

# **Probit analysis of censored data: a fuzzy set approach**

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## **Abstract**

We consider a statistical model of job separations. In any given period an individual experiences one of three states: (1) stays employed, (2) quits, (3) is fired. The state depends on a measure of performance. Such data can be used to estimate an ordered probit model. This paper uses Monte Carlo simulations to examine the properties of an estimator that deals with censored data, i.e. an observed sample in which the states (2) and (3) are combined. A fuzzy algorithm is used to separate the censored data into two categories - essentially low and high performance individuals are assigned to the fired and quit categories respectively. Simulations show the estimator is biased in small samples but bias decreases with the signal-noise ratio and is quantitatively insignificant when the signal-noise ratio is high. The sampling variance of the proposed estimator is essentially identical to the estimator that uses the original uncensored data.