



Model identification and selection for single-index varying-coefficient models

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Abstract

Single-index varying-coefficient models include many types of popular semiparametric models, i.e., single-index models, partially linear models, varying coefficient models, and so on. In this paper, a two-stage efficient variable selection procedure is proposed to select important nonparametric and parametric components and obtain estimators simultaneously. We also find that the proposed procedure can separate predictors into varying-coefficient and constant-coefficient predictors automatically. Theoretically, it has the selection and estimation consistency properties. Simulation studies and a real data application are conducted to evaluate and illustrate the proposed methods.

Keywords Efficient estimating equation · Group LASSO · Single-index varying-coefficient model · Variable selection

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