



## **EWEPA XIX CONFERENCE PROGRAM**

**June 16<sup>th</sup> – 19<sup>th</sup>, 2026**

**Munich, Germany**

Conference venue:

**Science Congress Center Munich**

**Walther-Von-Dyck Str. 10, 85748 Garching bei München**



LAST UPDATED: 03.06.2026

CONFERENCE PROGRAM AT A GLANCE

<b>Tuesday, June 16<sup>th</sup></b>	
08:00 – 09:00	Registration, Tea and Coffee
09:00 – 09:15	Welcome session
09:15 – 10:15	Plenary 1 – Mette Asmild
10:15 – 10:45	Coffee break
10:45 – 12:15	Parallel sessions
12:15 – 13:30	Lunch
13:30 – 15:00	PhD sessions
15:00 – 15:30	Coffee break
15:30 – 17:00	Parallel sessions
17:00 – 19:00	Welcome drinks (conference venue)
<b>Wednesday, June 17<sup>th</sup></b>	
08:00 – 09:00	Registration, Tea and Coffee
09:00 – 10:00	Plenary 2 – Johan Swinnen
10:00 – 10:30	Coffee break
10:30 – 12:00	Parallel sessions
12:00 – 13:30	Lunch JPA meeting (Terra)
13:30 – 15:00	Parallel sessions
15:00 – 15:30	Coffee break
15:30 – 17:00	Parallel sessions
<b>Thursday, June 18<sup>th</sup></b>	
08:00 – 09:00	Registration, Tea and Coffee
09:00 – 10:00	Plenary 3 – Christoph Kaserer
10:00 – 10:30	Coffee break
10:30 – 12:00	Parallel sessions
12:00 – 13:30	Lunch ISEAPA meeting (Terra)
13:30 – 15:00	Special plenary session in Honor of Knox Lovell
15:00 – 15:30	Coffee break
15:30 – 17:00	Parallel sessions
19:00 –	Conference dinner <b>Augustiner Stammhaus</b> <a href="#">Neuhauser Str. 27, 80331 München</a>
<b>Friday, June 19<sup>th</sup></b>	
09:00 – 10:30	Life Achievement Award to Erwin Diewert
10:30 – 11:30	Bavarian brunch
11:30 – 13:00	Parallel sessions
13:00 – 14:00	Light lunch
14:00 – 15:30	Parallel sessions
15:30 – 16:00	Coffee break
16:00 – 17:10	Parallel sessions
17:15 – 17:30	Closing session

DETAILS OF SCIENTIFIC PROGRAM

		Terra	Jupiter	Venus 1	Mars 1	Mars 2
Tue (16 <sup>th</sup> )	09:00 – 09:15	Welcome session				
	09:15 – 10:15	Plenary 1 Mette Asmild				
	10:45 – 12:15	Agriculture 1	SFA methods 1	Sustainability & eco-eff 1	Regulation & Governance 1	Energy 1
	13:30 – 15:00	PhD Session 1	PhD Session 2	PhD Session 3		
	15:30 – 17:00	Organized session 1: Efficiency & sustainability	DEA methods 1	Electricity	Banking & Finance 1	Education 1
Wed (17 <sup>th</sup> )	09:00 – 10:00	Plenary 2 Johan Swinnen				
	10:30 – 12:00	Special Session: Index numbers	Agriculture 2	SFA methods 2	Manufacturing 1	Health
	13:30 – 15:00	Organized Session 2: Agricultural TFP & Environment	DEA methods 2	Energy 2	Country analysis 1	Regulation & Governance 2
	15:30 – 17:00	Organized session 3: Composite indicators	Agriculture 3	Water	Productivity 1	Energy 3
Thu (18 <sup>th</sup> )	09:00 – 10:00	Plenary 3 Christoph Kaserer				
	10:30 – 12:00	DEA methods 3	Sustainability & eco-eff 2	ACM 1	Productivity 2	Oxera 1
	13:30 – 15:00	Special plenary session in Honor of Knox Lovell				
	15:30 – 17:00	Sustainability & eco-eff 3	ACM 2 + Oxera 2	Agriculture 4	Banking & Finance 2	Justice 1
Fri (19 <sup>th</sup> )	09:00 – 10:30	Life-time Achievement Award to Erwin Diewert				
	11:30 – 13:00	DEA methods 4	Productivity 3	Justice 2	Education 2	Sustainability & eco-eff 4
	14:00 – 15:30	Organized session 4: Efficiency in system design	Agriculture 5	SFA methods 3	Country analysis 2	Sustainability & eco-eff 5
	16:00 – 17:10	Manufacturing 2	Sustainability & eco-eff 6	Justice 3	Education 3	Gender & Social Efficiency
	17:15 – 17:30	Closing session				

**TUESDAY JUNE 16th, 2026**

**Tue | 09:15-10:15 | Terra & Jupiter - Plenary 1**

**WHAT IS LURKING IN THE SHADOWS? INTERPRETING ENVIRONMENTAL TRADE-OFFS IN DEA**  
**Mette Asmild**, Professor, Section for Production, Markets and Policy, Department of Food and Resource Economics (IFRO), University of Copenhagen

*Chair:* Moriah Bostian

**Tue | 10:45-12:15 | Terra - Agriculture 1**

**CLIMATE-SMART AGRICULTURE AND TECHNICAL EFFICIENCY UNDER EXTREME WEATHER: A LATENT CLASS STOCHASTIC FRONTIER ANALYSIS OF SOYBEAN FARMS IN SAO PAULO, BRAZIL**  
**Larissa Gui Pagliuca**; Marcelo Jose Carrer; Rodrigo Damasceno; Marcela de Mello Brandao Vinholis

