

# Factors affecting the technical efficiency of rural primary health care centers in Hamadan, Iran: data envelopment analysis and Tobit regression

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## Research

**Keywords:** Resource Allocation, Efficiency, Efficiency, Organizational, Regression Analysis, Primary Health Care, Rural Health Services, Iran

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# Abstract

**Background:** Studying and monitoring the efficiency of primary health care centers has a special place in the health system. Although studies have been conducted in the field of efficiency in Iran, few have focused on rural primary health care centers. In addition, previous studies have not used the child mortality rate and Behvarzes as input and output.

**Objective:** The present study was conducted aimed to estimate the technical efficiency of rural primary health care centers and determinant factors in Hamadan using data envelopment analysis and Tobit regression.

**Methods:** This is a Longitudinal study of rural primary health care centers in Hamadan province (2002-2016). Data Envelopment Analysis was employed to estimate technical efficiency of sampled health facilities while Panel Tobit Analysis was applied to predict factors associated with efficiency levels. The outputs were child mortality rate under one year of age and child mortality rate one year to five years of age. The input was Behvarzes (rural health workers).

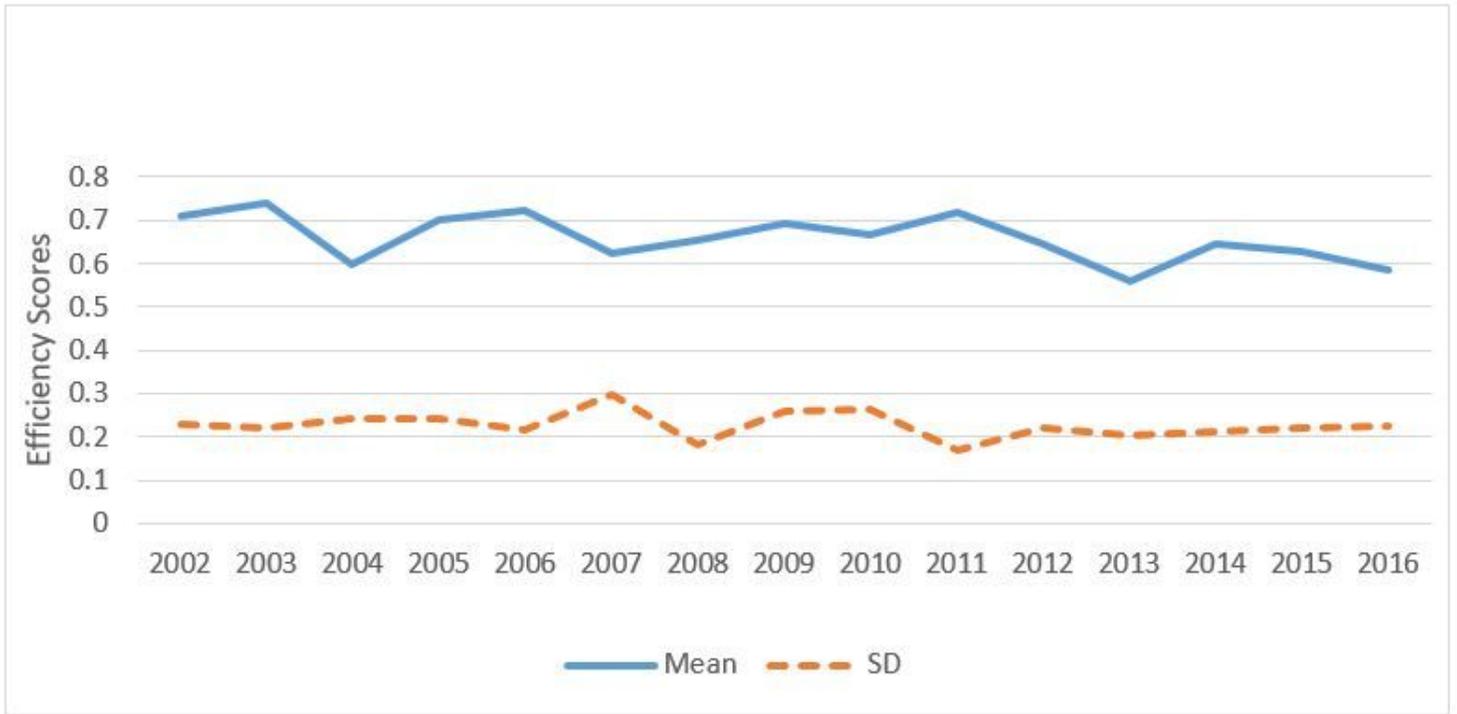
**Results:** The results of efficiency analysis showed that the average efficiency scores of the centers had a fluctuating trend during the period of the study, but the average performance scores generally decreased in 2016, as compared with 2002. The highest and lowest average performance scores were observed in 2003 (0.78) and 2013 (0.56), respectively. Number of physicians and rural primary healthcare centers per population had a positive statistically significant and the number of midwives and the total fertility per population had a negative statistically significant effect on efficiency.

