

BOOK OF ABSTRACTS

ESCOLA SUPERIOR DE CIÊNCIAS EMPRESARIAIS DO
INSTITUTO POLITÉCNICO DE VIANA DO CASTELO

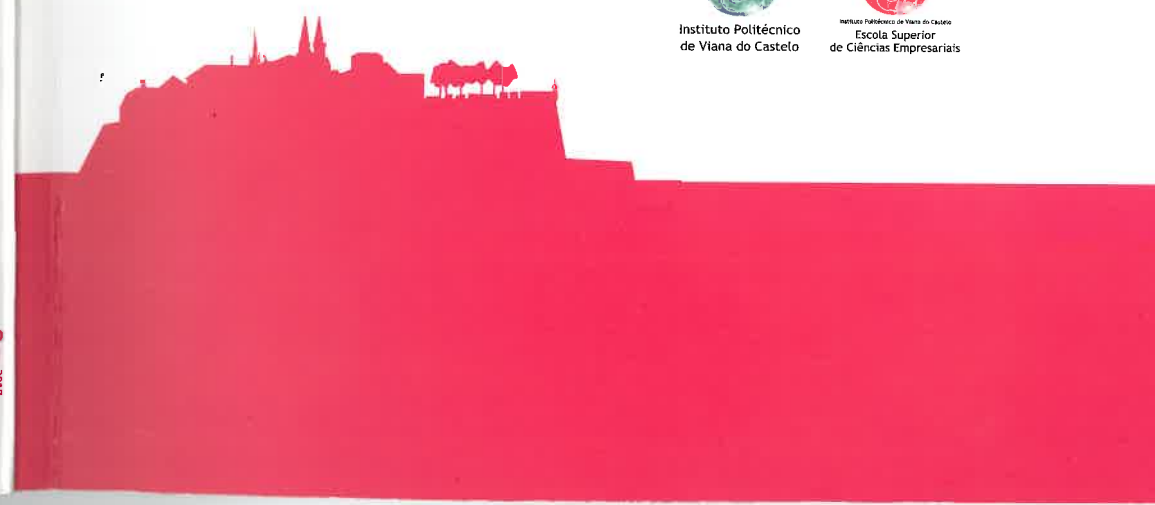
VALENÇA, PORTUGAL
JUNE 28-30, 2017



Instituto Politécnico
de Viana do Castelo



Escola Superior
de Ciências Empresariais



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Escola Superior
de Ciências Empresariais

Wednesday, June 28, 16:00-16:20

- Wed.0.0** OR Pro Bono, Session, Auditorium 19
C. Hiolanda Esteves "Rir é o Melhor Remédio?": Estudo do Impacto da Intervenção dos Doutores Palhaços da Operação Nariz Vermelho

