Evaluating Human Resource Efficiencies of Mongolian Hospitals with network DEA

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Abstract

This study proposes the network data envelopment analysis (NDEA) models for evaluating the human resource efficiencies of Mongolian hospitals. In the proposed NDEA multi-objective programming (NDEA-MOP) model, the efficiency of each division (within a hospital) and the overall efficiency of a hospital are formulated as different objective functions. Using the fuzzy approach, the overall as well as the divisional efficiencies can be computed in a cohesive framework. We conduct the case study of the Mongolian hospitals with the data from the Health Statistics Department of the Government Implementing Agency- Department of Health of Mongolia. The results show that NDEA-MOP obtains satisfactory and discriminating efficiency scores compared with related studies.

Keywords: Network data envelopment analysis (NDEA), multi-objective programming (MOP), mongolian hospitals, human resource efficiencies.

1. Introduction

Providing healthcare systems is one of the responsibilities of a government. Every patient should be able to get proper treatment in a cost-effective way. Hospitals that can provide good services are also anticipated to improve efficiencies for long-term operations. Thus, evaluation of hospitals has become a main issue in national healthcare systems. By an effective evaluation, hospital administrators or government regulators can take actions to improve efficiency and service quality.

Since healthcare is a knowledge-intensive and skill-intensive business, this study proposes the network data envelopment analysis (NDEA) models for evaluating the human resource efficiencies of Mongolian hospitals. In the proposed NDEA multi-objective programming (NDEA-MOP) model, the efficiency of each division (within a hospital) and the overall efficiency of a hospital are formulated as different objective functions. Using the fuzzy approach, the overall as well as the divisional efficiencies can be computed in a cohesive framework. We conduct the case study of the Mongolian hospitals with the data