

Estimating Functionals for Heavy-Tailed Distributions and Application

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Abstract

L -functionals summarize numerous statistical parameters and actuarial risk measures. Their sample estimators are linear combinations of order statistics (L -statistics). There exists a class of heavy-tailed distributions for which the asymptotic normality of these estimators cannot be obtained by classical results. In this paper we propose, by means of extreme value theory, alternative estimators for L -functionals and establish their asymptotic normality. Our results may be applied to estimate the trimmed L -moments and financial risk measures for heavy-tailed distributions.

Keywords : Coherence; Dependence structure; Distortion function; Risk measure; Risk theory; insurance; Wang transform.

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