

EXPONENTIAL TILT MODELS IN THE PRESENCE OF CENSORING

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abstract

We consider the extension of the Exponential Tilt Model (ETM) to censored time-to-event data. As an alternative to the Proportional Hazards Model (PHM), the ETM uses a log-linear model for the density ratio, leaving the baseline density unspecified. This semiparametric model accommodates a broad array of parametric models such as the log-normal and gamma models. We focus on a two-group comparison and develop a non-parametric likelihood approach to estimate the model parameters. By modeling the density ratio, the likelihood expression based on the ETM is often simpler and easier to study than that based on the PHM, which makes the ETM appealing in many situations. I will discuss applications of the ETM in cure models, mixture models and genetic Quantitative Trait Loci (QTLs) analysis.