

POSTERIOR ANALYSIS OF FATAL TRAFFIC ACCIDENTS ON HOKKAIDO PREFECTURE IN JAPAN

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Abstract

This paper considers the relationship between the size of economic activity and occurrence of fatal traffic accidents on Hokkaido prefecture in Japan from a Bayesian point of view. We applied a Poisson endogenous switching model with spatial dependency to examine the occurrence of fatal traffic accidents and the expressway construction simultaneously. From the empirical results, we can confirm; (1) the bigger the size of economic activity is, the smaller the number of fatal traffic accidents become; (2) the effect of expressway to fatal traffic accidents is different, if we ignore the endogenous switching; and (3) the spatial dependencies exist in fatal traffic accidents.

JEL classification: C11; C15; C21; H70.

Key words: Conditional autoregressive model (CAR); Endogenous switching model; Fatal traffic accidents; Markov chain Monte Carlo (MCMC); Poisson model.

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