Asymptotic theory for estimators under random censorship.

Babu, Gutti Jogesh (1-PAS-S)


Generally, the i.i.d. representation of the product limit estimator, \( \hat{F} \), of an unknown distribution \( F \) is used to show that \( \hat{F} \) can be approximated by a Gaussian process. However, the error term in previously obtained results is too large to serve the purpose on hand for the author. Therefore, he first obtains a \( U \)-statistics representation of \( \hat{F} \) with an error term of the order \( o(1/n) \). He then uses this result to show that the maximum likelihood estimator of the specific risk rate in the time interval \([0, M]\) (defined as the ratio of the probability of death, due to a particular cause in the time interval \([0, M]\), to the mean life time of an individual up to the time point \( M \)) admits a two term-Edgeworth expansion. He uses similar expansions for the bootstrapped statistics to show that the bootstrap distribution of the Studentized estimator of the risk rate provides a better approximation to the sampling distribution than the corresponding normal distribution.

*Eswar G. Phadia* (Wayne, NJ)