**Conclusions:** The findings suggest some level of wastage of health resources in primary health centers. Findings indicate a level of waste of health resources in primary health centers. Behvarz functions in providing primary care services can be considered in the reallocation and optimal use of available resources at the level of rural health centers.

## Full Text

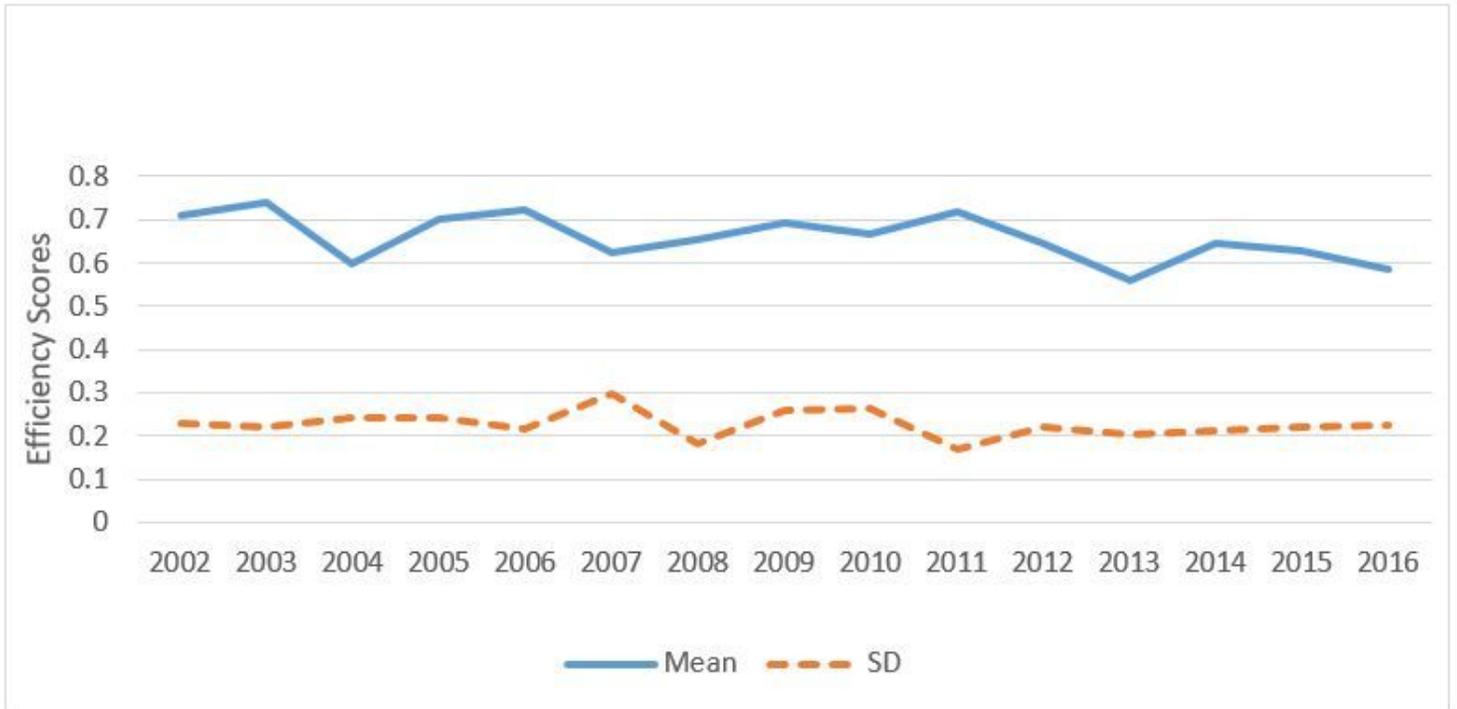
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## Figures