**PREDICTORS OF EMISSION-ADJUSTED EFFICIENCY IN POLISH CROP FARMS: NONLINEARITIES, INTERACTIONS AND POLICY THRESHOLDS**

**Jakub Staniszewski**; Bazyli Czyzewski; Anna Matuszczak

**TRADE-OFFS BETWEEN GOOD AND BAD OUTPUTS IN GERMAN DAIRY FARMS**

**Fabian Frick**, Johannes Sauer

**TECHNICAL EFFICIENCY OF SEEMINGLY “RELATED” COW AND CALF PRODUCTION.**

**Federico Garcia Suarez**; Camilo Alvarez Garcia; Mercedes Motta

**Tue | 10:45-12:15 | Jupiter - SFA Methods 1**

**INCORPORATING INTERMEDIATE OUTPUTS INTO STOCHASTIC COST FRONTIER MODELS**

**Alexander Stead**; Trang Tran; Phill Wheat

**INCORPORATING INTERMEDIATE OUTPUTS INTO SFA USING AN EQUATION SYSTEM APPROACH WITH APPLICATION TO TRANSPORT**

**Trang Tran**; Phill Wheat; Alexander Stead; Andrew Smith

**THE COST OF REGULARITY: EMPIRICAL EVIDENCE ON MONOTONICITY, QUASI-CONCAVITY, AND FRONTIER FLEXIBILITY**

**Pietro Sala**; Maria Vracholi; Fabian Frick; Johannes Sauer

**DIFFERENCE-IN-DIFFERENCES WITH STOCHASTIC INEFFICIENCY**

**Christopher Parmeter**; Samuele Centorrino

**Tue | 10:45-12:15 | Venus 1 – Sustainability & Eco-efficiency 1**

**EVALUATING HEALTH, ENVIRONMENTAL AND CIRCULARITY TRADE-OFFS OF WASTE DERIVED FUELS IN THE CEMENT INDUSTRY**

**Maria Michali**

**NAVIGATING SUSTAINABILITY TRADE-OFFS: BENCHMARKING ORGANIC AND CONVENTIONAL DAIRY FARMS UNDER CARBON TAXATION**

**Andreas Michael Wolff**; Mette Asmild

**HOW DOES RESTORATION SHIFT THE FRONTIER: THE ECO-EFFICIENCY OF SPECIES-RICH GRASSLANDS**

Moritz Leonhard Ptacek

**FARMERS' OPPORTUNITY COSTS OF BIODIVERSITY PROVISION AND AGRI-ENVIRONMENTAL PAYMENTS**

Carolin Canessa, Philipp Mennig, Johannes Sauer

**Tue | 10:45-12:15 | Mars 1 – Regulation & Governance 1**

**IMPACT OF OPERATING SUBSIDIES ON SEWERAGE EFFICIENCY**

Tomohiro Kitamura

**MODELING SPATIAL COOPETITION IN ENVIRONMENTAL EFFICIENCY: A NON-PARAMETRIC APPROACH FOR FAIR REGIONAL GOVERNANCE**

Yunlong Zhang; Emili Grifell-Tatje; Zhiyang Shen

**EFFICIENCY OF CENTRAL GOVERNANCE: A STOCHASTIC INPUT DISTANCE FUNCTION ANALYSIS**

Nan Jiang

**A DEA BASED MODEL OF SEWAGE TREATMENT COSTS WITH MULTIPLE PLANTS AND SHARED OPERATIONAL MANAGEMENT**

David Saal; Takayoshi Nakaoka; Tomoyasu Tanaka

**Tue | 10:45-12:15 | Mars 2 – Energy 1**

**EXPLORING CONDITIONAL DEA FOR DETERMINING REVENUE CAPS FOR NORWEGIAN ELECTRICITY DSOS**

Havard Bergheim Holvik

**THE EFFECT OF SMALL-SCALE ELECTRICITY GENERATION ON THE COST AND EFFICIENCY OF ELECTRICITY DISTRIBUTORS: A THRESHOLD RIDGE APPROACH**

Fatemeh Jamhiri; Kristofer Mansson; Par Sjolander

**STATIC AND DYNAMIC EFFICIENCY ASSESSMENT FOR EUROPEAN GAS TRANSMISSION: THE ACER STUDY**

Per J. Agrell

**Tue | 13:30-15:00 | Terra – PhD Session 1**

*Chair:* Tamas Krisztin

**CONDITIONAL FRONTIER DIAGNOSTICS OF STRUCTURAL PRODUCTIVITY CONSTRAINTS UNDER CLIMATE STRESS: EVIDENCE FROM KENYAN SMALLHOLDER AGRICULTURE**

Denis Momanyi

*Discussant:* Ariel Ortiz-Bomba

**UNDERSTANDING THE RELATIONSHIP BETWEEN U.S. AGRICULTURAL LABOR AND MACHINERY**

Linge Yang

*Discussant:* Simone Pieralli

**ECONOMIES OF SCOPE IN CONVENTIONAL AND ORGANIC FARMING**

William Louis Reingaard Vissing

*Discussant:* Tamas Krisztin

**Tue | 13:30-15:00 | Jupiter – PhD Session 2**

*Chair:* Frederic Ang

**BY-PRODUCTION EFFICIENCY ANALYSIS UNDER A CAP-AND-TRADE FRAMEWORK**

Nicolas Marissiaux

*Discussant:* Herve Dakpo

**META GREEN INNOVATION EFFICIENCY IN EUROPEAN REGIONS: SPATIAL SPILLOVERS FROM REGIONAL FINANCIAL DEVELOPMENT**

Myungjun Kim

*Discussant:* Stavros Kouimtzis

**TRANSITIONING FROM LIVESTOCK TO CROP PRODUCTION: A BAYESIAN STOCHASTIC RAY PRODUCTION FRONTIER ANALYSIS**

Jeronya Mbiatat Petnkeu

*Discussant:* Frederic Ang

**Tue | 13:30-15:00 | Venus 1 – PhD Session 3**

*Chair:* Chris O'Donnell

**A COPULA-BASED FRAMEWORK FOR IDENTIFYING CONGESTION IN DATA ENVELOPMENT ANALYSIS**

Zakiatul Wildani

*Discussant:* Cinzia Daraio

**EVALUATING TEACHING EFFICIENCY IN EUROPEAN UNIVERSITIES USING NONPARAMETRIC TECHNIQUES**

Andreea Monica Munteanu

*Discussant:* Chris Parmeter

**EVALUATING MULTIDIMENSIONAL PERFORMANCE IN THE EUROPEAN UNION: A COMPOSITE INDEX APPROACH TO EUROPE 2030**

Jonathan Alulea Pembwe

*Discussant:* Chris O'Donnell

**Tue | 15:30-17:00 | Terra – Organized session 1: Efficiency and Sustainability**

**EFFICIENCY AND SUSTAINABILITY IN EUROPEAN AGRICULTURE: EVIDENCE FROM THE AGENRES PROJECT**

This organized session presents selected results from the AgEnRes project, focusing on the joint assessment of productivity, environmental performance, and energy efficiency in European agriculture. The contributions combine methodological advances in efficiency and frontier analysis with newly integrated economic, structural, and environmental data. By linking FADN, structural surveys, and biophysical indicators, the papers move beyond conventional productivity measures toward multidimensional performance assessment. Empirical evidence covers multiple European countries and production systems,

with particular attention to energy use, emissions, and policy impacts. Together, the session offers insights relevant for researchers and policymakers concerned with sustainable agricultural transitions.

**ENVIRONMENTAL PRODUCTIVITY MEASUREMENT USING SHADOW PRICES: AN APPLICATION TO DUTCH DAIRY FARMS**

Kexin Wang

**INTEGRATING ECONOMIC, STRUCTURAL AND ENVIRONMENTAL DATA FOR MULTI-DIMENSIONAL EFFICIENCY ANALYSIS IN EUROPEAN AGRICULTURE**

Tamás Krisztin

**A CROSS-COUNTRY COMPARISON OF LONG- AND SHORT-TERM NON-RENEWABLE ENERGY USE EFFICIENCY IN EUROPEAN AGRICULTURE**

K. Herve Dakpo

**TECHNOLOGICAL HETEROGENEITY AND HETEROGENEOUS SUBSIDY EFFECTS ON TECHNICAL EFFICIENCY: EVIDENCE FROM SWEDISH DAIRY FARMS**

Zhen Chen; Ioannis Skevas; Vivian Wei Hung

**Tue | 15:30-17:00 | Jupiter – DEA Methods 1**

**DEVELOPMENT AND APPLICATION OF A METHODOLOGY FOR ASSESSING THE EFFICIENCY OF SUSTAINABLE DEVELOPMENT USING DEA, SHANNON ENTROPY, AND MACHINE LEARNING**

Thomas E. Pappas; Roxani Karagiannis; Georgios Tsaples; Andreas C. Georgiou

**GAIN-LOSS PORTFOLIO EFFICIENCY AND ASSET-PRICING BOUNDS: A DIRECTIONAL DISTANCE APPROACH**

Maryam Hasannasab; Dimitris Margaritis

**EVERY COIN HAS TWO SIDES: AN EXTENDED FRAMEWORK FOR MODELING BENEFICIAL AND HARMFUL BY-PRODUCTS**

Yunguo Mu; Zhiyang Shen; Michael Vardanyan

**ENHANCING FDH BY PRODUCTION TRADE-OFFS**

Mahmood Mehdiloo; Grammatoula Papaioannou; Victor Podinovski

**Tue | 15:30-17:00 | Venus 1 – Electricity**

**DISTINGUISHING HIGH-IMPACT AND ATYPICAL OUTLIERS IN REGULATION: EVIDENCE FROM GERMAN ELECTRICITY NETWORKS**

Mohsen Afsharian; Peter Bogetoft

**TOTEX-BASED REGULATORY BENCHMARKING: EUROPEAN LESSONS FOR THE BRAZILIAN ELECTRICITY DISTRIBUTION FRAMEWORK**

Ana Lopes Ahn; Bruno Vilela; Heinz Ahn Heinz; Carolin Ladda; Roberto Mesquita; Roger dos Reis Alves

