A probe into the mobility pattern of taxis in the city of Isfahan

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Abstract
Different studies have developed different statistical models in regard to human mobility patterns in different cities of the world. This paper is a statistical analysis of taxis trip distance in Isfahan. Data has been collected using taxi positioning automatic system from 53000 records throughout Isfahan. Results show that Lognormal yields a more suitable fit to the data at hand comparing exponential and Gamma, which has been collected. It was also shown that transportation hierarchy (highways, dual or multi carriageways) does not sufficiently explain the human mobility pattern. The trip lengths are shown to be 5 and 7 kilometers for working days and holidays respectively. Trip distance distribution in holidays has more skewness and kurtosis comparing to the working days. Consequently, taxis trip distance in holidays is more heterogeneous than working days. Peak hour trip length distribution function in working days shows lower means, standard deviations, skewness, and kurtosis compared with the whole day figures. The mean speed of taxis in Isfahan is \(v \cdot \text{km/h}\) in working days and \(\omega \cdot \text{km/h}\) in holidays.

Keywords: mobility pattern, urban network, trip, road hierarchy, curve fitting.

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