Causal Inference

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- 1. 导读
 - 1. 因果经济学导论
- 2. 必備知識
 - 1. 因果推論分類
 - 2. 統計模型分類
 - 3. Basic definition and measurement for Epidemiology
 - 4. 辛普森悖論
 - 5. 干擾因子
 - 6. 分層分析與模型
- 3. 因果推論
 - 1. Introduction of causal inference A
 - 2. Introduction of causal inference B
 - 3. Framework of causal inference
 - 4. Causal structure (1) -DAGs
 - 5. Variable in causal inference
 - 6. Causal structure (2) -D-separation rule
 - 7. Causal structure (3) -NPSEM
 - 8. Causal structure (4) ¬NPSEM for d-separation A
 - 9. Causal structure (5) ¬NPSEM for d-separation B
 - 10. Counterfactual outcome model
 - 11. Identification: exchangeability and RCT
 - 12. Estimation A: g-formula, IPW, and MSM
 - 13. Estimation B: g-estimation and SNM

- 14. Estimation C: doubly robust estimator
- 15. Efficiency theorem A: WHY EIF
- 16. Efficiency theorem B: WHAT is EIF
- 17. Efficiency theorem C: HOW to derive EIF (1)
- 18. Efficiency theorem D: HOW to derive EIF (2)(3)

4. 因果推論架構與概念

- 1. 常見名詞
- 2. 緒論
- 3. Causal Diagram
- 4. counterfactual model
- 5. 常見的 causal effects
- 6. positivity and consistency
- 7. exchangeability
- 8. 其他兩種 assumptions
- 9. 因果研究中 assumption 的重點
- 10. sensitivity analysis
- 11. Identification
- 12. Statistical Inference
- 5. Data analysis DEMO
 - 1. DEMO A
 - 2. DEMO B
 - 3. DEMO C

6. NDE and NIE

- 1. Introduction of causal mediation analysis
- 2. Definition for causal mediation analysis (NDE and NIE)
- 3. Identification for NDE and NIE A
- 4. Identification for NDE and NIE B
- 5. Identification for NDE and NIE C recanting witness and NPSEM
- 6. Review framework
- 7. Identification for NDE and NIE D when M is continuous
- 8. Estimation for NDE and NIE A
- 9. Estimation for NDE and NIE B
- 10. Estimation for NDE and NIE C
- 11. Estimation for NDE and NIE D
- 12. Estimation for NDE and NIE E regression with interaction term
- 13. Estimation for NDE and NIE F Monte-Carlo simulation and software (mediation.R)
- 14. Estimation for NDE and NIE G \neg IPW

7. Binary outcome

- 1. Causal mediation analysis with binary outcome A
- 2. Causal mediation analysis with binary outcome B Counterfactual OR and PM
- 3. Causal mediation analysis with binary outcome C Estimation a
- 4. Causal mediation analysis with binary outcome D Estimation b

8. Alternative definition

- 1. Three different definitions for causal mediation analysis
- 2. CDE A
- 3. CDE B
- 4. Interventional approach A Introduction
- 5. Interventional approach B Definition
- 6. Interventional approach C Identification

9. 中介效應分析

- 1. Mediation analysis 基本概念與常見的錯誤解讀
- 2. 傳統 Mediation analysis 的做法以及 causal mediation
- 3. Mediation analysis 三種常見的定義以及 interpretation
- 4. Mediation analysis 三種常見的定義在辨識中需要的假設及其意義
- 5. Mediation analysis identification and estimation

10. 交互作用分析

- 1. introduction
- 2. 三種 interaction
- 3. additive v s multiplicative interaction
- 4. RERI (1)
- 5. RERI (2)
- 6. Effect modification

11. 多重中介效应

- 1. Multi-mediation analysis (01) -DAGs
- 2. Multi-mediation analysis (02) -counterfactual (1)
- 3. Multi-mediation analysis (03) -counterfactual (2)
- 4. Multi-mediation analysis (04) -Difficulty of identification
- 5. Multi-mediation analysis (05) -Introduction of different strategy

12. 时变系统的因果推论

- 1. Introduction of time-varying system
- 2. DAGs of time-varying system
- 3. Why regression fail and g-formula in simple case
- 4. g-formula (1)
- 5. g-formula (2)

- 6. g-formula (3)
- 7. g-formula (4)
- 8. g-formula (5)
- 9. g-formula (6)
- 10. g-formula (7)
- 11. g-formula (8)

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