Monte Carlo Exploration

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Introduction

The Econometrics of Policy Evaluation

- is important

- is complicated

- is multifaceted

Fundamental Problems

- Evaluation Problem

- Selection problem
  - Essential Heterogeneity

Objects of Interest

- Conventional Average Treatment Effects

- Policy-Relevant Average Treatment Effects

- Local Average Treatment Effect

- Marginal Effect of Treatment

- Distribution of Effects

- Effects on Distribution

Identification Strategies

- Random Assignment

- Matching

- Control Functions and Extensions

- Instrumental Variables

Generalized Roy Model

Potential Outcomes

$$Y_1 = \beta_1 X + U_1$$
$$Y_0 = \beta_0 X + U_0$$

Cost

$$C = \gamma Z + U_C$$

Observed Outcomes

$$Y = DY_1 + (1-D)Y_0$$

Choice

$$S = Y_1 - Y_0 - C$$
$$D = I[S > 0]$$

Monte Carlo Exploration

We will touch on all these issues in a Monte Carlo exercise using the **grmpy** package. The notebook is available on the course website.

Appendix

References

Carneiro, P., Heckman, J. J., & Vytlacil, E. J. (2011). Estimating marginal returns to education. *American Economic Review*, *101*(6), 2754–2781.

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