

## Abstract

### EFFECTIVENESS OF POLISH CLINICAL HOSPITALS

In response to the fact that a significant part of the national income is allocated to the health care, it is becoming more and more important to improve the efficiency of this sector. In recent years, methods using *Data Envelopment Analysis*, allowing to solve problems such as changes in efficiency over time and the impact of environmental factors (e.g. type of ownership or institution) on efficiency have gained popularity.

This dissertation is focused on the assessment of the effectiveness of the operations of Polish clinical hospitals in years 2012-2016. The study covered 20 clinical hospitals, which accounted for 50% of all operating in the country. Due to the statutory necessity to conduct medical, didactic and scientific activities at the same time, clinical hospitals in Poland play a unique role in the health care system.

This work is devoted to efficiency, the concept of which - seemingly simple and unambiguous - still causes scientific discussions about meaning and measurement. The dissertation presents some of the currently used measurement techniques (indicative, non-parametric) and rigorously assesses the possibilities and limitations resulting from their use in the health care sector. Using the set of indicators included in the Regulation of the Minister of Health of 12 April 2017 on economic and financial indicators (Journal of Laws 2017, item 832) and using the DEA BCC CRS model (Banker, Charnes and Cooper model, assuming constant returns to scale), window-DEA and Malmquist Index, a multi-criteria approach to measuring effectiveness was presented and implemented. A proprietary method of selecting variables for the DEA model was developed and verified with the existing method of combined forward selection. On the basis of the indicated model, a comparative assessment of the effectiveness of the studied clinical hospitals in static and dynamic terms was performed. Also, a two-factor decomposition of the Malmquist index was fulfilled to indicate the predictor of changes in productivity.

The paper is a balanced critique of the tools currently used to evaluate these specific entities in the health care sector. Taking into consideration the differences in the effectiveness results, depending on the assessment method used, a number

of solutions and recommendations have been developed for business practice, including for the Ministry of Health, regarding how to approach changing the system for assessing the effectiveness of clinical hospitals.

*Keywords: clinical hospital, efficiency, ratio analysis, Data Envelopment Analysis, window-DEA, Malmquist index*