THRESHOLD EFFECT FOR REGIONAL EMERGENCY MANAGEMENT: AN ASSESSMENT BY THE SYSTEM SIMULATION APPROACH IN CHINA

Liu Zezhao
School of Government, Nanjing University, Nanjing, China[1]
School of Public Administration and Society, Jiangsu Normal University, Xuzhou, China[2]
preliu@yeah.net

Ma Rui
School of Public Administration and Society, Jiangsu Normal University, Xuzhou, China[2]
ruim@stu.jsnu.edu.cn

Wang Wei
School of Public Policy & Management, Xi`an Jiaotong University, Xi`an, China[3]
ruim@stu.jsnu.edu.cn

Abstract – Academic paper

Ever since the concept of public safety has expanded in contemporary emergency management, researchers intend to explore in fields of risk reduction and hazard mitigation. Despite of theoretical advance, the relation between vulnerability and safety capacity has not yet been measured on the quantitative level. On the system perspective, vulnerability-capability is a feasible explanatory framework for the performance of emergency response and provides a practical path to reveal the innate relationship within. In this paper, we use Support Vector Machine (SVM) as a methodological tool to disclose the threshold effect by the indicator-based provincial data at different geographical scales in China. By achieving the objective, the study established a hierarchical index system and verified the threshold in the simulation approach. The result confirmed the mutual relevance between regional vulnerability and coping capability in disaster scenario. Specifically, when the regional public safety index exceeds a critical value (threshold), the number of emergency on the measured scale would arise along with the increasing of regional risk index. The improvement of regional public safety situation depends on vulnerability reduction and capability enhancement of public sectors in a persistent endeavor. Therefore, to achieve safety sustainability on the emergency field, the element of vulnerability and coping-capability ought to be jointly addressed for the administration, and furthermore steadily enhance the comprehensive capacity on the regional level.

Keywords: Public Safety, Resilience, Emergency management, China

[1] Shengda Building, 163 Xianlin Avenue, Nanjing, China, 210023
[2] 101 Shanghai Rd, Tongshan District, Xuzhou, Jiangsu, China, 221008
[3] No.28, Xianning West Raaaaaoad, Xi'an, Shaanxi, 710049,P.R. China