Some Topics in Forecasting

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Abstract

This talk will cover some of the new advancements in forecasting theory and methodology. I start by providing asymptotic expressions for the multistep mean squared prediction errors and accumulated prediction errors of two important methods, plug-in and direct prediction, in unstable autoregressive models. These expressions not only characterize how the prediction errors are influenced by the model orders, prediction methods, values of parameters, and unit root, but also inspire some new predictor selection criteria that can ultimately choose the best combination of the model order and prediction method with probability one. Simulation analysis also confirms the satisfactory finite sample performance of the newly proposed criteria.

For forecasting bankruptcy, I propose a time-varying logistic regression model. The time-varying feature of the model allows it to include different explanatory variables at different time periods, which leads to a better bankruptcy prediction. In particular, it is illustrated via a real data set that the time-varying model gains advantage over the traditional logistic regression model and Shumway's (2001) hazard model from both financial and predictive points of view.