

## Method of Parameter Calibration for Error Term in Stochastic User Equilibrium Traffic Assignment Model

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**Abstract :** Stochastic User Equilibrium (SUE) model is a widely used traffic assignment model in transportation planning, which is regarded more advanced than Deterministic User Equilibrium (DUE) model. However, a problem exists that the performance of the SUE model depends on its error term parameter. The objective of this paper is to propose a systematic method of determining the appropriate error term parameter value for the SUE model. First, the significance of the parameter is explored through a numerical example. Second, the parameter calibration method is developed based on the Logit-based route choice model. The calibration process is realized through multiple nonlinear regression, using sequential quadratic programming combined with least square method. Finally, case analysis is conducted to demonstrate the application of the calibration process and validate the better performance of the SUE model calibrated by the proposed method compared to the SUE models under other parameter values and the DUE model.

**Keywords :** parameter calibration, sequential quadratic programming, stochastic user equilibrium, traffic assignment, transportation planning

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