CERIS : Civil Engineering Research and Innovation for Sustainability

Group decision making and network data envelopment analysis with uncertainty: An approach for improving healthcare services

Summary

Healthcare services are crucial to ensure the populations' welfare. However, the resources needed to provide adequate care in due time are limited. Furthermore, it is fundamental to guarantee that the performance of the services is the highest possible, improving the overall service quality without raising costs.

Several methodologies have been proposed to assess performance, although the majority could not incorporate all the complexity that a healthcare system presents. The newly suggested approach allows for considering the internal heterogeneous structure shown in the healthcare sector and taking into consideration the judgments of several stakeholders, such as politicians, managers, and patients.

Accordingly, network data envelopment analysis and multi-criteria decision-making methods will be used. Moreover, dealing with uncertainty allows a broader analysis of the healthcare systems, overcoming problems related to data quality common in this sector. Therefore, this original methodology aims to solve past drawbacks resulting in a more accurate hospital performance analysis.

Keywords

Network-DEA, healthcare, uncertainty, hospital performance, group decision-making.

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