

Asymptotic normality of Powell’s kernel estimator

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Abstract We establish asymptotic normality of Powell’s kernel estimator for the asymptotic covariance matrix of the quantile regression estimator for both i.i.d. and weakly dependent data. As an application, we derive the optimal bandwidth that minimizes the approximate mean squared error of the kernel estimator. We also derive the corresponding results to censored quantile regression.

Keywords Asymptotic normality · Bandwidth selection · Censored quantile regression · Density estimation · Kernel method · Quantile regression