SOCIETY OF STATISTICS, COMPUTER AND APPLICATIONS

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WEBINAR

Multiple Bias Calibration for Valid Statistical Inference with Selection Bias

Saturday, 23 JULY 2022

Time: 06:30 PM – 08:00 PM (India Time)

09:00 AM – 10:30 AM (EST, Canada); 08:00 AM – 09:30 AM (CST);

06:00 AM – 07:30 AM (PST); 02:00 PM to 03:30PM (Central European Time)

REGISTRATION LINK

To register for the webinar, please click

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Note: Registration is compulsory for all. After registering you would get the joining link through Email. Please save that mail for joining on 23 July 2022.

A Talk by
Jae Kwang Kim
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Chairman
Changbao Wu
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ABOUT THE CHAIRMAN

Changbao Wu is Professor of Statistics and Chair of the Department of Statistics and Actuarial Science at University of Waterloo. His main research interests include design and analysis of complex surveys, resampling techniques, missing data analysis and causal inference, and integration of data from multiple sources. He is Fellow of ASA, Fellow of IMS, Elected Member of ISI, and was the winner of the CRM-SSC Prize in Statistics in 2012. He has served on several editorial boards including Survey Methodology, The Canadian Journal of Statistics, Journal of the American Statistical Association (Theory & Methods) and Biometrika. He is the lead author of the book "Sampling Theory and Practice" (with Mary Thompson) published by Springer in 2020. He has also served on Statistics Canada's Advisory Committee on Statistical Methods since 2015.

ABOUT THE SPEAKER

Jae Kwang Kim has been occupying the position of Professor at the Department of Statistics, Iowa State University, USA since 2012. Jae obtained his BS and MS degrees from the Department of Statistics, Seoul National University, Seoul, Korea during 1991 and 1993, respectively. Jae got his Ph.D. in 2000 from Iowa State University, Ames, Iowa. During March 2002 to February 2004, Jae remained an Assistant Professor at Hankuk University of FS at Korea and then at Yonsei University, Korea, where in March 2007 he became Associate Professor. In August 2008, Jae joined as Associate Professor at Iowa State University where he finally became Professor in August 2012. From September 2010 till August 2013, Jae

was the Director, Center for Survey Statistics and Methodology, Iowa State University, U.S.A. From September 2016 to August 2018 Jae was also Professor, KAIST, South Korea (joint appointment with Iowa State University). Jae has also been Principal Investigator in several projects. As an outcome of his research efforts, Jas has published more than 100 research papers and 2 textbooks. Jae has handled more than 24 research projects and has received very heavy funding (grants and contracts) for running his projects.

Jae has been decorated with several prestigious awards and recognitions; to name a few - the Bryant Scholarship Award for outstanding graduate work on survey sampling from The American Statistical Association in 1999; the Special Achievement Award from The U.S. Bureau of Census in 2001; 2004 Young Research Award from The Korean Statistical Society; 2006 Yonsei Research Award from Yonsei University, Korea; 2010 ESRC-SSRC Visiting Scholars fund from Economic and Social Research Council, U.K.; 2012 Fellow for American Statistical Association; 2015 Gertude M. Cox Award from Washington Statistical Society and RTI International; 2016 Ken Foreman lecturer from Australian Bureau of Statistics; 2020 Fellow for Institute of Mathematical Statistics; 2020 - 2022 LAS Dean's Professor from College of Liberal Arts and Sciences, Iowa State University. Jae is the President elect of the Korean International Statistical Society (KISS), 2021-2022. Jae has been / continues to be the Associate Editor of Australian & New Zealand Journal of Statistics; Journal of Korean Statistical Society; Canadian Journal of Statistics; Statistica Sinica; Survey Methodology; Annals of Applied Statistics; Sankhya; Annals of the Institute of Statistical Mathematics.

ABSTRACT

Valid statistical inference is notoriously challenging when the sample is subject to selection bias. We approach this difficult problem by employing multiple candidate models for the propensity score function combined with empirical likelihood. By incorporating the multiple propensity score (PS) models into the internal bias calibration constraint in the empirical likelihood setup, the selection bias can be safely eliminated so long as the multiple candidate models contain the true PS model. The bias calibration constraint for the multiple PS model in the empirical likelihood is called the multiple bias calibration. The multiple PS models can include both ignorable and nonignorable models. In the context of data integration setup, the conditions for multiple bias calibration are easily achieved. Asymptotic properties are discussed, and some limited simulation studies are presented to compare with the existing methods.

KEY REFERENCES

Han, P. and Wang, L. (2013). Estimation with Missing Data: Beyond Double Robustness. *Biometrika*, 100, 417– 430.

Morikawa, K. and Kim, J. K. (2021). Semiparametric Optimal Estimation with Nonignorable Nonresponse Data. *The Annals of Statistics*, 49(5), 2991–3014.

Qin, J., Leung, D. and Shao, J. (2002). Estimation with Survey Data Under Non-ignorable Nonresponse or Informative Sampling. *Journal of the American Statistical Association*, 97, 193–200.

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