



Semiparametric quantile regression with random censoring

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Received: 16 May 2017 / Revised: 7 August 2018 / Published online: 10 September 2018
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Abstract

This paper considers estimation and inference in semiparametric quantile regression models when the response variable is subject to random censoring. The paper considers both the cases of independent and dependent censoring and proposes three iterative estimators based on inverse probability weighting, where the weights are estimated from the censoring distribution using the Kaplan–Meier, a fully parametric and the conditional Kaplan–Meier estimators. The paper proposes a computationally simple resampling technique that can be used to approximate the finite sample distribution of the parametric estimator. The paper also considers inference for both the parametric and nonparametric components of the quantile regression model. Monte Carlo simulations show that the proposed estimators and test statistics have good finite sample properties. Finally, the paper contains a real data application, which illustrates the usefulness of the proposed methods.

Keywords Inverse probability of censoring · Local linear estimation · M-M algorithm

I am grateful to the Associate Editor and two Referees for useful comments and suggestions that improved considerably the paper. The usual disclaimer applies.

Electronic supplementary material The online version of this article (<https://doi.org/10.1007/s10463-018-0688-3>) contains supplementary material, which is available to authorized users.

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