

Leveraging External Aggregate Data for Survival Analysis under Population Heterogeneity

鄭又仁

國立清華大學統計與數據科學研究所

Abstract

In small-scale survival studies, leveraging external aggregate data can substantially improve efficiency and prediction. However, existing methods often neglect uncertainty in such data or fail to account for population heterogeneity. We propose an empirical likelihood-based approach that incorporates external survival information while addressing both uncertainty and heterogeneity through a density ratio model. The resulting estimator is consistent, asymptotically normal, and more efficient than conventional methods. Simulation studies demonstrate improved performance across a variety of scenarios, and the method is illustrated with a pancreatic cancer study.