

Asymptotics of trimmed CUSUM statistics

Johannes Schauer

Graz University of Technology

Trimming of sums is a classical approach in improving the sum's asymptotic behavior. Therefore let $\eta_{n,d}$ be the d -th largest random variable in absolute value from the sample X_1, \dots, X_n . Our interest lies on the study of moderately trimmed CUSUM statistics based on the trimmed partial sums $\sum_{j=1}^k X_j I\{|X_j| \leq \eta_{n,d}\}$ with $d = d(n) \rightarrow \infty$. We show that in a location model with i.i.d. errors in the domain of attraction of a stable law with $0 < \alpha < 2$, the appropriately trimmed CUSUM statistics converge weakly to a Brownian bridge. We also derive asymptotic results on the resampling behavior of trimmed samples and study the finite sample properties using simulations.