

UCLA

BIOSTATISTICS SEMINAR

FALL 2016

SMOOTHING-DIFFERENCING ESTIMATOR FOR CAUSAL INFERENCE WITH
APPLICATION TO EVALUATING IMPACTS OF PATIENT-CENTERED MEDICAL
HOME FOR CHILDREN

BING HAN

Professor

RAND CORPORATION

& PARDEE RAND GRADUATE SCHOOL

Wednesday, October 12 , 2016

3:30pm - 4:30pm, Dentistry 13-041

Refreshments served at 3:00 PM in room 51-254 CHS

ABSTRACT:

The smoothing-differencing (S-D) estimator is a causal inference approach to remove the bias in estimating the average treatment effect (ATE) in the lack of randomization. The S-D estimator estimates the ATE by integrating the nonparametric estimates of local average treatment effect (LATE) along a univariate covariate score (e.g., a propensity score). Although the S-D estimator is less widely adopted compared to other approaches under the Neyman-Rubin causal model, such as inverse propensity-score weighting and propensity-score stratification, it often has better statistical efficiency than the more popular alternatives in estimating the ATE. The S-D estimator also has the advantage of revealing the potential heterogeneity in treatment effects and a certain level of robustness against potential misspecification in modeling propensity scores. We demonstrate these advantages of the S-D estimator using numerical studies. We also apply the S-D estimator in a case study evaluating the impact of patient-centered medical home for children.