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Tourist Mobility: A Markov Chain Approach Using Origin–Destination Survey Data

This study develops a data-driven Markov chain framework to analyse tourist mobility patterns using empirical origin–destination data collected through surveys at a tourism information point. The dataset records both the municipality visited immediately prior to the survey and the subsequent intended destination, enabling the estimation of transition probability matrices that govern the stochastic evolution of tourist flows. To capture behavioural heterogeneity, separate transition matrices are constructed for two age groups (15–35 and 36–55), and Monte Carlo simulations are performed to examine long-run visitation distributions. The results reveal significant differences in destination preferences across age cohorts and show that the survey location primarily functions as a transit node rather than a final destination. From an economic perspective, the findings provide insights into the spatial allocation of tourism demand and the connectivity structure of local destinations. Identifying high-probability transitions and persistent visitation patterns can support more effective destination management, targeted marketing strategies, and improved allocation of local resources. More broadly, the study demonstrates how partial mobility data can be integrated into a stochastic modelling framework to extract statistically robust and economically meaningful information, offering a flexible tool for the analysis and planning of tourism systems.

Special/ Invited session

Classification

Both methodology and application

Keywords

Tourist mobility, Markov chains, Tourism flows, Destination management

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