

Extreme Value Index Estimators and Smoothing Alternatives: Review and Simulation Comparison

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Abstract

Extreme-value theory and corresponding analysis is an issue extensively applied in many different fields. The central point of this theory is the estimation of a parameter γ , known as extreme-value index. In this paper we review several extreme-value index estimators, ranging from the oldest ones to the most recent developments. Moreover, some smoothing and robustifying procedures of these estimators are presented. A simulation study is conducted in order to compare the behaviour of the estimators and their smoothed alternatives. Maybe, the most prominent result of this study is that no uniformly best estimator exist and that the behaviour of estimators depends on the value of the parameter γ itself.

Keywords : extreme value index; semi-parametric estimation; smoothing modification.