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Primary Article

How Useful Is Bagging in Forecasting Economic Time Series? A Case Study of U.S. Consumer Price Inflation

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Abstract

This article focuses on the widely studied question of whether the inclusion of indicators of real economic activity lowers the prediction mean squared error of forecasting models of U.S. consumer price inflation. We propose three variants of the bagging algorithm specifically designed for this type of forecasting problem and evaluate their empirical performance. Although bagging predictors in our application are clearly more accurate than equally weighted forecasts, median forecasts, ARM forecasts, AFTER forecasts, or Bayesian forecast averages based on one extra predictor at a time, they are generally about as accurate as the Bayesian shrinkage predictor, the ridge regression predictor, the iterated LASSO predictor, or the Bayesian model average predictor based on random subsets of extra predictors. Our results show that bagging can achieve large reductions in prediction mean-squared errors even in such

challenging applications as inflation forecasting; however, bagging is not the only method capable of achieving such gains.

KEY WORDS:

Bayesian model averaging   Bootstrap aggregation   Factor model   Forecast combination

Forecasting model selection   Pre testing   Shrinkage estimation

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