

Efficiency Evaluation for Third Level Intensive Care Units (ICUs) By Data Envelopment Analysis in a Turkey Case

A. Nilgun Kayadelen and Z. Figen Antmen

Department of Industrial Engineering

Cukurova University

01330 Balcali, Saricam / Adana, Turkey

nkayadelen@student.cu.edu.tr, fantmen@cu.edu.tr

Abstract

The Intensive Care Unit (ICU) service is a specific internment ward dealing with critically ill inpatients, i.e. those ones who need for advanced, close and constant life support for 24 h a day due to their life-threatening illnesses/injuries. Efficiency evaluation is to be needed due to this critical status of ICUs. In this study, Data Envelopment Analysis (DEA) has been carried out for efficiency evaluation of third level intensive care units which are in two university hospitals and one state hospital in Adana which is one of the most crowded cities in Turkey. DEA which is an increasingly popular management tool relies on linear programming to determine the relative efficiency of organizational units. In this case, efficiency evaluation is performed the outputs of patients whose treatments result in success or not in ICUs. The DEA produces two results which are efficient hospitals in terms of ICU with score 1 and inefficient hospitals with scores less than 1. According to DEA results of the study, one of the university hospital and the state hospital's ICU are efficient with score 1 and the other university hospital's ICU is inefficient with score less than 1.

Keywords

Data Envelopment Analysis, Intensive Care Units, Efficiency Evaluation.

Biography

A. Nilgun Kayadelen is a PhD candidate in Industrial Engineering, at Cukurova University, Adana and Master of Science in Industrial Engineering in the Department of Industrial Engineering at Cukurova University, Adana, Turkey. She earned B.S. in Industrial Engineering from Cukurova University, Turkey. Her research interests include statistics, reliability, statistical quality control, quality management system, mathematical modelling, and simulation.

Z. Figen Antmen is currently a fulltime senior lecturer in department of Industrial Engineering at Cukurova University, Adana. Mrs. Antmen holds a Bachelor of Business Administration degree in Economics and Administrative Sciences at Marmara University, Istanbul, Turkey and a Master of Accounting and Audit degree in Business Management at Istanbul University, Istanbul, Turkey and PhD in Industrial Engineering at Cukurova University, Adana, Turkey. Mrs. Antmen's research interests are accounting, engineering economics, health systems, simulation, economic decision models, and financial statement analysis.