

**Smoothed Block Empirical Likelihood for Quantiles of Weakly
Dependent Processes**

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ABSTRACT

Abstract: Inference on quantiles associated with dependent observation is a commonly encountered task in risk management these days. This paper considers employing the empirical likelihood to construct confidence intervals for quantiles of the stationary distribution of a weakly dependent process. To accommodate data dependence and avoid any secondary variance estimation, the empirical likelihood is formulated based on blocks of observations. To reduce the length of the confidence intervals, the weighted empirical distribution is smoothed by a kernel function and a smoothing bandwidth. It shows that a rescaled version of the smoothed block empirical likelihood ratio admits a limiting chi-square distribution with one degree of freedom, which facilitates likelihood ratio confidence intervals for the quantiles.