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Quantiles Estimation from Heavy-Tailed Distribution

In this work, we estimate quantiles (and other risk measures) from a nonparametric density estimation based on transformed data. A parametric cumulative distribution function is initially used to transform the data into values over the unit interval, from which a nonparametric density estimation is obtained. Finally, an estimation of the density of the original sample is obtained by back-transformation. This approach may be particularly useful to estimate heavy-tailed distributions. We discuss its implementation and its finite sample properties for density estimation, and for estimation and inference with quantiles.