On the Sampling Window Method for Long-Range Dependent Data

by

Peter Hall, Bing-Yi Jing and Soumendra Nath Lahiri
Iowa State University

Abstract

It is known that under conditions of long-range dependence, and for time series subordinated to Gaussian processes, the block bootstrap method produces invalid estimators of the distribution of the sample mean unless the limiting distribution is normal. In this paper we show that the sampling window produces valid, consistent estimators for non-normal as well as normal limits. Additionally, we introduce a method for "studentizing" the sample mean of long-range dependent data, and show that sampling window approximations of its distribution are also valid. That result suggests that the sampling window is useful for setting confidence intervals for a population mean in a particularly wide range of circumstances. This conclusion is supported by a small simulation study.