LOCAL ASYMPTOTIC NORMALITY IN EXTREME VALUE INDEX ESTIMATION

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Abstract. This paper deals with the estimation of the extreme value index in local extreme value models. We establish local asymptotic normality (LAN) under certain extreme value alternatives. It turns out that the central sequence occurring in the LAN expansion of the likelihood process is up to a rescaling procedure the Hill estimator. The central sequence plays a crucial role for the construction of asymptotic optimal statistical procedures. In particular, the Hill estimator is asymptotically minimax.

Key words and phrases: Extreme value distribution, extreme value index, domain of attraction, generalized Pareto distribution, Hill estimator, local asymptotic normality, central sequence, asymptotic efficiency.