

Semiparametric Models in Survival Analysis and Quantile Regression

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Abstract

Many of the popular regression models used in survival analysis including Cox's proportional hazard model can be viewed as semiparametric models having some intrinsic monotonicity properties. One is interested in estimating and drawing inference about a finite dimensional Euclidean parameter in that model in the presence of an infinite dimensional nuisance parameter. These survival analysis models are special cases of monotone single index model used in econometrics. The use of average derivative quantile regression techniques for parameter estimation in such models will be discussed. In addition to regression models with univariate response and a single index, we will also discuss possible extensions of the methodology for multivariate response and multiple index models.