Wednesday, June 28, 16:50-18:30

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Ana Raquel Aguiar Planning home health care services - a routing and scheduling problem
Daniel Bandeira Impressão tridimensional bimatricial por processo aditivo
Raphael Cordeiro Sistema de apoio à decisão para elaboração de mapas de exames no ensino superior
João Gonçalves Optimal control strategies for an advertisement viral diffusion
Juliana Marques Impacto da uniformização e centralização de consumos em contexto hospitalar
- Wed.1.2** DEA and Performance Analysis, Session, Room 2 20
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Rui Cunha Marques Malmquist and Hicks-Moorsteen productivity indexes for clusters performance evaluation
Rui Marques Análise analítica da eficiência de rega usando modelos determinísticos e estocásticos
António Fernandes Efficiency and Capital Structure in Portuguese SMEs
André S. Veloso Determinants of nursing homes performance: The case of Portuguese Santas Casas da Misericórdia
- Wed.1.3** Production and Inventory Management, Session, Room 3 22
Serhat Saylam A spreadsheet based model that estimates the impact of reduced distribution time on inventory investment savings
Maria Pires Solving the backroom design problem
Jorge Mendes Review policies for online retail inventory management considering customer order time windows
João Correia Pinto A prescriptive analytics method applied to a maintenance and manpower scheduling problem
Paula Alves Desenvolvimento de uma metodologia para redução do volume de obsoletos numa empresa do sector automóvel
- Wed.1.4** Data Analysis and Artificial Intelligence, Session, Room 4 24
Alvaro Neuenfeldt Júnior The two-dimensional strip packing problem: what matters?
Isabel Cristina Lopes The reverse logistics of unsold medications in pharmacies in Campania, Italy
José Oliveira Optimization of short-term storage of containers in empty container terminals
Gonçalo Figueira Automatic learning of planning rules for operations management problems
Helena Alvelos Melhoria do processo de corte a laser numa empresa metalomecânica
- Wed.1.6** Logistics and Supply Chain, Session, Room 6 26
Bruna Mota Green supply chain design and planning: the importance of decision integration in optimization models
Pedro Amorim Leveraging logistics flows to improve the sludge management process of wastewater treatment plants
Nuno Falcão e Cunha Supply chain modelling and supplier selection in the aerospace industry
Ana Cristina Amaro Pharmaceutical Supply Chain: a comprehensive optimal planning for medicine shortage
Ana Paula Barbosa Póvoa Design and planning of sustainable supply chains - the case study of a tissue paper business

Helena Sofia Rodrigues, M. Teresa T. Monteiro
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5. Impacto da uniformização e centralização de consumos em contexto hospitalar

Juliana Marques (julianaacps@gmail.com) Escola de Economia e Gestão, Universidade do Minho, *Juliana Marques, Nazaré Rego*

Extended abstract:80

■ **Wed.1.2, Wednesday, June 28, 16:50-18:30, Room 2**

DEA and Performance Analysis

Session chair: *Clara Bento Vaz*

1. The evaluation of the social performance of mining firms

Renata Oliveira (renata.oliveira@uepa.br) Faculdade de Engenharia da Universidade do Porto, *Renata Oliveira, Andreia Zanella, Ana Camanho*

Keywords: Composite indicators, Luenberger indicator, social performance, mining firms

This study presents a composite indicator to support the evaluation of firms regarding social achievements. In recent years, the social indicators of large corporations are increasingly being used as a measure of their overall performance regarding corporate social responsibility. Reputational issues associated with the firms' impact on society, both in terms of local employment and contribution to regional economic development are critical. This paper proposes a framework for the specification of indicators reflecting social burdens and benefits of mining firms, based on international standards and sectoral guidelines. A composite indicator is obtained using a Directional Distance Function model, allowing the identification of firms with the best practices in the sector regarding social aspects. The evolution of performance over time is assessed using the Luenberger indicator. An illustrative application involving the assessment of 24 large mining firm in the period 2011 to 2012 is discussed. The managerial implications of the

results obtained are examined by the end of this work.

2. Malmquist and Hicks-Moorsteen productivity indexes for clusters performance evaluation

Rui Cunha Marques (rui.marques@tecnico.ulisboa.pt) CESUR, CERIS, Instituto Superior Técnico, University of Lisbon, *Rui Cunha Marques, Diogo Cunha Ferreira*

Keywords: Cluster analysis; Malmquist index; Hicks-Moorsteen index; Total Factor Productivity; unbalancedness; uncorrespondencedness

Measuring the performance of clusters characterized by the unbalancedness and units with no correspondence in other clusters ("uncorrespondencedness") has not achieved the desired attention in the literature. Particularly, the operational research has been almost exclusively focused on performance evolution over time, where clusters are generally balanced and the units repeat themselves over these groups. Such analysis has been based on the Malmquist and the Hicks-Moorsteen indexes (MI and HMI), which are solely based on Shephard's radial distance functions and do not account for all inefficiency sources. Making use of the so-called Geometric Distance Functions (GDF) and the GDF-based MI, we propose a generalization of the HMI, based on targets instead of distances to the efficient frontier, allowing the introduction of all inefficiency sources in the productivity model. We propose a Monte-Carlo-based framework to achieve the pseudo-corresponding units for general cluster performance analysis. This framework is a generalization of the conventional performance evolution over time. We show that the HMI can be decomposed into economically meaningful indexes and can be rewritten as the geometric mean of the input and the output-oriented MIs. Given these conclusions and our proposed framework, the employment of the HMI to the general clusters analysis is straightforward.

