

## Proportional hazards regression under progressive Type-II censoring

Sergio Alvarez-Andrade · N. Balakrishnan ·  
Laurent Bordes

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**Abstract** This paper proposes an inferential method for the semiparametric proportional hazards model for progressively Type-II censored data. We establish martingale properties of counting processes based on progressively Type-II censored data that allow to derive the asymptotic behavior of estimators of the regression parameter, the conditional cumulative hazard rate functions, and the conditional reliability functions. A Monte Carlo study and an example are provided to illustrate the behavior of our estimators and to compare progressive Type-II censoring sampling plans with classical Type-II right censoring sampling plan.

**Keywords** Counting processes · Martingales · Order statistics · Progressive censoring · Proportional hazards model · Reliability · Semiparametric