

**Call for Papers - *Socio-Economic Planning Sciences* - Special Issue**

**Methods and techniques for assessment of health care performance**

**Guest Editors: Diogo Cunha Ferreira\*, Ana Camanho, and José Rui Figueira**

\* Key Guest Editor

Socio-Economic Planning Sciences invites submissions that focus on theoretical contributions and innovative application frameworks to assess efficiency, quality, and access to health care systems (HCS) worldwide. HCS are complex structures that produce multiple outputs from a set of resources (Pereira et al., 2020). Despite the inherent complexity of their value chains, the practices adopted and results achieved must be evaluated. Several factors boost this task's relevance, including nations' economic sustainability and the necessity of providing services with standard quality assurance (Ferreira and Marques, 2021). In some countries, the government has a strong and active involvement in this health market, assuming the insurer and market regulator's role. The pressure on all stakeholders (e.g., regulators, administrative authorities, managers, and health workers) is intense, emphasizing the need for accountability while providing quality healthcare to the population. In this context, the evaluation of HCS' performance is critical to promote the elimination of inefficiencies, which is critical to save taxpayer money, enhance service quality, and ensure the adequate supply of health services.

Several approaches have been proposed in the literature to measure the performance of HCS, including Data Envelopment Analysis (DEA) models, robust DEA approaches, Stochastic Frontier Analysis (SFA), and total factor productivity indices (Ferreira and Marques, 2016). Concerning applications in the health care sector, among the frontier-based methods for performance assessment, DEA models are the most frequently used. The axiomatic approach underlying this technique reduces the assumptions required to estimate the frontier and evaluate efficiency levels.

In general, both SFA and DEA are disturbed by outliers and by problems of multicollinearity, endogeneity, and heteroscedasticity. Another unsolved issue of these models is the inclusion of qualitative information. Overall performance should reflect the balance of efficiency, effectiveness/quality, and equity dimensions. While efficiency measures the extent of resource utilization to produce goods/ services, effectiveness

reflects the ability to meet the desired objectives, often encompassing qualitative aspects such as patient and staff satisfaction, preventable mortality, quality adjusted life-year, among others (Mendonça et al., 2020). Access to health care is also a crucial aspect of health care provision, which gained even more importance during the COVID-19 pandemic.

Several prior studies have explored the relationships between quality of care and efficiency in HCSs, leading to controversial conclusions (Ferreira et al., 2020). Past studies have mostly considered the efficiency and quality dimensions separately in the assessment of HCS performance. However, this approach has limitations, as quality is not considered in estimating the technology underlying health services provision. Conversely, several other studies have included multiple quality indicators (e.g., mortality rates) as additional outputs in DEA, which may also cause the loss of discriminating power of the DEA model. The use of enhanced DEA models, incorporating multipliers restrictions, was a proposed strategy followed by some authors. Although this approach may improve the models' discrimination power, the results generally do not have a simple and straightforward interpretation. The selection of appropriate bounds for the restrictions is a complicated task (Zanella et al., 2015). Their mathematical representation must be considered carefully to ensure a proper specification of the frontier and avoid infeasibilities.

Models that disregard access or quality dimensions certainly yield biased results regarding the performance of HCS. The question is how to include all relevant dimensions, knowing that substantive information is often subjective (e.g., satisfaction). It cannot be included directly into standard benchmarking models, such as DEA, as simple extra variables. Authors use mainly quantitative indicators as quality proxies, forgetting the subjective aspects may not be adequately accounted for in the models specified. It constitutes a severe pitfall in existing literature, which we are endeavoring to overcome with authors' contributions to this Special Issue.

For this Special Issue, we are seeking papers that address innovative methods and application frameworks to measure the performance in the health sector in terms of efficiency, quality, and access dimensions, including but not limited to the following topics:

- Measuring the impact of public policies or social programs related to health care systems' performance;

- Health care systems' performance in a variety of scenarios, such as in wealthy and developed nations, or impoverished and social excluded regions;
- Theoretical and methodological challenges in understanding the determinants of health care systems' performance;
- Patterns and trends in health care systems' performance, across time, contexts, and demographic groups;
- Social determinants of health care systems' performance as they relate to demographic changes;
- Contextual determinants of health care systems' performance and health disparities;
- Cross-national perspectives in the examination of health care systems' performance.

