

LOCAL INFLUENCE IN QUANTILE REGRESSION

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In this talk, we will consider the asymptotic behaviour of the quantile regression estimator when d fixed observations (not necessarily from the underlying model) are added to the data. In particular, defining $\hat{\beta}_n$ and $\hat{\beta}_n^{(+d)}$ to be the estimators based, respectively, on n and $n + d$ observations, we find a non-degenerate limiting distribution for $n(\hat{\beta}_n^{(+d)} - \hat{\beta}_n)$ as $n \rightarrow \infty$. The special case $d = 1$ corresponds to Tukey's stylized sensitivity curve. The asymptotics depends on the asymptotics of the basic regression quantile solution as well as those of the point process of small but non-zero residuals.