Nonlinear regression analysis in the Presence of Incomplete Data

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Abstract.

Errors in the predictors can cause severe bias in estimation unless some auxiliary adjustment has been made. Nonlinear measurement error models have received progressive attention since Carroll and Li's (1992) paper appeared. Besides, regression techniques, e.g. scatterplot, can suggest the forms of the models. But for censored responses, these techniques might fail. In order to resolve the problem caused by unobserved censored data, Fan and Gijbel (1994) proposed a Kaplan-Meier like approach. Based on regression calibration proposed by Carroll and Li (1992) in dealing with the measurement error model as well as a Kaplan-Meier like Transformation for censored data proposed by Fan and Gijbel (1994) in dealing with the nonparametric regression model with censored response, we may consider several general models for those defective data sets with both censored responses and error-prone explanatory variables. In seeking to reach these objectives, we modify both of Lu and Cheng's (2007) and Lue's (2004) approach to simultaneously overcome the difficulty of estimations caused by censored responses and error-prone regressors. Moreover, we generalize both of their works.