

ANALYSIS OF WINDOW-OBSERVATION RECURRENCE DATA

by

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ABSTRACT

Many systems experience recurrent events. Recurrence data are collected to analyze quantities of interest, such as the mean cumulative number of events or the mean cumulative cost of events. Methods of analysis are available for recurrence data with left and/or right censoring. Due to practical constraints, however, recurrence data are sometimes recorded in windows with gaps between the windows. This paper extends existing methods, both nonparametric and parametric, to window-observation recurrence data. The nonparametric estimator requires minimum assumptions, but will be biased if the size of the risk set is not positive over the entire period of interest. There is no such difficulty when using a parametric model for the recurrence data. For cases in which the risk set is zero for some periods of time, we propose a simple method that uses a parametric adjustment to the nonparametric estimator. The methods are illustrated with two numerical examples.