

Bootstrap Joint Prediction Regions

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Abstract

Many economic and financial applications require the forecast of a random variable of interest over several periods into the future. The sequence of individual forecasts, one period at a time, is called a path forecast, where the term *path* refers to the sequence of individual future realizations of the random variable. The problem of constructing a corresponding joint prediction region has been rather neglected in the literature so far: such a region is supposed to contain the entire future path with a prespecified probability. We develop a bootstrap method to construct such a joint prediction region. The resulting region is proven to be asymptotically consistent under a mild high-level assumption. It also has better finite-sample performance than previous proposals in the literature.

KEY WORDS: Generalized error rates; path forecast; simultaneous prediction intervals.