

Stable and Robust Management of Health Care Services

Initiative: Freigeist-Fellowships

Bewilligung: 01.07.2015

Laufzeit: 5 Jahre

Projekt-Website: <http://www.combi.rwth-aachen.de>

Health is one of the most important factors for the prosperity and well-being of a society. In recent years, this system is challenged by demographic changes: the elderly population (age 65 and older) will increase, while the work force decreases simultaneously. In order to keep the high standard of the German health care system, it is crucial to improve on the efficient and effective use of our resources. The project "Stable and Robust Management of Health Care Services" focuses on two sectors of the health care system: 1) the coverage of health care services in rural areas and 2) the efficient management of hospitals. Planning and organization in these fields are complicated by the uncertain nature of health care processes. We aim at a novel method called recoverable robustness to deal with these uncertainties to obtain robust and efficient solutions. Overall, the project combines one of the most important topics of public and social relevance -our health care system- with recent trends and challenges in combinatorial optimization and integer programming namely (recoverable) robust optimization. Considering problems from health care will deepen the understanding of uncertainties and will trigger the development of new solution methods. Using robustness to obtain stable solutions will improve our health care system and guarantee a high quality of service in Germany.

Projektbeteiligte

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A Branch & Bound Algorithm for Robust Binary Optimization with Budget Uncertainty
Robust Minimum Cost b-Flow Problem Under Consistent Flow Constraints

