Bagging and Forecasting in Nonlinear Dynamic Models

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Abstract

This paper proposes new variants of point forecast estimators in Markov switching models (Hamilton, 1989) utilizing bagging (Breiman, 1996), and applies them to study real GNP in the U.S. The empirical and Monte Carlo simulation results on out-of-sample forecasting show that the bagged forecast estimators outperform the benchmark forecast estimator by Hamilton (1989) in the sense of the prediction mean squared error. The Monte Carlo experiments present that interactions between a Markov process for primitive states and an innovation affect the relative performance of the bagged forecast estimators, and that effectiveness of the bagging does not die out as sample size increases.

Keywords: Bagging; Bootstrap; Forecast; Regime Switching; Time Series

JEL Classifications: C13; C15; C53; E37

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