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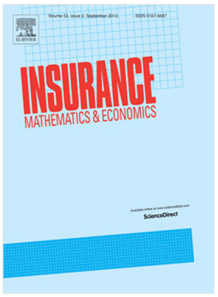


Extreme quantile estimation for $\beta$-mixing time series and applications

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# Extreme quantile estimation for $\beta$-mixing time series and applications

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**Abstract**

In this paper, we discuss the application of extreme value theory in the context of stationary $\beta$-mixing sequences that belong to the Fréchet domain of attraction. In particular, we propose a methodology to construct bias-corrected tail estimators. Our approach is based on the combination of two estimators for the extreme value index to cancel the bias. The resulting estimator is used to estimate an extreme quantile. In a simulation study, we outline the performance of our proposals that we compare to alternative estimators recently introduced in the literature. Also, we compute the asymptotic variance in specific examples when possible. Our methodology is applied to two datasets on finance and environment.

JELcode: C130
*Keywords:* Asymptotic normality; $\beta$-mixing; Extreme value index; GARCH models; High quantile; Market index; Return level; Value-at-Risk; Wind speed data.

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