**OPTIMAL MERGERS AND SECTOR RESTRUCTURING**

Peter Bogetoft

**FRONTIER REGULATION OF ELECTRICITY DISTRIBUTION: WHY ECONOMISTS ARE WRONG AND ENGINEERS ARE ONLY HALF RIGHT**

Kristiaan Kerstens; Stefano Nasini; Miguel Alves Pereira

**Tue | 15:30-17:00 | Mars 1 – Banking & Finance 1**

**A GROUP-BASED PROFITABILITY GAP DECOMPOSITION MODEL: AN APPLICATION TO TAIWANESE AND CHINESE CITY BANKS**

Xiang Chen; Xisi Chen

**THE EFFECT OF CORPORATE SOCIAL RESPONSIBILITY ON BANK PERFORMANCES: AN APPLICATION OF NETWORK STOCHASTIC FRONTIER ANALYSIS**

Chu-Nan Hu; Kuo-Jui Huang

**ASSESSING THE EFFICIENCY OF EUROPEAN LISTED REGIONAL BANKS: A CONDITIONAL NONPARAMETRIC APPROACH**

Anamaria Aldea; Luiza Bădin; Carmen Lipara

**COST, OUTREACH AND GENDER: AN EMPIRICAL ANALYSIS OF SOUTH ASIAN MICROFINANCE INSTITUTIONS**

Sayati Ghosh; Simanti Bandyopadhyay

**Tue | 15:30-17:00 | Mars 2 – Education 1**

**FEED A COLD: NEW EVIDENCE ON THE IMPACT OF COVID-19 ON SCHOOL ATTENDANCE AND ACHIEVEMENT**

Kathy Hayes; Lori Taylor; Shawna Grosskopf; Laura Razzolini

**ZERO INEFFICIENCY AND LATENT CLASS STOCHASTIC FRONTIER MODEL AND ITS APPLICATION**

Yi-Wun Chen

**TWO DECADES OF PUBLIC SPENDING EFFICIENCY IN EU COMPULSORY EDUCATION**

Giovanni Antonini; Tommaso Agasisti

**NETWORK DEA MODEL FOR EFFICIENCY ANALYSIS OF THE UNIVERSITIES IN THE UK**

Akram Dehnokhalaji; Oleg Badunenko

**WEDNESDAY JUNE 17th, 2026**

**Wed | 09:00-10:00 | Terra & Jupiter - Plenary 2**

**FINANCING AGRICULTURAL PRODUCTIVITY GROWTH IN TIMES OF GLOBAL DISORDER**

**Johan Swinnen**, Director General, International Food Policy Research Institute (IFPRI)

*Chair:* Spiro E. Stefanou

**Wed | 10:30-12:00 | Terra – Special session: Index numbers**

**WHAT SHOULD A PRODUCTIVITY INDEX MEASURE? COHERENCE, AGGREGATION, AND INDEX NUMBER THEORY**

*Chair:* Christopher Parmeter

**ON THE THEORY AND PRACTICE OF PROPER INDEXES**

Erwin Diewert

**PROPER QUANTITY INDEXES FOR COHERENT PRODUCTIVITY COMPARISONS**

Christopher O'Donnell

**Wed | 10:30-12:00 | Jupiter – Agriculture 2**

**HOW CAP SUBSIDIES AFFECT TECHNICAL EFFICIENCY: EVIDENCE FROM HUNGARIAN DAIRY FARMS USING AN ENDOGENEITY-CORRECTED DYNAMIC BAYESIAN SFA**

Lajos Barath; Andrzej Pisulewski; Imre Fertó; Jerzy Marzec

**IS BIO-INPUT ADOPTION ASSOCIATED WITH TECHNICAL EFFICIENCY? EVIDENCE FROM SOYBEAN FARMS IN BRAZIL**

Rodrigo Damasceno; Marcelo Jose Carrer; Hildo Meirelles de Souza Filho; Marcelo de Mello Brandao Vinholis; Larissa Gui Pagliuca

**A SYSTEMATIC REVIEW OF THE NET CONTRIBUTION OF PESTICIDES ON AGRICULTURE: ACCOUNTING FOR ECONOMIC, ENVIRONMENTAL, AND SOCIAL EFFECTS**

Xiaojie Wen; Niklas Mohring

**A PROXY-VARIABLE INPUT DISTANCE FUNCTION FOR MULTI-OUTPUT PRODUCTION: EVIDENCE ON FERTILIZER AND PESTICIDE REDUCTION IN EU AGRICULTURE**

Lukas Cechura; Zdenka Zakova Kroupova; Jiri Vacek; Subal C. Kumbhakar

**Wed | 10:30-12:00 | Venus 1 – SFA Methods 2**

**STANDARD STOCHASTIC FRONTIER ANALYSIS FRAMEWORK WITH DEPENDENCY BETWEEN INEFFICIENCY AND NOISE**

Zangin Zeebari; Scott Hacker

**INCORPORATING INTERMEDIATE OUTPUTS INTO SFA USING AN EQUATION SYSTEM APPROACH: AN EXTENSION TO PANEL DATA**

Phill Wheat

**PUBLIC SUBSIDY AND COST EFFICIENCY IN FINNISH THEATRES**

Christopher Parmeter; Marta Zieba

**SHAPE-AWARE DEEP LEARNING FOR MODELS OF PRODUCTION**

Artem Prokhorov; Zheng Wei; Huiyan Sang; Yu Ma

**Wed | 10:30-12:00 | Mars 1 – Manufacturing 1**

**SIZE THRESHOLDS AND THE ADOPTION OF AI-BASED TECHNOLOGIES: EVIDENCE FROM SPANISH MANUFACTURING FIRMS**

Luis Orea; Inmaculada Alvarez; Christopher Parmeter; Desiderio Romero

**FROM FUNDS TO FRONTIERS: HOW PON E&C SHAPES EFFICIENCY IN ITALIAN MANUFACTURING SECTOR**

Marco Alberto De Benedetto; Camilla Mastromarco; Anna Rita Dipierro

**PARETO KOOPMANS EFFICIENCY AT THE UNIT AND THE INDUSTRY LEVEL: AN APPLICATION TO INDIAN MANUFACTURING**

Subhash C Ray

**COMPARING PERFORMANCE USING ADDITIVE MODELS BASED ON REGRESSION SPLINES: AN APPLICATION TO FIRMS IN MAJOR EUROPEAN COUNTRIES WITHIN THE MEAT MANUFACTURING INDUSTRY**

Juan Aparicio; Victor J. Espana; Magdalena Kapelko

**Wed | 13:30-15:00 | Mars 2 – Health**

**WHEN PARALLEL NETWORK DEA MEETS AGGREGATED DATA: LIMITS OF PROCESS-LEVEL DIAGNOSIS IN PUBLIC HOSPITALS**

Marta Abreu; Miguel Pereira

**THE MANAGERIAL USE OF EFFICIENCY INFORMATION IN PUBLIC HOSPITALS**

Paul Rouse; Dimitris Margaritis

**A MULTI-FRONTIER APPROACH TO SUSTAINABILITY: PRODUCTIVITY ANALYSIS IN ECONOMIC, ENVIRONMENTAL, AND SOCIAL DIMENSIONS**

Wenzhuo Zhou; Zhiyang Shen; Michael Vardanyan

**MAPPING DIET EFFICIENCY GAPS: A SLACK-BASED BENCHMARKING APPROACH**

Gabriel Rosero; Liesbeth Colen

**Wed | 13:30-15:00 | Terra – Organized session 2: Agricultural TFP and environment**

**Session organized by the European Commission Joint Research Centre**

**AGRICULTURAL PRODUCTIVITY SLOWDOWN UNDER ENVIRONMENTAL PRESSURE: COMPETITIVENESS IMPLICATIONS ACROSS SCALES**

Agricultural productivity growth is central to global food security, farm incomes, and environmental sustainability, yet recent decades have witnessed a marked slowdown in total factor productivity (TFP). This session examines the role of weather extremes and climate change as non-marketed inputs shaping agricultural performance from global to local scales. Combining macro-level evidence with micro-level farm data, the contributions assess the persistence, magnitude, and distributional effects of climate shocks on productivity and competitiveness. The session emphasizes policy-relevant insights on resilience and adaptation in an increasingly competitive international environment. A clear message for policymakers is complemented by methodological discussion and audience engagement.

