

Variable Selection in Cox Regression Models with Varying Coefficients

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We deal with two kinds of Cox regression models with varying coefficients. The coefficients vary with time in one model. In the other model, there is an important random variable called an index variable and the coefficients vary with the variable. In both models, we have p -dimensional covariates and p increases moderately. However, it is the case that only a small part of the covariates are relevant in these situations. We carry out variable selection and estimation of the coefficient functions by using the group SCAD-type estimator or the adaptive group Lasso estimator. We focus on time varying coefficient models here. We examine the theoretical properties of the estimators, especially the L_2 convergence rate, the sparsity, and the oracle property.

Keywords: adaptive group Lasso, B-splines, group SCAD, high-dimensional data, oracle estimator, sparsity.