

# Regression analysis of informatively interval-censored failure time data with semiparametric linear transformation model

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**Abstract:** Regression analysis of interval-censored failure time data with noninformative censoring have been widely investigated and many methods have been proposed. Sometimes the mechanism behind the interval censoring may be informative and several approaches have also been developed for this latter situation. However, all of these existing methods are for single models and it is well-known that in many situations, one may prefer more flexible models. Corresponding to this, the linear transformation model is considered and a maximum likelihood estimation method is established.

In the proposed method, the association between the failure time of interest and the censoring time is modeled by the copula model, and the involved nonparametric functions are approximated by spline functions. The large sample properties of the proposed estimators are derived. Numerical results show that the proposed method performs well in practical application. Besides, a real data example is presented for the illustration.