*Chair:* Simone Pieralli

*Discussant:* Bob Chambers

**THE PERSISTENCE OF CLIMATE SHOCKS ON GLOBAL AGRICULTURAL PRODUCTIVITY GROWTH**

Ariel Ortiz-Bobea; Yurou He; David B. Lobell

**AN ENVIRONMENTAL EXTENSION OF THE FARM ACCOUNTANCY DATA NETWORK USING GEOLOCATIONS: A CASE STUDY ON FARM CLIMATE VULNERABILITY**

Ana Klinnert; Kevin Schneider

**MEASURING THE EXTREME EFFECTS OF WEATHER ON FRENCH AGRICULTURAL FARMERS**

Simone Pieralli

**Wed | 13:30-15:00 | Jupiter – DEA Methods 2**

**EXTENSIONS OF DEA–MARKOV MODELS WHEN TARGETS, PLANNING HORIZON AND DMUS ARE CO-DESIGNED**

Andreas Georgiou; Emmanuel Thanassoulis; Konstantinos Kaparis; Georgios Tsaples

**NONPARAMETRIC PRODUCTION APPROACH TO HEDONIC PRICE FUNCTIONS**

Kassoum Ayouba; Herve Leleu

**WINDOW-BASED DYNAMICS IN CHANCE-CONSTRAINED DATA ENVELOPMENT ANALYSIS MODEL WITH OPTIMAL CONTROL THEORY PRINCIPLES: A TOTAL COST EFFICIENCY MODEL**

Paulo Nocera Alves Junior; Isotilia Costa Melo

**A THREE-STAGE NETWORK DEA APPROACH FOR MODELING RESILIENCE AND DYNAMIC EFFICIENCY UNDER EXTREME CLIMATE EVENTS**

Juan Pablo Henao Henao; Maria Vrachlioli; Roberto Villalba; Johannes Sauer

**Wed | 13:30-15:00 | Venus 1 – Energy 2**

**EFFICIENCY MEASUREMENT THROUGH NON-PARAMETRIC AND PARAMETRIC TECHNIQUES: ACCOUNTING FOR SAMPLE HETEROGENEITY AND CONTEXTUAL VARIABLES IN EUROPEAN ELECTRICITY DSO**

Rui Rita; Vitor Marques; Diogo Bárbara

**PERSISTENT AND TRANSIENT PRODUCTIVE INEFFICIENCY IN THE SWISS HYDROPOWER SECTOR**

Samuel Schenk; Massimo Filippini

**THE EFFECTS OF SETTLEMENT STRUCTURES AND WIND PARK PLANNING ON THE EFFICIENCY OF ELECTRICITY DISTRIBUTION IN SWEDEN**

Maria Nieswand

**COST WEIGHTS AS MODEL OUTPUT IN A WORLD OF RAPID AND ASYMMETRIC PRICE INCREASES**

Brita Engen Finne; Kathrine Aasvik

**Wed | 13:30-15:00 | Mars 1 – Country Analysis 1**

**MEASURING AND EXPLAINING RESOURCE IMPACTS ON GLOBAL INNOVATION PERFORMANCES**

Barnabe Walheer

**SPATIAL SPILLOVERS AND PROVINCIAL ECONOMIC EFFICIENCY IN VIETNAM: EVIDENCE FROM A SPATIAL STOCHASTIC FRONTIER APPROACH**

Thanh Viet Nguyen; Michel Simioni

**FRONTIER ANALYSIS OF ECO-EFFICIENCY GAPS: EVIDENCE FROM EUROPEAN COUNTRIES**

Golnaz Amjadi; Charles-Henri Di Maria

**MEASURING PRODUCTIVITY GROWTH USING MACHINE LEARNING. AN APPROACH BASED ON EFFICIENCY ANALYSIS TREES APPLIED TO OECD COUNTRIES**

Mateusz Wojniak; Magdalena Kapelko; Juan Aparicio; Marta Zieba

**Wed | 13:30-15:00 | Mars 2 – Regulation & Governance 2**

**BEYOND EVALUATION SUITES FOR LLMS: ROBUST PARTIAL-FRONTIER COST-EFFECTIVENESS USING TOKEN PRICES AND USER PREFERENCES**

Simone Di Leo

**WHY TAX ADMINISTRATIONS DO NOT FULLY ENFORCE: A RATIONAL INEFFICIENCY APPROACH**

Ebrahim Rezaei; Josef Jablonsky

**POLITICS, REVEALED PREFERENCES AND LOCAL SPENDING PERFORMANCE: A BENEFIT OF THE DOUBT APPROACH**

Lorenzo Catalano; Giovanna D'Inverno; Kristof De Witte

**CONSUMPTION EFFICIENCY AND POPULATION AGING: EVIDENCE FROM EXPENDITURE FRONTIERS IN BRAZIL**

Alexandre Nunes Almeida; Carlos R. Azzoni; Subal C. Kumbhakar

**Wed | 15:30-17:00 | Terra – Organized session 3: Composite indicators**

**BENCHMARKING AND MONITORING WITH COMPOSITE INDICATORS**

This organized session brings together researchers and practitioners working on the methodological development and applied use of composite indicators and scoreboards. Co-organised in collaboration with the European Commission's Joint Research Centre and the Competence Centre on Composite Indicators and Scoreboards (CC-COIN), the session highlights recent advances in Benefit-of-the-Doubt and related frameworks. The contributions cover innovations in benchmarking methodologies as well as applications to health care, education, justice, industry, social rights, and regional development. Emphasis is placed on robustness, conditional assessments, and interpretability for policy monitoring. The session aims to foster interdisciplinary exchange and strengthen links between research and policy practice.

