

Modelling recurrent events with incomplete repair

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Abstract

Recurrent events appear in many fields such as science, medicine or technology. Often these events are followed by a repair action or treatment. A model for incomplete repair is the trend-renewal process (Lindqvist et al. 2003). It is composed of a trend and a renewal component. We will choose a Weibull process for both these components. Event times can stem from one individual as well as from many observed subjects as it is the case in medical studies. We will include a covariate term to the trend-renewal process to account for observed heterogeneities between the studied subjects. Survival data for subjects with different covariates is simulated and the performance of ML-estimators for this data is analyzed.

References

- Lindqvist, B. H., G. Elvebakk, and K. Heggland (2003). The trend-renewal process for statistical analysis of repairable systems. *Technometrics* 45(1), 31–44.