

Multi-threshold Accelerated Failure Time Model

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中國科學技術大學統計與金融系

Abstract

A two-stage procedure for simultaneously detecting multiple thresholds and achieving model selection in the segmented accelerated failure time (AFT) model is developed in this paper. In the first stage, we formulate the threshold problem as a group model selection problem so that a concave 2-norm group selection method can be applied. In the second stage, the thresholds are finalized via a refining method. We establish the strong consistency of the threshold estimates and regression coefficient estimates under some mild technical conditions. The proposed procedure performs satisfactorily in our simulation studies. Its real world applicability is demonstrated via analyzing a follicular lymphoma data.