3. Análise analítica da eficiência de rega usando modelos determinísticos e estocásticos

Rui Marques (rui.marques@tecnico.ulisboa.pt) Instituto Superior Técnico, *Helga Pereira, Rui Marques*

Keywords: Eficiência do Uso da Água; Data Envelopment Analysis; Irrigação; Revisão da Literatura

Este trabalho tem como objetivo realizar uma revisão da literatura sobre as metodologias aplicadas para medir a eficiência do uso da água para rega. A avaliação da eficiência das unidades produtivas é muito importante para fins estratégicos (comparação entre unidades produtivas), para planeamento (avaliação da utilização de diferentes combinações de fatores) e para a tomada de decisões (para melhorar o desempenho atual, analisando as diferenças entre a produção atual e a potencial). Encontraram-se mais de trinta estudos que utilizaram métodos determinísticos e estocásticos para determinar a eficiência. Várias metodologias foram utilizadas, embora a técnica mais adotada foi o Data Envelopment Analysis (DEA). Verificou-se que o DEA foi frequentemente utilizado juntamente com análise de regressão para entender melhor a fonte de ineficiência. Dos trinta e dois estudos analisados, 87,5% calcularam a eficiência usando métodos determinísticos. Destes, a metodologia mais utilizada foi a DEA. Esses estudos levaram à conclusão de que, em geral, as explorações são consideravelmente ineficientes em relação ao uso da água, e alguns fatores podem contribuir para sua melhoria, como por exemplo, escolha das culturas adequadas, ter uma maior área de exploração, ter um elevado nível de educação, instalar rega localizada, ter acesso a melhores oportunidades de crédito.

4. Efficiency and Capital Structure in Portuguese SMEs

António Fernandes (antoniof@ipb.pt) Applied Management Research Unit (UNIAG); Polytechnic Institute of Bragança, *António Fernandes, Clara Bento Vaz, Ana Paula Monte*

Keywords: Data Envelopment Analysis; Technical Efficiency; Capital Structure; SME; Inland of Portugal

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This paper aims to analyse the bi-directional relationship between technical efficiency, as measure of companies' performance, and capital structure, under the agency cost theory as well as the pecking order and trade-off theory to explain the capital structure decisions. The technical efficiency was estimated by the DEA method and corrected by using a suitable bootstrap to obtain statistical inferences. To test the agency cost hypothesis, asymmetric information hypothesis, risk-efficiency hypothesis and franchise value hypothesis (under pecking order and trade off theories framework) two models were performed using some determinants of capital structure such as size, profitability, tangibility, liquidity as control and explanatory variables through a truncated regression with bootstrapping. From an initial sample of 1024 small and medium sized companies from the interior of Portugal, for the period 2006-2009, it was selected a subsample of 210 SMEs from secondary and tertiary sectors. The results suggest that medium sized companies have higher average bias-corrected efficiency than small companies; short-term leverage is positively related to efficiency and the companies in the sample follow pecking-order theory.

5. Determinants of nursing homes performance: The case of Portuguese Santas Casas da Misericórdia

André S. Veloso (asveloso@ipb.pt) Polytechnic Institute of Bragança, *André S. Veloso, Clara Bento Vaz, Jorge Alves*

Keywords: Data Envelopment Analysis; Efficiency; Nursing Homes; Third Sector

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