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The Efficiency Analysis in the Health Sector: Marmara Region

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Abstract : Health is one of the main components of human capital and sustainable development, and it is very important for economic growth. Health economics, which is an indisputable part of the science of economics, has five stages in general. These are health and development, financing of health services, economic regulation in the health, allocation of resources and efficiency of health services. A well-developed and efficient health sector plays a major role by increasing the level of development of countries. The most crucial pillars of the health sector are the hospitals that are divided into public and private. The main purpose of the hospitals is to provide more efficient services. Therefore the aim is to meet patients' satisfaction by increasing the service quality. Health-related studies in Turkey date back to the Ottoman and Seljuk Empires. In the near past, Turkey applied 'Health Sector Transformation Programs' under different titles between 2003 and 2010. Our aim in this paper is to measure how effective these transformation programs are for the health sector, to see how much they can increase the efficiency of hospitals over the years, to see the return of investments, to make comments and suggestions on the results, and to provide a new reference for the literature. Within this framework, the public and private hospitals in Balıkesir, Bilecik, Bursa, Çanakkale, Edirne, Istanbul, Kirklareli, Kocaeli, Sakarya, Tekirdağ, Yalova will be examined by using Data Envelopment Analysis (DEA) for the years between 2000 and 2019. DEA is a linear programming-based technique, which gives relatively good results in multivariate studies. DEA basically estimates an efficiency frontier and make a comparison. Constant returns to scale and variable returns to scale are two most commonly used DEA methods. Both models are divided into two as input and output-oriented. To analyze the data, the number of personnel, number of specialist physicians, number of practitioners, number of beds, number of examinations will be used as input variables; and the number of surgeries, in-patient ratio, and crude mortality rate as output variables. 11 hospitals belonging to the Marmara region were included in the study. It is seen that these hospitals worked effectively only in 7 provinces (Balıkesir, Bilecik, Bursa, Edirne, İstanbul, Kırklareli, Yalova) for the year 2001 when no transformation program was implemented. After the transformation program was implemented, for example, in 2014 and 2016, 10 hospitals (Balıkesir, Bilecik, Bursa, Çanakkale, Edirne, İstanbul, Kocaeli, Kırklareli, Tekirdağ, Yalova) were found to be effective. In 2015, ineffective results were observed for Sakarya, Tekirdağ and Yalova. However, since these values are closer to 1 after the transformation program, we can say that the transformation program has positive effects. For Sakarya alone, no effective results have been achieved in any year. When we look at the results in general, it shows that the transformation program has a positive effect on the effectiveness of hospitals.

Keywords : data envelopment analysis, efficiency, health sector, Marmara region
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