

Yibai_Simulation_Code

This repo shows Yibai's simulation code based on R.

The goal of this simulation is to test the robustness of our proposed model under various settings.

Simulation I

In this setting, time to event T follows Weibull PH model and the probability of time to event at birth(τ_0) is a function of covariate \mathbf{z} .

Simulation II

In this scenario, we keep everything the same as Simulation I but relax the proportional hazards assumption in the Weibull regression model, so the baseline hazard depends on covariate \mathbf{z} . For strata j , our mixture model can be expressed as

$$P(T \leq t; \mathbf{z} = j, \theta) = \pi(\mathbf{z}; \theta_1) + (1 - \pi(\mathbf{z}; \theta_1))[1 - S(t; \theta_2 | \mathbf{c} = 0, \mathbf{z} = j)]$$

, where $S(t; \theta_2 | \mathbf{c} = 0, \mathbf{z} = j) = \exp(-\lambda_j \exp(\mathbf{x}^T \beta) t^{\gamma_j})$.