

ESTIMATION BASED ON SEQUENTIAL ORDER STATISTICS WITH
RANDOM REMOVALS

M. Esmailian
Mahdi Doostparast

Abstract: Suppose that n individuals are scrutinized in an experiment. Each failure is accompanied by a fixed number of removals. The experiment terminates after r ($\leq n$) failures. An explicit expression for the likelihood function of the available progressive sequential order statistics (PSOS) data is proposed. Under the conditional proportional hazard rate (CPHR) model, the maximum likelihood (ML) estimates of parameters are derived. Under the CPHR model and the assumption that the baseline distribution belongs to the Weibull family of distributions, the existence and uniqueness of the ML estimates are investigated. Moreover, two general classes of lifetime distributions, as an extension of the Weibull distribution, are studied in more detail. An algorithm for generating PSOS data under the CPHR model is proposed. Finally, some concluding remarks are given.

2000 AMS Mathematics Subject Classification: Primary: 62G05; Secondary: 62G30.

Keywords and phrases: Conditional proportional hazard rate model, maximum likelihood estimation, progressive order statistics, sequential order statistics, Weibull distribution.

THE FULL TEXT IS AVAILABLE [HERE](#)