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EXTENSIONS OF CHEBYCHEV'S INEQUALITY WITH APPLICATIONS

Peter J. Bickel
Abba M. Krieger

Abstract: Chebychev's inequality provides a bound on $P[|X-\mu| \geq k\sigma]$, where X has an arbitrary cdf F with $\sigma^2 < \infty$. We extend this result by placing further restrictions on F. We first assume that X is n times divisible so that X can be viewed as an average of n i.i.d. random variables.

Camp-Meidell's inequality provides a tighter bound than Chebychev's by assuming that X is absolutely continuous with unimodal density function. We also extend this inequality by placing additional smoothness assumptions on the density of X.

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