Evaluation
A Systematic Approach

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Chapter 7:
Impact Evaluation:
Comparison Group Designs

Bias in Estimation of Program Effects

(1 of 3)

- Bias is present when the measurement of the outcome with program exposure or the estimate of the counterfactual outcome departs from the corresponding true value.
- Sources of bias:
  - Outcome measurements
  - Research design

Bias in Estimation of Program Effects

(2 of 3)

- Selection Bias
  - Unknown influences in joining program and comparison groups
  - Attrition
  - Missing data

Bias in Estimation of Program Effects

(3 of 3)

- Other Sources of Bias
  - Secular Trends
  - Interfering Events
  - Maturation
  - Regression to the Mean

Potential Advantages of Comparison Group Designs

- Internal validity
- External validity

Comparison Group Designs for Impact Evaluation

(1 of 4)

- Quasi-experiments
  - Naïve effect estimates
  - Covariate-adjusted regression effect estimates
  - Matched comparisons

Comparison Group Designs for Impact Evaluation

(2 of 4)

- Naïve Estimates of Program Effects
  - Average outcome for participants compared to non-participants
  - Measures may come from administrative data or from direct assessments
  - No consideration of bias

Comparison Group Designs for Impact Evaluation

(3 of 4)

- Covariate-Adjusted Regression-Based Estimates of Program Effects
  - Covariates
  - Multivariate Regression Techniques
    - Pre-intervention characteristics
    - Reaction to the program

Comparison Group Designs for Impact Evaluation

(4 of 4)

- Program Effect Estimates from Matched Comparison Groups
  - Choosing Variables to Match
  - Exact Matching and Propensity Score Matching

Interrupted Time-Series Designs for Estimating Program Effects

(1 of 5)

- Outcomes compared before and after program implementation or participation
- Threats to internal validity

Interrupted Time-Series Designs for Estimating Program Effects

(2 of 5)

- Cohort Designs
  - Time limited or age specific services
  - Sources of bias

Interrupted Time-Series Designs for Estimating Program Effects

(3 of 5)

- Difference-in-Differences Designs
  - Interrupted time series designs
  - Use different sites to make comparisons

Interrupted Time-Series Designs for Estimating Program Effects

(4 of 5)

- Comparative Interrupted Time Series Designs
  - Include sufficient pre-intervention data to model the trend over time
  - At least four periods of data are needed prior to the intervention

Interrupted Time-Series Designs for Estimating Program Effects

(5 of 5)

- Fixed Effects Designs
  - Uses outcome data for *each* unit within a group of units
  - Each unit serves as its own control.

Cautions About Quasi-Experiments for Impact Evaluation

- Can provide credible estimates of program effects
- Useful when more rigorous designs are not feasible