



The Chinese University of Hong Kong  
Department of Statistics

## Seminar

### Calibration Estimation for the Matched Sample after Sample Matching

By

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#### Abstract

It is difficult to make inference to population for a random sample with missing  $Y$  in survey sampling. Sample matching is a useful strategy to deal with this problem by selecting a matched sample from a volunteer panel. However, the matched sample is biased and its weights need to be adjusted, when the size of the volunteer panel is small. This paper aims to propose a new method of calibration weighting adjustment for the matched sample. Considering that the population total of  $X$  can be estimated through the random sample, our approach consists of minimizing the chi-squared distance between the calibrated weights and the matched weights subject to two new calibration constraints based on the random sample. We also explore the theoretical properties of the calibrated estimator and find that the calibrated estimator has higher efficiency than the matching estimator without calibration under certain conditions. Numerical studies and real data analysis involving the 2015 Behavioral Risk Factor Surveillance Survey are further conducted to examine their performances.

Date: May 25, 2018 (Friday)  
Time: 2:00 p.m. - 3:00 p.m.  
Venue: Lady Shaw Building, Room LT2  
The Chinese University of Hong Kong

ALL INTERESTED ARE WELCOME