*Chair:* Giannis Karagiannis

**A GENERALIZED DIRECTIONAL DISTANCE BENEFIT OF THE DOUBT MODEL FOR INTERVAL INDICATOR DATA**

Nicky Rogge

**SUSTAINABLE RURAL DEVELOPMENT IN SEMIARID REGIONS: A STUDY OF THE CAATINGA BIOME IN BRAZIL**

Jefferson Staduto; Andreia Zanella; Hermilio Vilarinho; Ana S. Camanho

**UNVEILING COMPANY READINESS FOR INDUSTRY 4.0 USING BENEFIT-OF-THE-DOUBT MODELS**

Hermilio Vilarinho; Andre Guimaraes; Eduardo Oliveira; Teresa Pereira

**A ROBUST CONDITIONAL ASSESSMENT OF PERFORMANCE TRENDS IN EDUCATION AND TRAINING SYSTEMS OF EUROPEAN REGIONS**

Fernando J. Osorio; Flavia Barbosa; Giovanna D’Inverno; Ana S. Camanho

**AN INTERVAL SCALE BENEFIT-OF-THE-DOUBT MODEL**

Roxani Karagiannis; Giannis Karagiannis

**A COMPOSITE PERFORMANCE INDICATOR FOR COURTS OF JUSTICE**

Giannis Karagiannis; Stavros Kourtzidis; Panagiotis Ravanos

**EVALUATING THE EUROPEAN PILLAR OF SOCIAL RIGHTS: A BENEFIT-OF-THE-DOUBT APPROACH WITH COMMON WEIGHTS**

Laura Carosi; Giovanna D’Inverno; Davide Zucchini

**Wed | 15:30-17:00 | Jupiter – Agriculture 3**

**MANAGEMENT CONTROL SYSTEMS AND PRODUCTIVE PERFORMANCE OF SPANISH AGRI-FOOD SMES**

Beatriz Garcia-Cornejo; Jose Antonio Perez-Mendez; Alan Wall

**BALANCING ENVIRONMENTAL, SOCIAL, AND ECONOMIC SUSTAINABILITY GOALS: TRADE-OFFS FACED BY SMALLHOLDER FARMERS IN CHINA**

Gaofei Yang; Maria Vrachioli; Johannes Sauer

**SENSITIVITY OF FARM RESILIENCE TO ALTERNATIVE DROUGHT THRESHOLDS: THE CASE OF SMALLHOLDER FARMING IN MALAWI**

Carlos Boke Pascual; Fabian Frick; Johannes Sauer

**IDENTIFYING THE IMPACTS OF CLIMATE AND WEATHER ON ARABLE FARMS' PERFORMANCE**

Raushan Bokusheva

**Wed | 15:30-17:00 | Venus 1 – Water**

**ANALYSING PRODUCTIVITY AND EFFICIENCY IN THE NORWEGIAN AQUACULTURE INDUSTRY: A METAFRONTIER DEA APPROACH**

Yajie Liu

**VALUING WATER QUALITY AND QUANTITY TRADE-OFFS FROM IRRIGATION: AN INTEGRATED BIO-PHYSICAL - PRODUCTIVITY APPROACH**

Tiho Ancey; Moriah Bostian; Akash Ghokale; Francisco Rosas

**EVALUATING IRRIGATION WATER PRODUCTIVITY, SHADOW PRICES, AND PER-HECTARE WATER VALUATION IN VINEYARDS USING STOCHASTIC FRONTIER ANALYSIS**

Carlos Bopp; Roberto Jara-Rojas; Boris Bravo-Ureta; Alejandra Engler

**LINKING SUSTAINABILITY EFFICIENCY TO FARMERS' WILLINGNESS TO ADOPT IMPROVED WASTEWATER MANAGEMENT: EVIDENCE FROM COLOMBIAN COFFEE FARMS**

Maria Vrachioli; Amer Ait Sidhoum

Wed | 10:30-12:00 | Mars 1 – Productivity 1

**INTANGIBLES IN TANGIBLE PRODUCTIVITY DISCREPANCIES**

Charles-Henri DiMaria

**STATISTICAL INFERENCE FOR CONSUMER PRICE INDICES**

Valentin Zelenyuk; Shirong Zhao

**MAKING INFERENCES ABOUT DIFFERENCES IN PRODUCTIVITY ACROSS GROUPS IN NON-PARAMETRIC, CROSS-SECTIONAL SETTINGS**

Paul Wilson

**SATO-VARTIA PRODUCTIVITY INDEX**

Hideyuki Mizobuchi; Valentin Zelenyuk

Wed | 15:30-17:00 | Mars 2 – Energy 3

**IS SPAIN'S ENERGY VOUCHER LIGHTING THE WAY FOR THE POOR? A MICROECONOMIC EVALUATION OF THE BONO SOCIAL ELECTRICO**

Ana Rodriguez; Manuel Llorca

**CARBON MITIGATION COST WITH MARKET DISTORTIONS: EVIDENCE FROM POWER PLANTS IN CHINA**

Chunbo Ma

**BALANCING OUTPUT GROWTH AND ENERGY EFFICIENCY GOALS IN INDIAN MANUFACTURING: SOME ALTERNATIVE SCENARIOS**

Kankana Mukherjee

**INTEGRATING EXERGY INTO DEA: A THERMODYNAMICALLY CONSTRAINED EFFICIENCY BENCHMARK**

Anatoliy Goncharuk; Biresh Sahoo

**THURSDAY JUNE 18th, 2026**

**Thu | 09:00-10:00 | Terra & Jupiter - Plenary 3**

**THE COST OF CAPITAL IN REGULATED NETWORKS: HAVE WE MADE ANY PROGRESS?**

**Christoph Kaserer**, Dean of TUM School of Management and Professor of Finance, Technical University of Munich

*Chair:* Johannes Sauer

**Thu | 10:30-12:00 | Terra – DEA Methods 3**

**ENDOGENEITY IN NONPARAMETRIC PANEL DATA ESTIMATION: APPLICATION TO CONDITIONAL PRODUCTION FRONTIERS**

Camilla Mastromarco; Leopold Simar; Anne Vanhems

**SINGLE INDEX MODELS FOR NONPARAMETRIC CONDITIONAL FRONTIERS**

Catherine Cazals; Jean-Pierre Florens; Leopold Simar

**GUIDING INTO THE NEW SPACE ERA: AN EFFICIENCY EVALUATION OF ITALIAN SPACE FIRMS**

Pierluigi Toma; Anna Rita Dipierro

**COMBINING MULTICRITERIA METHODS WITH EFFICIENCY ANALYSIS: A CONICAL FDH DIRECTIONAL LUENBERGER APPROACH INCLUDING TIME-VARYING PREFERENCES**

Cinzia Daraio; Thyago Nepomuceno; Leopold Simar

**Thu | 10:30-12:00 | Jupiter – Sustainability & Eco-efficiency 2**

**PERSPECTIVES FOR BRAZILIAN SOCIOBIODIVERSITY PRODUCTION: A REGIONAL ANALYSIS FOR THE PERIOD 2008-2025**

Luisa Fancelli Coelho; Humberto Francisco Silva Spolador

**ECONOMIC AND ENVIRONMENTAL EFFICIENCY IN EUROPE: A BY-PRODUCTION DEA ACROSS INDUSTRY SECTORS.**

Rodrigo Cestau; Pablo Arocena

**PROBABILISTIC EFFICIENCY ANALYSIS USING INTERPRETABLE ARTIFICIAL INTELLIGENCE: ASSESSING THE ROLE OF ENVIRONMENTAL VARIABLES**

Ricardo Gonzalez-Moyano; Juan Aparicio Baeza; Jose Luis Zofio Prieto

**MINING, MILLS, AND EMISSIONS: DECOMPOSING EMISSION-REDUCTION PATHWAYS IN GLOBAL STEEL SUPPLY CHAINS**

Erik Enstad; Giacomo Benini; Lars Jaffke

**Thu | 10:30-12:00 | Venus 1 – ACM 1 session**

**EFFICIENCY OF ENERGY NETWORKS IN TRANSITION: REGULATORY CHALLENGES**

*Chair:* Marcel Vermeulen

**NETWORK REGULATION IN THE ENERGY TRANSITION: BALANCING INCENTIVES**

Gert Brunekreeft

**ADAPTATION OF INCENTIVE MECHANISMS BASED ON REGULATORY INDEPENDENCE – THE CASE OF GERMANY**

Jean-Marc Behringer

**GROWTH AND CONSUMER PROTECTION WHEN SETTING PRICE CONTROLS IN THE UK**

Cyrus Gajari

**PRACTICAL LESSONS FROM EUROPEAN ENERGY NETWORK REGULATION: BALANCING INVESTMENT, RESILIENCE, EFFICIENCY, AND AFFORDABILITY**

Srini Parthasarathy

**Thu | 10:30-12:00 | Mars 1 – Productivity 2**

**NONLINEAR PANEL DATA MODELS WITH ROBUST CORRELATED RANDOM EFFECTS WITH APPLICATION TO THE PUBLIC CAPITAL PRODUCTIVITY PUZZLE**

