EMPIRICAL LIKELIHOOD INFERENCE FOR SURVIVAL RATE REGRESSION WITH MISSING INFORMATION PRINCIPLE

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Abstract: Recently, regression model for the long-term survival probabilities of patients was proposed, and a semiparametric inference procedure was developed based on missing information principle. In this paper, we propose an alternative empirical likelihood method. First, we define an estimated empirical likelihood ratio for the regression parameter. The limiting distribution of the empirical likelihood ratio is shown to have a weighted sum of i.i.d. χ_1^2's. We also define an adjusted empirical likelihood ratio for the regression parameter and the adjusted empirical likelihood ratio is shown to have a central chi-squared limiting distribution. Confidence regions for the vector of regression parameter are obtained accordingly. Furthermore, an extensive simulation study is conducted and it shows the proposed method has better coverage probability. Finally, we use a real data set to illustrate our proposed method.

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