

EPSTEIN INSTITUTE SEMINAR ▪ ISE 651

Identifying Best Fitting Inputs in Multi Target Model Calibration

ABSTRACT – Calibration is the process by which values or ranges of uncertain parameters can be estimated so that model outputs match observed clinical or epidemiological data (the calibration targets). Comprehensive models often include calibration targets from multiple data sources making model calibration a non-trivial task. To identify best-fitting input sets using model calibration, individual calibration target fits are often combined into a single “goodness-of-fit” (GOF) measure using a set of weights. Decisions in the calibration process, such as which weights to use, influence which sets of model inputs are identified as best-fitting, potentially leading to different health economic conclusions. We present an alternative approach to identifying best-fitting input sets based on the concept of Pareto-optimality. We demonstrate the new approach using a simple model, developed for illustrative purposes, and a previously-published model used for a cost-effectiveness analysis of trans-catheter aortic valve replacement (TAVR). We identify that how best-fitting sets are selected influences which policy is preferred and decision uncertainty. We then develop a simulation based approach to compare three model calibration strategies aiming to evaluate which calibration method is most likely to recover “the truth”.



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SPEAKER BIO – Dr. Lauren Cipriano is an Assistant Professor at the Ivey Business School at Western University in London, Canada. She earned her PhD in Management Science and Engineering and MS in Statistics at Stanford University. Lauren’s research interests focus on the application of statistics, decision analysis, operations research, and systems analysis to health policy problems. Lauren previously worked as a Research Scientist at the Institute for Technology Assessment at Massachusetts General Hospital.

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3:30PM – 4:50PM

USC ANDRUS GERONTOLOGY CENTER (GER), Room 206