

Kernel Estimation of Bivariate Time-Varying Coefficient Model for Longitudinal Data with Terminal Event



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We propose a nonparametric bivariate time-varying coefficient model for longitudinal measurements with the occurrence of a terminal event that is subject to right censoring. The time-varying coefficients capture the longitudinal trajectories of covariate effects along with both the follow-up time and the residual lifetime. The proposed model extends the parametric conditional approach given terminal event time in recent literature, and thus avoids potential model misspecification. We consider a kernel smoothing method for estimating regression coefficients in our model and use cross-validation for bandwidth selection, applying undersmoothing in the final analysis to eliminate the asymptotic bias of the kernel estimator. We show that the kernel estimates follow a finite-dimensional normal distribution asymptotically under mild regularity conditions and provide an easily computable sandwich covariance matrix estimator. We conduct extensive simulations that show desirable performance of the proposed approach and apply the method to analyzing the medical cost data for patients with end-stage renal disease. This is joint work with Yue Wang and Jack Kalbfleisch.

Thursday, March 23, 2023, 3:30-4:30 PM Eastern

133 Rosenau Hall

Virtual using link and info below.

<https://unc.zoom.us/j/91249030964?pwd=UXloTWIHajdQbkRqd1d5TnRaMitYdz09>

Meeting ID: 912 4903 0964

Passcode: 884852