Asymptotic normality of the adapted Hill estimator to censored data

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Abstract

The classical Hill estimator is the most popular estimator of the extreme value index of Pareto-type distributions in the case of complete data. Einmahl, Fils-Villetard and Guillou (2008, Bernoulli 14, no. 1, 207-227) adjusted this estimator (amongst others) to the case where the data are subject to random censorship. They established its asymptotic normality under three restrictive conditions, which produce an additional bias to the usual one. Making use of the empirical processes theory, we relax these conditions to only one and represent the adapted estimator in terms of Brownian bridges without the aforementioned bias.

Keywords : Brownian bridges; Extreme value index; Hill estimator; Random censoring; Regularly varying distributions.

Link http://arxiv-web3.library.cornell.edu/abs/1302.1666v2