BAHADUR’S REPRESENTATION OF SAMPLE QUANTILES BASED ON SMOOTHED ESTIMATES OF A DISTRIBUTION FUNCTION

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Abstract: Suppose \( \hat{F}_n \) is a convolution-smoother of the standard empirical distribution function based on a random sample from a distribution \( F \) with a positive density. Consider the smoothed sample quantile function \( \hat{F}^{-1}_n(p) = \inf \{x : \hat{F}_n(x) \geq p\} \). Under appropriate conditions, we establish a pointwise Bahadur type representation theorem [1] from which local behavior can be inferred.

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