

RESEARCH SEMINAR

DEPARTMENT OF GEOGRAPHY AND RESOURCE MANAGEMENT
THE CHINESE UNIVERSITY OF HONG KONG

Equalizing the Spatial Accessibility of Emergency Medical Services in Shanghai: A Trade-off Perspective

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Planning public services needs to promote equal access across geographic areas and between demographic groups. However, most location-allocation models emphasize efficiency such as minimal travel burden or maximal demand coverage while omitting the equality issue. This case study optimizes the emergency medical service (EMS) in Shanghai from a trade-off perspective by comparing two models. One is the 2-step optimization (2SO) model that uses the maximum covering location problem (MCLP) to site new facilities and then a quadratic programming (QP) method to optimize capacities, the other performs location selection and capacity optimization simultaneously through greedy optimization (GO). There are several findings from various simulation scenarios. First, the GO model is more effective in optimizing equality, but the 2SO model offers a more balanced approach by covering more people within the mandatory response time while improving access equality. Secondly, solutions of both models change as demands and travel costs vary over time and call for dynamic adjustment of resource allocation. Thirdly, it is important to coordinate EMS with other agencies to ensure reasonable road connectivity and make contingency plans in events such as floods, earthquakes and other natural disasters.

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Mengya Li received the Ph.D degree from the School of Geographic Sciences, East China Normal University, Shanghai in 2019. From 09/2017 to 09/2018, She was a visiting scholar with the Department of Geography & Geographic Information Science, University of Illinois at Urbana-Champaign. She has published more than 10 papers on international journals such as JTRG, CEUS, and CITIES. She is currently an associate professor with the School of Public Management, East China Normal University. Her research interests include spatial accessibility and equality optimization, transport services, emergency response services under extreme disaster scenarios.



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