakar, and Bing Qian

Productivity of Chinese Manufacturing Firms: A Semiparametric Smooth Coefficient model with Agglomeration Effect, Zhezhi Hou*, Man Jin, and Subal C. Kumbhakar

Agriculture – AGB 335
Chair: Jorge Pires

Impact Evaluation of Alternative Irrigation Technology in Crete: Correcting for Selectivity Bias, Maria Vrachioli*, Spiro Stefanou, and Vangelis Tzouvelekas

Adoption of New Varieties and Production Efficiency of Wheat Farmers in Tajikistan, Aziz Karimov*

Cost-Efficiency of Brazilian Water Distribution and Sewage Collection Services: Some Recent Evidence, Jorge Pires*, Fernando Garcia, and Ana Magnabosco

Tools – AGB 336
Chair: Pieter Jan Kerstens

A Total Factor Productivity Toolbox for MATLAB, Bert M. Balk, Javier Barbero, and Jose L. Zofio*

RHOMOLO: Dynamic Spatial General Equilibrium Model for EU Regions and Sectors, Andrea Conte*

A Visualization Tool to Compare Input-Output Mix Similarity and Scale of DMUs, Pieter Jan Kerstens*

5:30pm-6:00pm: Coffee Break

6:00pm-6:30pm: Closing Remarks – Storer Auditorium