

Introduction to Evaluation Research

- 1 Definition: Evaluation research, or program evaluation, refers to the kind of applied social research that attempts to evaluate the effectiveness of social programs.
- Evaluation research is not a methodology, but a class of research with a common feature of evaluating programs.
- Example of Head Start.

Simple Comparisons

- One simple way is to compare units of analysis affected by the program to those unaffected by the program.
- Say in a community, N_1 children attended Head Start, and N_2 did not. 25 years later, measure the educational attainment of the two groups, y_1 (those who attended Head Start) and y_2 (those who did not attend Head Start).

Simple Comparisons

- We compute $y_1 - y_2 = 13 - 14 = -1$.
- Should we conclude from this that Head Start has a negative effect on educational attainment?
- The Westinghouse report in the late 60s.
- The appropriate research question is not to compare observed y_1 and observed y_2 .

Causal Effect as a Counter-Factual Question

- Rather, it should ask the counter-factual question, for those who attended Head Start, what would have happened to them if they hadn't attended?
 - Or, $y_1^t - y_1^c$ (t denoting treatment; c denoting control)
 - Note that y_1^t is observed, but y_1^c is not.

Causal Effect as a Counter-Factual Question (continued)

- For those who did not attend Head Start, what would have happened to them if they had attended?
 - Or, $y_2^t - y_2^c$ (t denoting treatment; c denoting control)
 - Note that y_2^c is observed, but y_2^t is not.
- The problem is one of missing data.

Assumption for Simple Comparison

- If N_1 children are comparable to N_2 children, we can assume away the problem by
 - $y_1^c = y_2^c, y_1^t = y_2^t$
 - In that case,
 $y_1^t - y_1^c = y_2^t - y_2^c = y_1^t - y_2^c$
 - i.e, simple comparison

Selectivity Bias

- 1. Observable Selectivity
- If subjects who receive social intervention and those who do not are different in observed characteristics, this type of selectivity is called observable selectivity.
- This problem can be handled by statistical controls in multivariate analyses to make the two groups comparable.

Unobservable Selectivity

- The more difficult problem is to deal with selectivity in unmeasured characteristics.
- This problem is also called "endogeneity problem": program participation is endogenous to the outcome variables being evaluated.
- Difficult to handle. Statistical models require strong and implausible assumptions.

Experimental Approach

- Experimental design eliminates both types of problems.
- Example: the well-known High/Scope Perry Preschool study conducted in Ypsilanti.
- Experimental designs suffer from shortcomings that are often overlooked.
- Understanding the experimental approach as "reduced-form."

Shortcomings of Experimental Approach

- We cannot always extrapolate results from an experimental setting to natural setting.
- Thus, we have strong criticism of experimental designs:
"In fact, reduced-form experimental evaluation actually requires that a highly specific and suspect structural assumption hold: Individuals and organizations must respond in the same way to the experimental version of a program as they would to the actual version." (p.17 – Manski and Garfinkel)
- i.e., lacking "external validity."

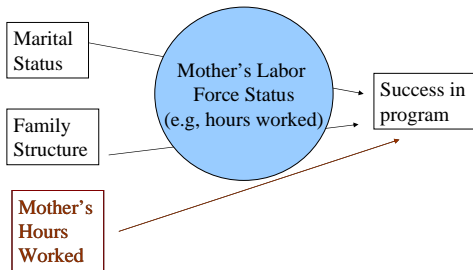
Structural Approach

- A "structural" approach as an alternative.
- Definition: structural approach refers to statistical methods that model causal processes based on observational data.
- Head Start example: control on SES, parental involvement, etc.

Definitions of Exogenous variables and Endogenous variables

- Definition: Exogenous variables are variables that are used only as independent variables in all equations.
- Endogenous variables are variables that are used as dependent variables in some equations and may be used as independent variables in other equations.

Simple Example



Structural vs. Reduced-Form Equations

- 1. Structural Equations
Structural equations are theoretically derived equations that often have endogenous variables as independent variables.
- 2. Reduced-Form Equations
Reduced-form equations are equations in which all independent variables are exogenous variables. i.e., in reduced-form equations, we purposely ignore intermediate variables.

Comparison of the two Approaches

Advantage of Structural Approach:

- Since it is conducted in a natural setting, its findings are directly relevant to the whole population. In contrast, results from an experimental design need to be extrapolated.
- It is less costly. In contrast, experimental research is very expensive.
- It builds upon and contributes to theory. In contrast, the reduced-form approach only yield simple answers to simple questions.

Advantage of Reduced-form Approach

- Endogeneity bias can be eliminated through randomization.
- It requires fewer assumptions.
- It does not require complicated statistical models that the public and government officials have difficulty understanding.
