

3rd Workshop on Efficiency and Productivity Analysis

Book of Abstracts & List of Participants



25th September, 2009

Universidade Católica Portuguesa, Centro Regional do Porto
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The assessment of retailing efficiency using Network Data Envelopment Analysis

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This paper describes a method for the assessment of retail store performance based on Data Envelopment Analysis (DEA). The assessment considers the stores as complex organizations that aggregate several subunits, corresponding to sections with management autonomy. This structure motivated an analysis at two different levels: the section level and the store level. The performance assessment of the sections involves a comparison among similar sections located in different stores, and evaluates efficiency spread. This is followed by an analysis at the store level to define targets for the sections. This analysis takes into account the interdependencies of the sections composing a store, as they share limited resources such as the floor area. This is achieved using a Network DEA model, which determines the maximum store sales allowing for reallocations of area among the sections within a store. The method developed is illustrated using a case study consisting of a Portuguese chain of supermarkets.