



ECONOMIC IMPACTS OF INFRASTRUCTURE DAMAGES ON INDUSTRIAL SECTOR –TRAFFIC ANALYSIS BASED ON SMALL AREA STATISTICS DURING THE 2004 MID-NIIGATA EARTHQUAKE

Yoshio KAJITANI¹

¹ Member of JAEE, Research Scientist, Central Research Institute of Electric Power Industry,
Tokyo, Japan, y-kaji@criepi.denken.or.jp

ABSTRACT: This paper proposes a basic model for evaluating economic impacts on industrial sectors under the conditions that multiple infrastructures are simultaneously damaged during the earthquake disasters. Especially, focusing on the available economic data developed in the smallest spatial scale in Japan (small area statistics), economic loss estimation model based on the small area statistics and its applicability are investigated on. In the detail, a loss estimation framework, utilizing survey results on firms' activities under electricity, water and gas disruptions, and route choice models in Transportation Engineering, are applied to the case of 2004 Mid-Niigata Earthquake.

Key Words: *Small Area Statistics, Earthquake Disaster, Economic Impacts, Infrastructures, User Equilibrium Model*