

Approximate Nonlinear Forecasting Methods

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Abstract: We review key aspects of forecasting using nonlinear models. Because economic models are typically misspecified, the resulting forecasts provide only an approximation to the best possible forecast. Although it is in principle possible to obtain superior approximations to the optimal forecast using nonlinear methods, there are some potentially serious practical challenges. Primary among these are computational difficulties, the dangers of overfit, and potential difficulties of interpretation. In this paper we discuss these issues in detail. We propose the use of a new family of methods (QuickNet) that achieves the benefits of using a forecasting model that is nonlinear in the predictors while avoiding or mitigating the other challenges to the use of nonlinear forecasting methods. We illustrate QuickNet with an application to forecasting the S&P500 index.

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