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Accelerated failure time model with quantile information

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Abstract The censored linear regression model, also referred to as the accelerated failure time model, is a useful alternative to the popular Cox model in the analysis of censored survival data. In this paper, we combine the quantile information with censored least-squares normal equations to get estimators with smaller estimated standard error for regression parameters. An inverse probability-weighted method is proposed to construct unbiased estimating equations with censored data and the lack of smoothness of the objective equations is overcome by replacing them with smooth approximations. The proposed estimators are established based on the empirical likelihood method and generalized method of moments, respectively, and their asymptotic properties are stud-

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ied under some regular conditions. We also conduct some simulation experiments to investigate the finite-sample properties of the proposed estimators. The Stanford Heart Transplant data are used to illustrate the proposed estimating method.