

MICHIGAN STATE UNIVERSITY
Department of Statistics and Probability

COLLOQUIUM

Dr. Jan Beirlant

Department of Mathematics and Leuven Statistics Research Center, KU Leuven

Extreme Value Statistics for Truncated Pareto Type Distributions

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10:20 a.m. - 11:10 am
Refreshments 10:00 am
C405 Wells Hall

Abstract

Aban, Meerschaert and Panorska (2006) derived the maximum likelihood estimator for the tail index of a truncated Pareto distribution with right truncation point T . They discussed and compared the use of the Hill (1975) and the maximum likelihood estimator under truncation in some practical settings. The Hill estimator was then considered as a limit case by letting $T \rightarrow \infty$.

The problem of extreme value estimation under (right) truncation was also introduced in Nuyts (2010) who proposed a similar estimator for the tail index and considered trimming of the number of extreme order statistics. Clark (2013) discussed such estimation problems from a risk management perspective.

Given that in practice one does not always know if the distribution is truncated or not, we study the properties of the estimators introduced in these papers in case of the general class of Pareto-type distributions, both truncated and not truncated. We also study the estimation of extreme quantiles within this setting.

Finally we conclude with simulation results and discuss some practical examples.

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