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Statistics and Samples: Judging Time Series Models Automatically

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ABSTRACT

Given a time series data set, automatic time series modeling software can be used to select an appropriate time series model, using a three-stage process similar to training, testing, and validating models in neural networks. In this paper, we discuss statistics used (i) to judge how well each candidate model fits the data using in-sample data; (ii) to select an appropriate model from the list of candidate models and the merits of using either in-sample or out-of-sample data; and (iii) to judge the performance of the selected model using either in-sample or out-of-sample data. In addition, since forecasts are often hierarchical in nature, reconciliation statistics are also explained. Finally, these statistical analyses are demonstrated using SAS® Forecast Server.

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