

# **Semiparametric analysis of the additive hazards model with informatively interval-censored failure time data**

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**Abstract:** Regression analysis of failure time data has been discussed by many authors and for this, one of the commonly used models is the additive hazards model, for which some inference procedures have been developed for various types of censored data. In this paper, a much general type of censored data, case K informatively interval-censored data, is considered for which there does not seem to exist an established inference procedure. For the problem, a joint modeling approach that involves a two-step estimation procedure and the sieve maximum likelihood estimation is presented. The proposed estimators of regression parameters are shown to be consistent and asymptotically normal, and a simulation study conducted suggests that the proposed procedure works well for practical situations. In addition, an application is provided.