

# DOUBLY ROBUST UNIFORM CONFIDENCE BAND FOR THE CONDITIONAL AVERAGE TREATMENT EFFECT FUNCTION

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ABSTRACT. In this paper, we propose a doubly robust method to present the heterogeneity of the average treatment effect with respect to observed covariates of interest. We consider a situation where a large number of covariates are needed for identifying the average treatment effect but the covariates of interest for analyzing heterogeneity are of much lower dimension. Our proposed estimator is doubly robust and avoids the curse of dimensionality. We propose a uniform confidence band that is easy to compute, and we illustrate its usefulness via Monte Carlo experiments and an application to the effects of smoking on birth weights.

Keywords: average treatment effect conditional on covariates, uniform confidence band, double robustness, Gaussian approximation.

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*Date:* September 7, 2015.

We would like to thank Yanchun Jin for capable research assistance and Yu-Chin Hsu, Kengo Kato, Edward Kennedy, Taisuke Otsu, and Dylan Small for helpful comments. Lee's work was supported by the European Research Council (ERC-2009-StG-240910-ROMETA). Okui's work was supported by the Japan Society of the Promotion of Science (KAKENHI 25285067, 25780151, 15H03329). Whang's work was supported by the SNU College of Social Science Research Grant.