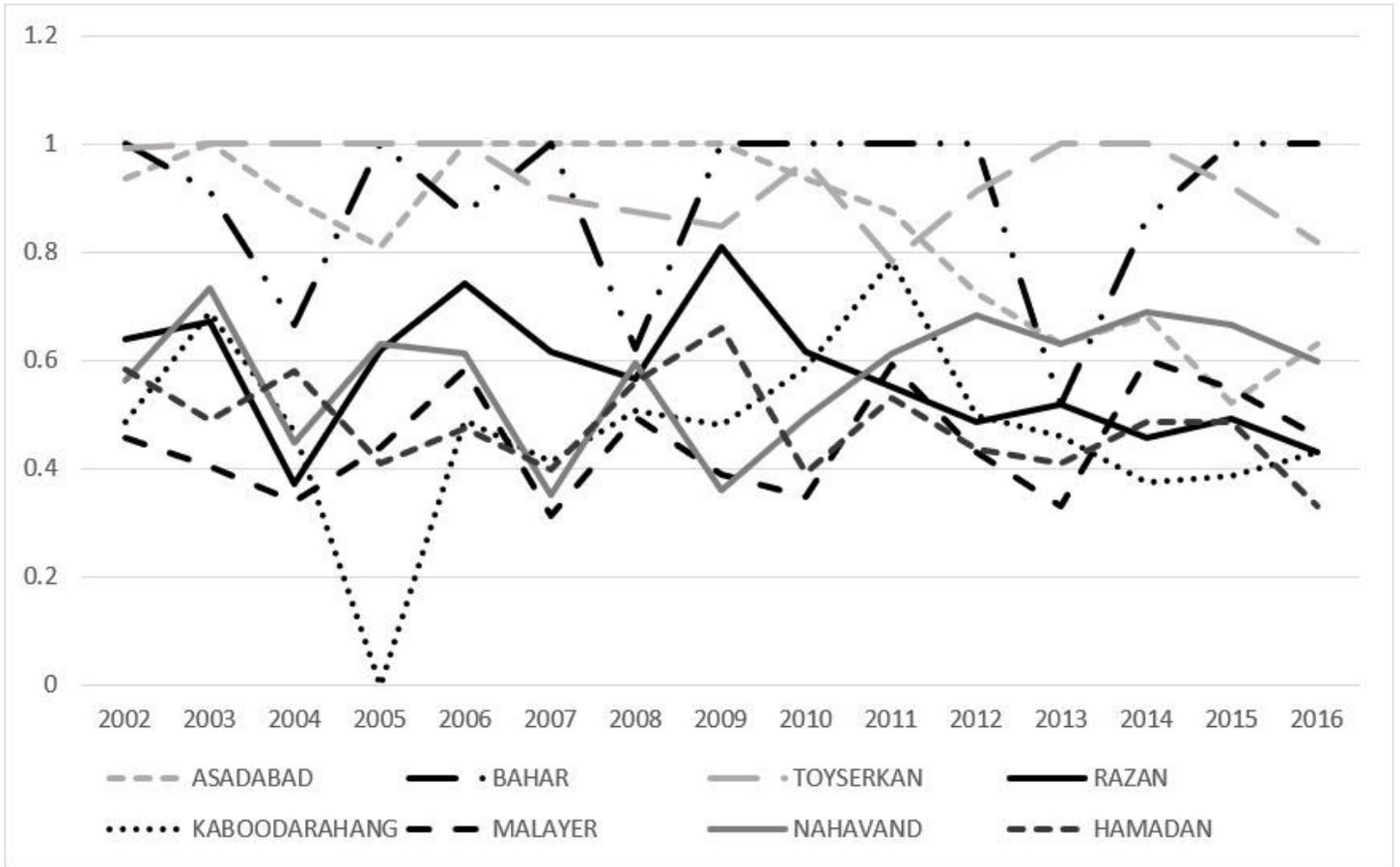
**Figure 1**

Mean and Standard deviation of total efficiency score in time period



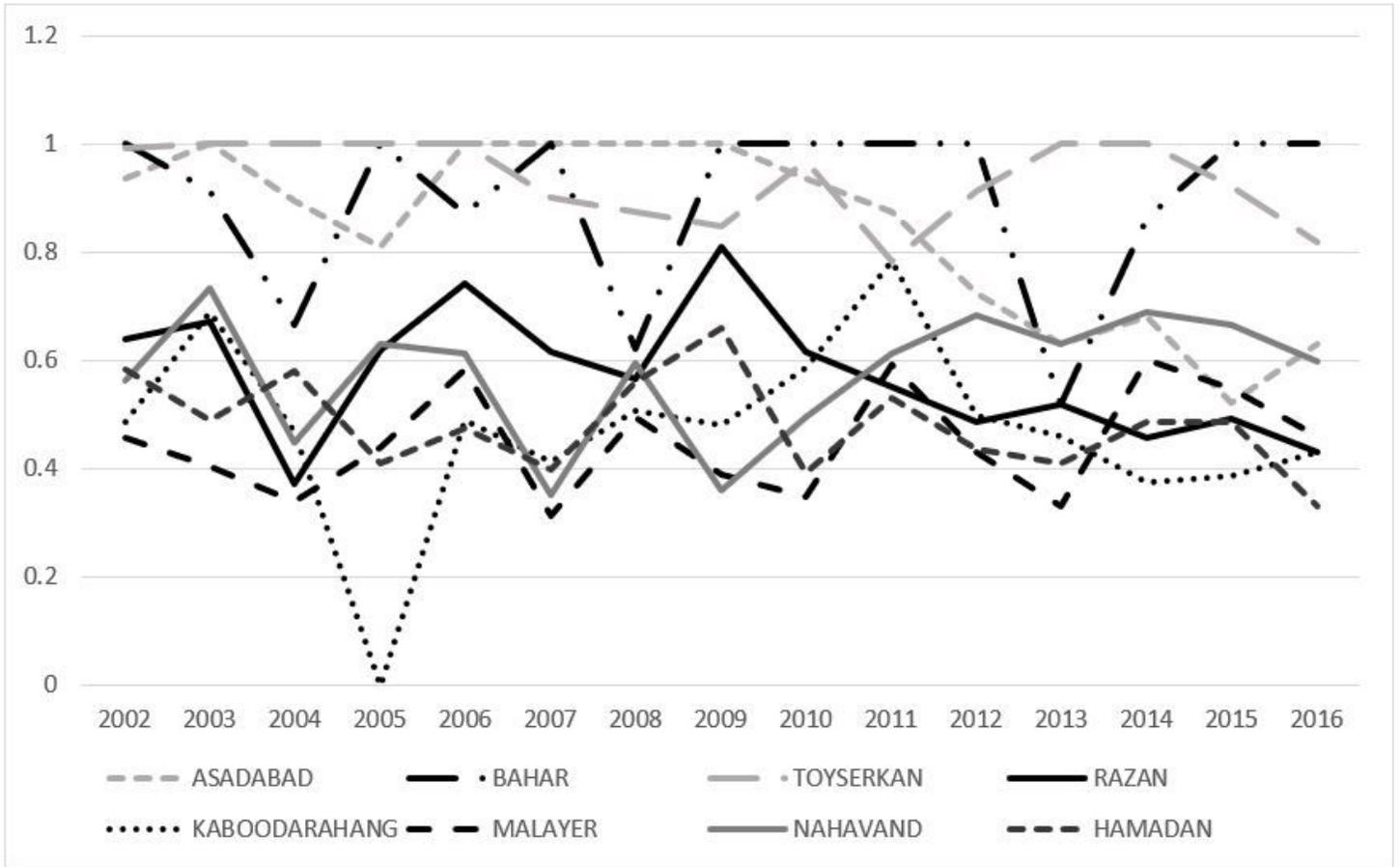
**Figure 1**

Mean and Standard deviation of total efficiency score in time period



**Figure 2**

Mean of efficiency score based on primary health care centers in eight county of Hamadan province between 2002-2016



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