ESTIMATION OF THE MEDIAN SURVIVAL TIME UNDER RANDOM CENSORSHIP*

Joseph C. Gardiner

Michigan State University

V. Susarla

State University of New York - Binghamton

and

John Van Ryzin

Columbia University

An estimator of the median survival time m is constructed from survival data subject to random right censorship. For a broad class of nonparametric survival and censoring distributions, the asymptotic theory of the estimator is derived including its consistency in p-th mean, asymptotic normality, and a.s. convergence.

1. Introduction.

In several longitudinal studies the median and mean survival times are considered important summary statistics describing the survival experience of the sample under observation. The mean survival time is a commonly used statistic in the case of no censoring. This is due to its ease of computation and the considerable literature available on its properties. However, its competitor, the median survival time may be preferred with censored survival data because it is less sensitive to large observations and to the censoring pattern. The purpose of this article is to introduce an estimator of the median survival time which has applications in a variety of situations encountered in

^{*}Research sponsored in part by a grant form the National Institutes of Health under Grant 2R01-GM 28405 and in part by the Office of Naval Research under Contract N00014-79-C-0522.

AMS 1980 subject classifications. 62G05, 62G15, 62F12.

Key words and phrases. Median survival time estimator, asymptotic normality, consistency in p-th mean, censored survival data.