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Parameter estimation of mixed-GTWR based on variable selection. (Chinese. English summary) [Zbl 07404425]

Summary: Mixed geographical and temporal weighted regression (MGTWR) model has been widely used as an effective analytical method to deal with global stationary and local non-stationary spatial data. However, the parameter estimation method assumes that the fixed coefficient variable is known and there is no space-time effect, which makes the estimation value of regression coefficient become extremely unstable. In order to explore the parameter estimation method when the fixed coefficient variable has the space-time effect, this paper proposes a variable selection method to eliminate the interaction effect between the indicators, and gives the corresponding algorithm process. Through the real price data of commercial residential buildings in Urumqi, the different estimation methods are compared and verified. The results show that the performance and fitting effect of the MGTWR model obtained by the variable selection method are improved, the estimation of the fixed regression coefficient is more stable, and the original parameter estimation method is improved.

MSC:
62F10  Point estimation
62J05  Linear regression; mixed models

Keywords:
weighted regression model; variable selection; two-step estimation