

*The San Antonio ASA Chapter
and
UTSA Department of Management Science and Statistics
welcome*

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Two-stage estimation of structural instrumental variable models with coarsened data

Abstract: Two-stage least squares is a popular estimation method for structural equations models with unmeasured confounders. In such models, both the outcome and exposure are assumed to follow linear models conditional on the measured confounders and instrumental variables, which is related to the outcome only via its relation with the exposure. We consider coarsened data, where both the outcome and exposure may be incompletely observed, which includes the special case where both the outcome and exposure are censored event times. A general class of two-stage minimum distance estimators is proposed that separately fits the linear models for the outcome and exposure and then estimates the true exposure effect on the outcome using a reduced form model, where the exposure of the outcome is replaced by the instrumental variables. An optimal minimum distance estimator is identified and shown to be theoretically superior to the usual two-stage least squares estimator with fully observed data. Simulation studies demonstrate that the proposed methods perform well with realistic sample sizes. Their practical utility is illustrated in a study of the comparative effectiveness of colon cancer treatments, where the effect of chemotherapy on censored survival times is confounded with patient status.

Date/time: Friday, December 9th at 2:00 pm
Catered refreshments will be served

Place: BB 4.02.10, Executive Conference Room
Business Building
UTSA Main Campus

Parking: Short-term paid parking spaces are located in the Bauerle Road Garage.
For a campus map please visit: <http://www.utsa.edu/maps/main-map.html>.

For more information about this event, contact San Antonio ASA Chapter President,
David Han at david.han@utsa.edu.