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Local linear estimation for time-dependent coefficients in Cox's regression model. (English)

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The proportional hazards (Cox regression) model with time dependent coefficients is considered for the conditional hazard function $\lambda(t | x)$ of a survival time T :

$$\lambda(t | x) = \lambda_0(t) \exp\left(\sum_{j=1}^p a_j(t)x_j\right).$$

A local linear partial maximum likelihood estimator $\hat{a}_j(t)$ is proposed for the functions a_j . The asymptotic normality of \hat{a}_j is demonstrated. Simulation examples and a case-study of gastric cancer data are presented.

Reviewer: R. E. Maiboroda (Kyïv)

MSC:

62N02 Estimation in survival analysis and censored data

62G20 Asymptotic properties of nonparametric inference

62P10 Applications of statistics to biology and medical sciences; meta analysis

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