

Efficiency Measurement with Data Envelopment Analysis in Private Hospital in Turkey

ABSTRACT

Data Envelopment Analysis is a widely adopted analysis method in recent years, primarily used in service sectors. It is a non-parametric analysis method based on linear programming. The objective of this analysis method is to compare the efficiencies of businesses or units with the same goals and objectives, providing a roadmap to identify the level of inefficiencies and how to address them.

This study on Data Envelopment Analysis consists of five sections. The first section provides a brief introduction to Data Envelopment Analysis and the healthcare sector, which will be the focus of the application. The second section delves deeper into Data Envelopment Analysis, discussing its characteristics, application methodology, and areas of implementation. The third section includes a literature review of domestic and foreign applications of Data Envelopment Analysis in the healthcare field. In the fourth section, utilizing data from a private hospital in Bursa for the year 2022, the application of Data Envelopment Analysis to the hospital's units is discussed. Lastly, the fifth section interprets the findings and provides solution recommendations.

Throughout the study, the input/output and decision-making units used were determined through a focus group study. Subsequently, the relevant data was collected from the "Human Resources Department, Business Development Department, Administrative Directorate under the Operational Coordination, and External Doctor Unit" of the private hospital and merged. The merged data was then analyzed and interpreted using the DEA-Frontier package program in Excel Solver.

Based on the interpreted data, the efficient and inefficient units of the respective private hospital were identified, and reference sets were provided for the inefficient units. The necessary improvements to make them efficient were highlighted.

Key Words: Data Envelopment Analysis, Efficiency, Private Health Sector

CONTENTS

ABSTRACT	1
1. INTRODUCTION	3
2. DATA ENVELOPMENT ANALYSIS	3
Implementing Data Envelopment Analysis	4
Application Areas of Data Envelopment Analysis	5
3. DEA APPLICATIONS IN THE HEALTH SECTOR.....	6
4. PRIVATE HOSPITAL APPLICATION	7
The Purpose and Scope of the Research.....	7
Selection of Decision-Making Units and Variables.....	7
Selection of the Model to be Used in Practice	8
Data Collection and Dataset	8
Analysis of Results	10
5. CONCLUSIONS	12
References	13