Selected abstracts presented at the hSNS Workshop 2021 (<https://workshop.hsns.eu/>) will be invited to submit an article for this Special Issue. However, this call is open to the entire academic and policy-making communities.

The deadline for submissions is December 31, 2021. Authors should submit their papers online at <https://www.editorialmanager.com/SSM/default.aspx>. When asked to choose article type, authors should stipulate 'Special Issue: Methods and techniques for assessing hospital performance.' In the 'Enter Comments' box, the Special Issue title should be inserted along with any further comments to the editors. All submissions should meet the Socio-Economic Planning Sciences Journal author guidelines.

Papers will be subject to a strict review process managed by the Guest Editors. The major acceptance criteria for submission are the quality and originality of the study and the analytical contributions of the paper.

Early submission is encouraged. The referee process will start upon submission of the paper. Accepted papers will be published individually online as they are accepted before print publication. All inquiries concerning the submission to the special issue will be addressed directly by the Guest Editors. For any query, please contact the Key Guest Editor Diogo Ferreira ([diogo.cunha.ferreira@tecnico.ulisboa.pt](mailto:diogo.cunha.ferreira@tecnico.ulisboa.pt)).

The Guest Editors of this Special Issue are:

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### *A brief CV of the proposed Guest Editors*

**Diogo Cunha Ferreira** is an Assistant Professor of Systems and Management in the Civil Engineering Department of Instituto Superior Técnico (IST), University of Lisbon. He completed his master's degree (2013) in Biomedical Engineering and his Ph.D. (2018) in Engineering and Management at Instituto Superior Técnico. D.C. Ferreira also holds a Post-graduation (2019) in Health Administration and Management, Instituto Superior de Ciências Sociais e Políticas, University of Lisbon. He teaches operational research, performance assessment, project management, logistics, decision theory, and statistical modeling. His research interests include (but are not limited to) Benchmarking and Performance evaluation of Health Services, Local Government, Public Services, and Infrastructures using Data Envelopment Analysis and Free Disposal Hull, Congestion analysis, Productivity evaluation (clusters and time evolution), Malmquist, Luenberger, and Hicks-Moorsteen indices, Scale and Scope economies, ELECTRE methods, MAUT, and Satisfaction analysis. Since 2015, he has published more than 30 studies in ISI peer-reviewed journals of operational research, management science, health economics, health policy, sustainability, environment, and local government. He is currently a Member of the Advisory Board of Ecological Indicators. Currently, he supervises or co-supervises about 20 master theses and three Ph.D. dissertations.

**Ana Camanho** is an Associate Professor of the School of Engineering of the University of Porto (FEUP). She holds a Ph.D. in Industrial and Business Studies from Warwick Business School, United Kingdom (1999). She is pro-director of FEUP, director of the Integrated Master in Engineering and Industrial Management of FEUP, and member of the Pedagogical Council of FEUP. She is the coordinator of the Data Science area of the MIT-Portugal Program. She was vice president of the Portuguese Association of Operational Research (2011-2012) and vice-director of the Doctoral Program in Engineering and Industrial Management at FEUP. Her main research area is Performance

Measurement and Data Science, with emphasis on the development of models for evaluating the efficiency and productivity change using the Data Envelopment Analysis. She is the author of over 70 articles in international journals (indexed in the Web of Science and Scopus) in Management Science. Her work has more than 2200 citations (h-index 24) in Scopus. She has been involved in research projects in the following areas: banking, fisheries, education, health, transport, retail, construction industry, manufacturing, mining industry, Corporate Social Responsibility, quality of life and sustainable development of countries and cities, regulation of electricity distribution companies and benchmarking of wastewater utilities. She is Associate Editor of the Journal of Productivity Analysis and RAIRO - Operations Research.

