

# Model Assisted Cox Regression

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## Abstract

Semiparametric random censorship (SRC) models (Dikta, 1998), derive their rationale from their ability to gainfully utilize parametric ideas within the random censorship environment. An extension of this approach is developed for Cox regression, producing new estimators of the regression parameter and baseline cumulative hazard function. Under correct parametric specification, the proposed estimator of the regression parameter is shown to be asymptotically more efficient than the standard partial likelihood estimator. Numerical studies are presented to showcase the efficacy of the proposed approach even under significant misspecification. A real example is provided. A further extension to the case of missing censoring indicators is also developed and an illustration with pseudo-real data is provided.