Daniel Henderson; Emma Kate Henry; Andros Kourtellos

**AN INDUSTRY-LEVEL MEASURE OF QUALITY-ADJUSTED HUMAN CAPITAL IN THE EUROPEAN UNION**

Juan Duran; Michelle Alicia Jordan; Iulia Siedschlag

**THE WORKLOAD–PERFORMANCE RELATIONSHIP WHEN OVERSEEING ALGORITHMIC SYSTEMS**

Changyu Men; Maud Van den Broeke; Marijn Verschelde; Bart Roets

**ANALYZING LABOR PRODUCTIVITY CHANGES IN THE GERMAN BREWING INDUSTRY**

Giannis Karagiannis; Magnus Kellerman; Klaus Salhofer

**Thu | 10:30-12:00 | Mars 2 – Oxera 1 session**

**PUSHING THE FRONTIER: EFFICIENCY & PRODUCTIVITY DEBATES IN GERMAN ENERGY REGULATION**

*Chairs:* Stefan Schröder & Philipp Schliffke

**SETTING THE SCENE – LATEST DEVELOPMENTS REGARDING XGEN AND XIND**

Polynomics

**SETTING XGEN UNDER UNCERTAINTY: PRODUCTIVITY TARGETS, FORECAST ERRORS, AND REGULATORY RESILIENCE**

Mario Liebensteiner

**E-CONTROL'S APPROACH TO XIND AND XGEN**

Sebastian Brunner

**LEGAL PERSPECTIVES ON THE STATE OF THE ART IN SCIENCE AND ITS APPLICATION TO GERMAN REGULATION**

Jan Dreyer

**CURRENT DISCUSSIONS WITHIN THE NEST PROCESS AND CONCLUDING REMARKS**

Stefan Schröder

**Thu | 13:30-15:00 | Terra & Jupiter - Special plenary session in honor of Knox Lovell**

**COMMENTS ON KNOX LOVELL'S LIFE OF CONTRIBUTIONS TO OUR SCIENCE OF EFFICIENCY AND PRODUCTIVITY ANALYSIS**

*Chair:* Robin E. Sickles

**ON THE ORIGINS OF AIGNER, LOVELL AND SCHMIDT, 1977 AND THE DEVELOPMENT OF STOCHASTIC FRONTIER ANALYSIS**

Peter Schmidt

**A PRESENTATION OF KNOX LOVELL'S LAST PUBLICATION: MEASURING CLIMATE RISKS: A NEW MULTIDIMENSIONAL INDEX FOR GLOBAL VULNERABILITY AND RESILIENCE**

(by Johanna Fajardo-Gonzalez, C.A. Knox Lovell, Julie Lovell, Heidi Edmonds, Environmental Development, Volume 56, September 2025, 101227)

Valentin Zelenyuk

**INTERPRETING PROFIT-RELATED INEFFICIENCIES AS EUCLIDEAN DISTANCES IN THE CONTEXT OF DIRECTIONAL DISTANCE FUNCTIONS AND DATA ENVELOPMENT ANALYSIS**

(forthcoming in Journal of Productivity Analysis Special Issue in Memory of C. A. Knox Lovell)

Jesus T. Pastor

**OUT OF THE FRYING PAN INTO THE FIRE: MARKUP AND PRODUCT DIFFERENTIATION IN THE U.S. AIRLINE INDUSTRY 2002-2022**

(forthcoming in Journal of Productivity Analysis Special Issue in Memory of C. A. Knox Lovell)

Emili Grifell Tatje

**Thu | 15:30-17:00 | Terra – Sustainability & Eco-efficiency 3**

**MEASUREMENT, DECOMPOSITION AND DETERMINANTS OF GREENHOUSE GAS EMISSION EFFICIENCY: AN APPLICATION TO AUSTRIAN DAIRY FARMS**

Andreas Eder

**FARM-LEVEL ENVIRONMENTALLY SUSTAINABLE PRODUCTIVITY AND PRECISION AGRICULTURE**

Maria Vrachioli; Dejana Golic; Tassos Haniotis; Tamas Krisztin

**VALUING POLLUTION-GENERATING COMMODITIES: A SHADOW PRICING APPROACH.**

Arnaud Abad; Walter Briec; Paola Ravelojaona

**SHADOW PRICING ECOSYSTEM SERVICES IN BOREAL FORESTS**

Moriah Bostian; Shuyi Wang; Tommy Lundgren

**Thu | 15:30-17:00 | Jupiter – ACM 2 & Oxera 2 session**

**EFFICIENCY OF ENERGY NETWORKS IN TRANSITION: PERFORMANCE MEASUREMENT**

*Chair:* Marcel Vermeulen & Philipp Schliffke

**PRODUCTIVITY INDEX NUMBERS IN THE REGULATION OF AUSTRALIAN ELECTRICITY NETWORKS**

Michael Cunningham

**REFERENCE NETWORK ANALYSIS FOR EFFICIENCY ASSESSMENT OF THE GERMAN TRANSMISSION SYSTEM OPERATORS FOR ELECTRICITY**

Alexander Fuchs

**THE ACER PAN-EUROPEAN BENCHMARKING STUDY**

Miguel Martinez

**REFLECTIONS ON NATIONAL AND INTERNATIONAL BENCHMARKING AND BUSINESS IMPACT**

Bayernets

**SELECTED ASPECTS OF XGEN AND XIND**

Netze BW

**Thu | 15:30-17:00 | Venus 1 – Agriculture 4**

**ADOPTION OF CROP–LIVESTOCK INTEGRATION AND TECHNICAL EFFICIENCY IN SOYBEAN FARMING: EVIDENCE FROM SAO PAULO, BRAZIL**

Larissa Aparecida Lopes de Souza; Marcelo Jose Carrer; Marcela de Mello Brandao Vinholis; Aduino Brasilino Rocha Jr.; Larissa Gui Pagliuca; Rodrigo Damasceno

**AGRICULTURAL PRODUCTIVITY AND CARBON DIOXIDE EMISSIONS IN BRAZIL: EVIDENCE FOR THE BORLAUG HYPOTHESIS**

Ricardo Muniz Simões; Humberto Francisco Silva Spolador

**CONSISTENT AGGREGATION AND DECOMPOSITION OF PRODUCTIVITY CHANGE: APPLICATION TO ENERGY PRODUCTIVITIES IN NORWEGIAN FISHERIES**

Kenneth Løvold Rødset; Kristin Helen Roll; Timo Kuosmanen

**PRODUCTIVITY GROWTH ADJUSTED FOR ANIMAL HEALTH IN SWEDISH DAIRY FARMS**

Frederic Ang; Enoch Owusu-Sekyere; Karin Alvasen; Helena Hansson

**Thu | 15:30-17:00 | Mars 1 – Banking & Finance 2**

**MICROFOUNDATIONS IN MEASUREMENT AND THEORY**

Junyi Zhu

**ASYMMETRIC PASS-THROUGH OF THE CENTRAL BANK’S POLICY RATE TO BANKS’ RETAIL RATES: EVIDENCE FROM PAKISTAN’S BANK-LEVEL DATA**

