

**2nd Workshop on Efficiency and
Productivity Analysis:
Challenges for Performance Improvement in Education**

25th September, 2006



Universidade Católica Portuguesa
Centro Regional do Porto
R. Diogo Botelho, 1327

**Book of Abstracts
&
List of Participants**

9h00 - 9h30	REGISTRATION AND OPENING SECTION
9h30 - 10h15	Plenary Session: Emmanuel Thanassoulis (Aston University, UK) Title: Computing Confidence Intervals on DEA Efficiencies using Bootstrapping
10h15 - 11h00	Plenary Session: Robert Dyson (Warwick Business School, UK) Title: DEA and Frontier Analysis: Issues, Challenges and Developments
11h00 -11h30	COFFEE BREAK
11h30 - 12h15	Plenary Session: Geraint Johnes (Lancaster University, UK) Title: Higher Education Institutions' Costs and Efficiency: Taking the Decomposition a Further Step
12h15 -14h00	LUNCH
14h00 - 14h45	Plenary Session: Darren Pigg and Andrew Webster (DFES, UK) Title: Measuring Efficiency in English Schools: Techniques, Policy Implications and Practicalities
Session 1 14h45 - 16h20	Maria Portela, Ana Camanho and Joaquim Azevedo Title: Performance Assessment of Portuguese Schools: A Value-Added Analysis
	António Afonso and Mariana Santos Title: Students and Teachers: A DEA Approach to the Relative Efficiency of Portuguese Public Universities
	Nicky Rogge Title: A Dynamic Assessment of Education Policy: a Malmquist Productivity Index Approach
	Maria Alberta Oliveira and Carlos Santos Title: Assessing School Efficiency in Portugal using FDH and Bootstrapping
	Tanja Kirjavainen, Antti Moisio and Juho Aaltonen Title: Efficiency of Finnish Upper Secondary Schools: An Application of SFA
16h20 -16h45	COFFEE BREAK
Session 2 16h45 - 18h00	Carla Amado and Sergio Santos Title: Challenges in Performance Assessment in Primary Health Care: The Portuguese Context
	Manuela Oliveira, Miguel B. Gaspar and José Manuel P. Paixão Title: The Use of DEA to Estimate Technical Efficiency, Productivity and Capacity of Portuguese Dredge Fleet
	Clara Vaz and Ana Camanho Title: Assessing the Brand Effect on the Efficiency of Retailing Stores
	Rui Cunha Marques and Duarte Silva Title: Measuring the Productivity of Public Services using Non-Parametric Methods: A Comparison Study
	Thomas Weyman-Jones, Júlia Boucinha and Catarina feteira Inácio Title: Efficiency Analysis of Maintenance and Repairing Activities in Electricity Networks
19h30	DINNER Circulo Universitário do Porto. Rua do Campo Alegre, 877, 4150-180 Porto

Assessing the brand effect on the efficiency of retailing stores

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This paper explores the differences in performance between two groups of grocery stores that operate with different brands. The study develops a Malmquist-type index to distinguish internal inefficiencies from those associated with the group (or brand) characteristics. A fundamental characteristic of the new index is to compare groups in a static setting. The study described in this paper combines the use of a Malmquist-type index with statistical testes. The Malmquist-type index is decomposed into sub-indexes for comparing the efficiency spread between groups and the productivity differences between the best-practice frontiers of the groups. The hypothesis tests are used to verify if the differences between groups captured by the Malmquist-type index and its components are statistically significant.

There are several methods based on DEA for comparing the performance of two groups, such as the program efficiency method, the comparison of efficiency distributions using statistical hypothesis tests, and methods based on the Malmquist index. The strengths and weaknesses of these methods are explored using data sets that represent different scenarios regarding the relative position of the frontiers and the efficiency spread within the groups. The new method used in this paper is compared with the existing approaches described in the DEA literature to highlight its potential for performance assessments.

The applicability of the method is illustrated with a case study that compares the performance of sections from stores with different brands (supermarkets versus hypermarkets). Only large supermarkets are compared with hypermarkets, such that the comparisons are only made between stores with similar scale size. The stores are organised in five different sections: grocery, perishables, light bazaar, heavy bazaar and textiles. The objective of the analysis is to determine if there is evidence that the sections of stores in hypermarkets perform better than the sections from stores in supermarkets.

The study showed that there is evidence to conclude that the frontier of the sections in hypermarkets is more productive than the frontier of the sections in supermarkets. This conclusion is valid for the five sections analysed. However, the efficiency spread among sections within the same group did not differ between supermarkets and hypermarkets for all sections except for the heavy bazaar section. If the best practices of the heavy bazaar section are followed by the other sections in the same group, the scope for efficiency improvements is larger in hypermarkets than in supermarkets.

In conclusion, we recommend changing the brand of large supermarket to the brand of hypermarkets, whenever this is compatible with the organisation requirements to label a store as an hypermarket. Hypermarkets seem to be more appealing to customers and to allow the attainment of higher productivity levels.

Keywords: Data Envelopment Analysis, Retail, Malmquist Index, Group comparisons