

Contents

Part I Overview

1 Causal Inference: A Statistical Paradigm for Inferring Causality	3
Pan Wu, Wan Tang, Tian Chen, Hua He, Douglas Gunzler, and Xin M. Tu	

Part II Propensity Score Method for Causal Inference

2 Overview of Propensity Score Methods	29
Hua He, Jun Hu, and Jiang He	
3 Sufficient Covariate, Propensity Variable and Doubly Robust Estimation	49
Hui Guo, Philip Dawid, and Giovanni Berzuini	
4 A Robustness Index of Propensity Score Estimation to Uncontrolled Confounders	91
Wei Pan and Haiyan Bai	
5 Missing Confounder Data in Propensity Score Methods for Causal Inference	101
Bo Fu and Li Su	
6 Propensity Score Modeling and Evaluation	111
Yeying Zhu and Lin (Laura) Lin	
7 Overcoming the Computing Barriers in Statistical Causal Inference	125
Kai Zhang and Ding-Geng Chen	

Part III Causal Inference in Randomized Clinical Studies

8 Semiparametric Theory and Empirical Processes in Causal Inference	141
Edward H. Kennedy	

9	Structural Nested Models for Cluster-Randomized Trials	169
	Shanjun Helian, Babette A. Brumback, Matthew C. Freeman, and Richard Rheingans	
10	Causal Models for Randomized Trials with Continuous Compliance	187
	Yan Ma and Jason Roy	
11	Causal Ensembles for Evaluating the Effect of Delayed Switch to Second-Line Antiretroviral Regimens	203
	Li Li and Brent A. Johnson	
12	Structural Functional Response Models for Complex Intervention Trials	217
	Pan Wu and Xin M. Tu	
 Part IV Structural Equation Models for Mediation Analysis		
13	Identification of Causal Mediation Models with an Unobserved Pre-treatment Confounder	241
	Ping He, Zhenguo Wu, Xiaohua Douglas Zhang, and Zhi Geng	
14	A Comparison of Potential Outcome Approaches for Assessing Causal Mediation	263
	Donna L. Coffman, David P. MacKinnon, Yeying Zhu, and Debashis Ghosh	
15	Causal Mediation Analysis Using Structure Equation Models	295
	Douglas Gunzler, Nathan Morris, and Xin M. Tu	
	Index	315

Statistical Causal Inferences and Their Applications in
Public Health Research

He, H.; Wu, P.; Chen, D.D.-G. (Eds.)

2016, XV, 321 p. 24 illus., 11 illus. in color., Hardcover

ISBN: 978-3-319-41257-3