Alfred Haug; Dorian Owen; Syed Hussain

**BEYOND STATIC EFFICIENCY: A DYNAMIC DEA MODEL FOR SUSTAINABLE MUTUAL FUNDS**

Alfons Oude Lansink; Magdalena Kapelko; Albane Tarnaud

**RISK-RETURN-ESG INEFFICIENCY OF EUROPEAN MUTUAL FUNDS: A BY-PRODUCTION APPROACH**

Alfons Oude Lansink; Magdalena Kapelko; Albane Tarnaud

**Thu | 15:30-17:00 | Mars 2 – Justice 1**

**THE JUSTICE PRODUCTION TECHNOLOGY**

Giannis Karagiannis; Antonio Peyrache; Angelo Zago; Osman Zaim

**A HYBRID COST EFFICIENCY MODEL UNDER FIXED AND NON-FIXED PRICES: A CASE STUDY ON THE POLISH JUSTICE COURTS**

Magdalena Kapelko; Dimitrios Sotiros; Sebastian Tomczak

**ON MODELING PENDING CASES IN COURT EFFICIENCY ANALYSIS**

Giannis Karagiannis; Stavros Kourtzidis; Panagiotis Ravanos

**FRIDAY JUNE 19th, 2026**

**Fri | 09:00-10:30 | Terra & Jupiter - Life-time Achievement Award to Erwin Diewert**

**Erwin Diewert**, Professor Emeritus, Vancouver School of Economics, University of British Columbia.

*Chair:* Valentin Zelenyuk

**CAPTURING THE ECONOMIC VALUE OF HOUSEHOLD SOLAR ELECTRICITY IN NATIONAL ACCOUNTS**

Paul Schreyer

**PRICE INDEXES: BUILDING ON ERWIN DIEWERT'S CONTRIBUTIONS**

Robert Hill

**INTEGRATING CAPITAL THEORY INTO DEPRECIATION ESTIMATION: A BUILDER'S MODEL APPROACH TO ASSET MEASUREMENT**

Chihiro Shimizu

**Fri | 11:30-13:00 | Terra - DEA Methods 4**

**A SPATIAL SCAN STATISTIC FOR SECOND STAGE ANALYSIS OF BRAZILIAN DISTRIBUTOR SYSTEM OPERATORS**

Tatielle Menolli Longhini; Marcelo Azevedo Costa; Bruno de Almeida Vilela

**CHECKING THE CONVERGENCE OF BOOTSTRAP DEA AND IMPUTATION-PROPELLED DEA**

Ardhana M. Prabhash; Vipin Valiyattoor

**MEASURING SOCIAL BENEFIT-COST EFFICIENCY IN EUROPEAN SPORTS INDUSTRY USING DYNAMIC DEA**

Pin-Hsuan Sung; Chin-Yi Fang

**VISUALIZING AND ANALYZING TRADE-OFFS IN DATA ENVELOPMENT ANALYSIS USING GRAPH THEORY**

Alexander Öttl; Mette Asmild

**Fri | 11:30-13:00 | Jupiter – Productivity 3**

**REVISITING TOTAL FACTOR PRODUCTIVITY IN CHINA: A DUAL-FRONTIER MEASUREMENT OF CATCH-UP AND RELATIVE COMPETITION EFFECTS**

Zhiyang Shen; Michael Vardanyan

**REDUCING EXTREME TRADE-OFFS IN REGULATORY BENCHMARKING THROUGH FRONTIER REFINEMENT**

Sara Kamali; Mohsen Afsharian; Heinz Ahn

**A THEORY OF TECHNOLOGY-BASED PRODUCTIVITY INDEX**

Sung Ko Li; Long Zhao

**FIRM SUBSIDIES AND FACTOR USE**

Thomas Triebs; Mingyang Li; Kai Sun

**Fri | 11:30-13:00 | Venus 1 - Justice 2**

**EFFICIENCY ANALYSIS OF FIRST INSTANCE COURTS IN NORTH MACEDONIA: A POLICY PERSPECTIVE**

Katerina Shapkova Kocevska

**LOWERING THE BAR TO FILL THE BENCH: THE QUALITY-QUANTITY TRADE-OFF IN JUDICIAL LABOR MARKETS**

Deborah Kaut; Armela Maxhelaku

**DECONSTRUCTING THE CLEARANCE RATE AS A MEASURE OF COURT PERFORMANCE**

Pablo Arocena; Daniel Santin

**COMPARING COMMERCIAL COURTS IN IBERIAN PENINSULA**

Maria Silva; Pablo Arocena; Diogo Dias

**Fri | 11:30-13:00 | Mars 1 - Education 2**

**TO WHAT EXTENT CAN TUITION DISCOUNTING BE APPLIED IN LOW-TUITION REGIMES? A STOCHASTIC COST FRONTIER STUDY OF HIGHER EDUCATION INSTITUTIONS IN TAIWAN**

Tsu-Tan Fu; Wei-Hsin Kong; Wen-Jen Tsay

**CONSTRUCTION OF EUROPEAN EDUCATION POLICY: OUTLINING WAYSTATIONS BASED ON REGIONAL CAPACITY**

Dovile Stumbriene; Jose Luis Ruiz; Inmaculada Sirvent

**BEYOND PERFORMANCE: PRODUCTIVITY AND EQUITY DYNAMICS ACROSS OECD EDUCATION SYSTEMS**

Gabriela Sicilia; Giovanna D'Inverno; Rosa Simancas; Cristina Polo

**Fri | 11:30-13:00 | Mars 2 – Sustainability & Eco-efficiency 4**

**ASSESSING THE INDIVIDUAL CONTRIBUTIONS OF INPUTS AND OUTPUTS TO ENVIRONMENTALLY SUSTAINABLE PRODUCTIVITY CHANGE**

Paola Ravelojaona

**ENVIRONMENTAL TOTAL FACTOR PRODUCTIVITY AND THE COST-EFFECTIVENESS OF GHG EMISSION REDUCTION**

Yang Liu; Maria Vrachioli; Johannes Sauer

**CIRCULARITY FOR ENHANCING AGRICULTURAL PRODUCTIVITY IN AUSTRIA & BAVARIA**

Ludwig Müller Flores; Maria Vrachioli; Fabian Frick; Johannes Sauer; Josef Hambrusch; Christoph Tribl; Julian Zeilinger

**SUSTAINABLE PRODUCTIVITY & SUSTAINABLE PROFITABILITY**

Arne Henningsen; Frederic Ang; Moriah Bostian; Herve Dakpo; Maria Vrachioli

**Fri | 14:00-15:30 | Terra - Organized session 4: Efficiency in system design**

**EFFICIENCY-DRIVEN SOCIO-TECHNICAL SYSTEM DESIGN**

*Chair:* Konstantinos Triantis

This organized session explores how efficiency analysis can inform the design, evaluation, and governance of complex socio-technical engineered systems. Moving beyond purely technical perspectives, the contributions explicitly integrate

human behavior, organizational dynamics, and adaptive decision-making into performance assessment frameworks. Drawing on systems engineering, efficiency analysis, complexity science, and data analytics, the session presents conceptual advances, methodological innovations, and applied case studies. Empirical applications span transportation, healthcare, safety-critical operations, and adaptive organizational systems. Collectively, the session highlights how efficiency-driven design can support resilient, context-sensitive, and policy-relevant system performance.

**EFFICIENCY-DRIVEN DESIGN OF SOCIO-TECHNICAL ENGINEERED SYSTEMS: AN OVERVIEW**

Konstantinos Triantis; Joseph Godfrey; Yas Mashayekhy; Saman Mohsenirad; Leon Sobrie; Maria Tomai

**UNDERSTANDING COMPLEX TRANSPORTATION SYSTEMS: RAILWAY DELAYS AND POLICY INTERVENTIONS FOR IMPROVED PERFORMANCE**

Yas Mashayekhy; Konstantinos Triantis

**A PROBLEM TYPE TAXONOMY USING DONABEDIAN'S STRUCTURE-PROCESS-OUTCOME MODEL**

Joseph Godfrey; Leon Sobrie; Maria Tomai; Konstantinos Triantis

**TRUST-BASED INPUT REGIMES AND CLIMATE RESILIENCE EFFICIENCY: A CROSS-COUNTRY META-FRONTIER DEA STUDY WITH ROBUST SIMULATION-BASED AUGMENTATION**

Juan Carlos Franco; Konstantinos Triantis

**Fri | 14:00-15:30 | Jupiter - Agriculture 5**

**AGRICULTURAL SERVICES AND RESOURCE ALLOCATION EFFICIENCY: EVIDENCE FROM CHINA**

Ruizhi Pang; Xuejie Bai

**EFFICIENCY AND PEER-TARGET ANALYSIS IN EUROPEAN BEEKEEPING: LEARNING FROM EACH OTHER**

Ludwig Lauwers; Marie Van Espen; Wim Verbeke

**CAN PRICE INCENTIVES DRIVE LEGUME ADOPTION? A TECHNICAL AND ECONOMIC BEST PRACTICES STUDY FROM FRANCE**

Jean-Philippe Boussemart; Mae Guinet; Salome Kahindo; Munier-Jolain; Romain Nandillon; Raluca Parvulescu

