MULTI-STEP ESTIMATION OF REGRESSION COEFFICIENTS
IN A LINEAR MODEL WITH CENSORED SURVIVAL DATA

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1. Introduction

This paper introduces a multi-step procedure for estimating the re-gression coefficients in a linear model when the dependent variable of interest is a randomly right-censored transform of survival, i.e., log lifetime. The procedure is closely related to that introduced by Buckley and James (1979). Using large sample properties developed by the authors (1981), asymptotic large sample consistency and normality are seen to hold for each iterate of the orig-inal estimator. A limited simulation study examines the small sample behavior of the procedure.

The linear regression model considered is:

(1) $$X_i = \alpha + \beta x_i + \varepsilon_i, \quad i = 1, \ldots, n \quad,$$

where $\{x_i\}$ are the known independent (design) variables, $\{\varepsilon_i\}$ are independent,