npcure: An R Package for Nonparametric Inference in Mixture Cure Models

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Abstract Mixture cure models have been widely used to analyze survival data with a cure fraction. They assume that a subgroup of the individuals under study will never experience the event (cured subjects). So, the goal is twofold: to study both the cure probability and the failure time of the uncured individuals through a proper survival function (latency). The R package npcure implements a completely nonparametric approach for estimating these functions in mixture cure models, considering right-censored survival times. Nonparametric estimators for the cure probability and the latency as functions of a covariate are provided. Bootstrap bandwidth selectors for the estimators are included. The package also implements a nonparametric covariate significance test for the cure probability, which can be applied with a continuous, discrete, or qualitative covariate.

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