

國立高雄大學統計學研究所

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Threshold Autoregressive Model with a Weighted Support

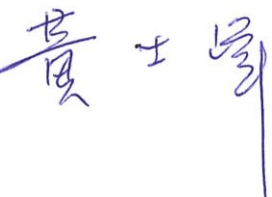
Vector Machine and Its Applications

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摘要

This study proposes a threshold autoregressive model with a weighted support vector machine, denoted by TAR-WSVM, to describe data dynamics under different states. The TAR-WSVM model accommodates covariates in both the TAR and WSVM parts, where the WSVM part is allowed to have a separating hyperplane with a nonlinear boundary. An iterative algorithm is also proposed for producing consistent parameter estimation. Several simulation scenarios are designed to investigate the fitting and prediction performances of the TAR-WSVM model. In addition, we apply the TAR-WSVM model to the day-ahead prediction of Belgium's electricity consumption from Jan. 2014 to Dec. 2017. The numerical results reveal that the TAR-WSVM model has satisfactory prediction performances compared to other competitors.

Keyword : nonlinear boundary, threshold autoregressive model, support vector machine

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