



Estimation of extreme conditional quantiles under a general tail-first-order condition

Laurent Gardes¹ · Armelle Guillou¹ · Claire Roman¹

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Abstract

We consider the estimation of an extreme conditional quantile. In a first part, we propose a new tail condition in order to establish the asymptotic distribution of an extreme conditional quantile estimator. Next, a general class of estimators is introduced, which encompasses, among others, kernel or nearest neighbors types of estimators. A unified theorem of the asymptotic normality for this general class of estimators is provided under the new tail condition and illustrated on the different well-known examples. A comparison between different estimators belonging to this class is provided on a small simulation study and illustrated on a real dataset on earthquake magnitudes.

Keywords Extreme quantile · Local estimation · Asymptotic normality

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✉ Armelle Guillou
armelle.guillou@math.unistra.fr

¹ Institut de Recherche Mathématique Avancée, UMR 7501, Université de Strasbourg & CNRS, 7 rue René Descartes, 67084 Strasbourg Cedex, France