Nonparametric Estimation for Density Function with Bounded Support

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We consider in this talk, Bernstein and Beta kernel estimators for the unknown probability density function $f$ defined on $[0,1]$, asymmetric kernel density estimators and smoothed histograms when $f$ is defined on a nonnegative real line. Uniform weak and uniform strong consistency on each compact set are proved for these estimators. Weak convergence in $L_1$ of the asymmetric kernel density estimators and smoothed histograms is also established. Finally we prove the almost sure consistency, of these estimators, to infinity at $x = 0$ when the density function is unbounded at $x = 0$. Monte Carlo results and an empirical study of the shape of a highly income distribution are finally provided.


KEYWORDS: Nonparametric estimation; Asymmetric kernels; Smoothed histograms; Consistency; Unbounded Density.