**ARE ENVIRONMENTAL EFFICIENCIES OF SWEDISH AGRICULTURE MORE TRANSIENT OR MORE PERSISTENT? HETEROGENEITY AND DETERMINANTS**

Vivian Wei Huang

**Fri | 14:00-15:30 | Venus 1 - SFA Methods 3**

**BAYESIAN ESTIMATION OF PANEL STOCHASTIC FRONTIER MODELS WITH SPATIALLY AND TIME-VARYING INEFFICIENCY**

Rouven E. Haschka

**INDIRECT INFERENCE IN PANEL STOCHASTIC FRONTIER MODEL WITH ENDOGENOUS SWITCHING AND ENDOGENOUS INPUTS**

Hung-pin Lai

**SEMIPARAMETRIC PANEL DATA MODELS WITH INTERACTIVE FIXED EFFECTS**

Emma Kate Henry; Daniel Henderson

**UNDER-REPORTING IN MACROECONOMIC OUTPUT AND INPUT DATA SERIES: A TWO-TIER STOCHASTIC FRONTIER APPROACH**

Alecos Papadopoulos

**Fri | 14:00-15:30 | Mars 1 - Country Analysis 2**

**QUALITY PERFORMANCE OF WATER UTILITIES SERVICES IN SUB-SAHARAN AFRICA. A NON-PARAMETRIC ANALYSIS OF DRC**

Jeannine Mwakui; Barnabe Walheer

**INVESTMENT PERFORMANCE OF INDIAN FINANCIAL ASSETS UNDER MEAN-STANDARD DEVIATION VS. MEAN-SEMIDEVIATION MODEL: APPLICATION OF STOCHASTIC FRONTIER ANALYSIS**

Anup Kumar Bhandari

**CORPORATE TAX UNDER-REPORTING IN DEVELOPING COUNTRIES: EVIDENCE FROM ETHIOPIA**

Fikru Kefyalew Alemayehu; Subal Kumbhakar; Soressa Jarra

**MODELLING THE FISCAL-SERVICE-SATISFACTION CHAIN: A PANEL NETWORK DEA STUDY OF SPANISH MUNICIPALITIES**

Maria Teresa Balaguer-Coll; Isabel Narbon-Perpina; Diego Prior; Emili Tortosa-Ausina

**Fri | 14:00-15:30 | Mars 2 – Sustainability & Eco-efficiency 5**

**PERFORMANCE EVALUATION OF BUS LINES USING THE BENEFIT-OF-THE-DOUBT APPROACH**

Gabriel Eduardo Cursino da Silva; Lucio Silva; Luann Bruno Vidal de Andrade; Thyago Nepomuceno

**THE INFLUENCE OF ENVIRONMENTALLY FRIENDLY VEHICLES ON AIR POLLUTION**

Maria Jose Perez-Villadoniga; Dario Blanco Fernández; Ana Rodriguez-Alvarez; David Roibas

**PRODUCTIVE EFFICIENCY OF METRO DC: 2020-2025—A SPATIAL ANALYSIS APPROACH**

Robert Mosheim; Carl Paruska

**FROM BLIND FUNDING TO SMART ALLOCATION: OPTIMISING ECO-EFFICIENCY IN URBAN TRANSPORT SERVICES**

Victor Gimenez; Gemma Perez López; Pablo Povedano Fernández; Diego Prior; Jose Luis Zafra Gómez

**Fri | 16:00-17:10 | Terra - Manufacturing 2**

**DO RECENT PUBLIC R&D FUNDING INCREASE SPANISH FIRMS' R&D? AN EMPIRICAL EVALUATION USING MACHINE-LEARNING TECHNIQUES**

Dario Blanco Fernandez; Desiderio Romero Jordán; Inmaculada C. Alvarez; Luis Orea

**BRIDGING THE TECHNOLOGY GAP: ABSORPTION, ADOPTION AND TFP GROWTH OF INDIAN MANUFACTURING FIRMS**

Anuvinda Anuvinda; Vipin Valiyattoor

**THE ROLE OF SPATIAL DYNAMICS IN LABOR PRODUCTIVITY: A REGIONAL MULTIFACTOR PARTITIONING ANALYSIS OF MEXICO'S MANUFACTURING SECTOR: 1993-2018**

Jesus Antonio Lopez Cabrera; Miguel Alejandro Flores Segovia; Robin Sickles

**Fri | 16:00-17:10 | Jupiter – Sustainability & Eco-efficiency 6**

**A CIRCULAR SLACKS-BASED METAFRONTIER PSEUDO-MALMQUIST INDEX FOR GROUP PERFORMANCE COMPARISON: APPLICATION TO GLOBAL PETROLEUM FIRMS**

Kwaku Ohene-Asare; Emily Asaa Addison; Eric D. Ofosu-Hene

**DO PUBLIC-PRIVATE PARTNERSHIPS IMPROVE ENVIRONMENTAL PRODUCTIVITY? EVIDENCE FROM JAPAN'S SEWAGE TREATMENT SECTOR**

Takayoshi Nakaoka

**TECHNOLOGY SPILLOVERS FROM FOREIGN DIRECT INVESTMENT ON THE GREEN INNOVATION PERFORMANCE OF LOCAL FIRMS**

Iulia Siedschlag; Juan Duran

**Fri | 16:00-17:10 | Venus 1 - Justice 3**

**NOT ALL CASES ARE CREATED EQUAL (OR WHY WEIGHT RESTRICTIONS ARE ESSENTIAL IN COURT EFFICIENCY STUDIES)**

Mette Asmild; Alexander Ottl; Jonas Månsson

**ADOPTION OF TECHNOLOGY AND ITS CONSEQUENCES FOR PERFORMANCE - SWEDISH DISTRICT COURTS**

Jonas Mansson; Christopher O'Donnell; Anupama Unnikrishnan

**IT'S A COMPLEX CASE: BENCHMARKING COURTS OF JUSTICE**

Jaap Bos; Mette Asmild; Deborah Kaut

**Fri | 16:00-17:10 | Mars 1 - Education 3**

**A BI-OBJECTIVE OPTIMIZATION APPROACH FOR STRATEGIC BENCHMARKING IN INTERVAL SCALE DEA WITH AN APPLICATION TO THE NATIONAL STUDENT SURVEY (NSS) IN THE UK**

Akram Dehnokhalaji; Nasim Nasrabadi; Banu Lokman

**PERFORMANCE ASSESSMENT OF EUROPEAN EDUCATION SYSTEMS AT THE REGIONAL LEVEL: DECOMPOSING TEMPORAL TRENDS USING A ROBUST CONDITIONAL MALMQUIST INDEX**

Fernando Osorio; Ana Camanho; Flavia Barbosa; Giovanna D'Inverno

**ECONOMIES OF SCALE AND SCOPE IN EUROPEAN HIGHER EDUCATION: THE ROLE OF SUBJECT MIX**

Gaetano Francesco Coppeta; Tommaso Agasisti; Luigi Brighi

**Fri | 16:00-17:10 | Mars 2 – Gender & Social Efficiency**

**GENDER EFFECTS ON MICROFINANCE SOCIAL EFFICIENCY: A ROBUST APPROACH INCORPORATING UNDESIRABLE OUTPUTS**

Cinzia Daraio; Francois Seck Fall; Leopold Simar; Anne Vanhems

**GENDER, ICT ADOPTION AND TECHNICAL EFFICIENCY: A SELECTION-CORRECTED STOCHASTIC FRONTIER ANALYSIS OF INDIA'S UNINCORPORATED MANUFACTURING SECTOR**

Mahak Vijay; Rama Pal

**INVERTED SBM-VRS BENCHMARKING OF WORKFORCE RELATIONS STABILITY UNDER MODERN SLAVERY RISK PRESSURES**

Isotilia Costa Melo; Paulo Nocera Alves Junior; Morteza Alaeddini