**José Figueira** is a Full Professor at Universidade de Lisboa and researcher at CEG-IST, Center for Management Studies of Instituto Superior Técnico. Professor Figueira taught and researched at the University of Evora, University of Coimbra, Nancy's School of Mines (he got a Full Professor position). He is a former member of LAMSADE (University Paris-Dauphine), INESC-Coimbra, and DIMACS (Rutgers and Princeton Universities) research centers. He obtained his Ph.D. in 1996 in the field of Operations Research from the University of Paris-Dauphine and his HDR at the same University in 2009 in the field of Multiple Criteria in Operations Research and Decision Aiding. Professor Figueira's current research interests are in decision analysis, integer programming, network flows, and multiple criteria decision aiding. His research has been published in such journals as Operations Research, European Journal of Operational Research, Computers & Operations Research, Journal of the Operational Research Society, Journal of Mathematical Modeling and Algorithms, European Business Review, Annals of Operations Research, Journal of Multi-Criteria Decision Analysis, Socio-Economic Planning Sciences, OMEGA, International Journal of Medical Informatics, Applied Soft Computing, and Optimization Letters. He is the co-editor of the books "Multiple Criteria Decision Analysis: State of the Art Surveys, Springer Science + Business Media, Inc, 2016 (2<sup>nd</sup> edition) and "Trends in Multiple Criteria Decision Analysis, Springer Science + Business Media, Inc, 2010. He currently serves as a coordinator of the European Working Group on Multiple Criteria Decision Aiding and Member of the International Society's Executive Committee on MCDM. He is an Associate Editor of JMCDA, a member of the board of EJOR, and belongs to the advisory

board of other scientific international journals. He was awarded in 2017 the Gold Medal of the International Society on MCDM and elected in 2019 as the Elected President of this society.

***A statement of the Special Issue's significance to Socio-Economic Planning Sciences, and the likely content to be covered.***

This special issue will consist of an international and interdisciplinary forum for disseminating healthcare economics research on health, focusing on healthcare performance assessment.

In line with the Socio-Economic Planning Sciences policy, new methodological developments concerning performance assessment using either DEA or multicriteria decision analysis, or both, are welcome in this Special Issue. Thus, papers with a strong mathematical/quantitative background and delivering interesting developments are welcome. Naturally, they must be followed by a case study based on HCS(s), with sound economic, managerial, and/or policy implications. As a rule of thumb, "*of the model/methodology itself, the application, and the problem context, at least one of these must be unique and important.*"

As a result, the Special Issue will consist of a set of original research articles aiming to inform current research, policy, and practice in all areas related to HCSs performance assessment and are of common interest to health economics, managers, practitioners, and policymakers. Although it is neither an exclusion criterion nor a guarantee of acceptance, special attention will be given to studies related to HCSs in emerging economies. Nonetheless, other case studies can also be considered.

The submissions will first be evaluated regarding their uniqueness, methodology, case study/problem context, accuracy, logical flow, and writing quality. Submissions failing one of these criteria may be returned to the authors quickly (before peer-review) or, in some cases, desk rejected.

## Timetable

Year		2021												2022								
Month		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9
<b>Tasks</b>	Submissions open																					
	Review – First Round																					
	Corrections – First Round																					
	Review – Second Round																					
	Corrections – Second Round*																					
	Acceptance/ Rejection																					
	Editorial and publication																					

\*- Second round corrections are expected to be minor. No more than two rounds of revision allowed.

### Important dates

Submission deadline	December 31, 2021
First round of peer-review	February 28, 2022
First round of revisions	March 31, 2022
Second round of peer review	April 30, 2022
Final version of papers	May 31, 2022
Notification of acceptance/rejection	June 30, 2022
Editorial and publication	September 30, 2022 (third quarter of 2022)

Papers will be evaluated according to the "first in, first out" method, so they can be sent for another round of revision/accepted/rejected before the indicated deadlines. However, their publication should not occur before September 30, 2022. The submission deadline should not be extended.

## ***References***

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