

## Regression quantile spacings

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Abstract

The asymptotic theory of spacings (differences between order statistics) was developed by Pyke (1965) in a seminal paper. In the i.i.d. setting, spacings can be used in a variety of settings, for example, in testing goodness of fit or in estimation of scale. In this talk, we will consider the asymptotics of “spacings” defined for central regression quantiles. In particular, we will study the limiting behaviour of  $n(\hat{\beta}_n(\tau + \ell/n) - \hat{\beta}_n(\tau))$  for fixed  $\ell$ . Under regularity conditions, this limiting distribution depends on a Poisson process. Some potential applications and extensions of this result will be discussed.

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