

Handout #6
Impact Evaluation

1. Evaluation systems

Project sequence:



Types of evaluation:

- *Programmatic evaluation: logframe*
From activities to outputs and outcomes (indicators).
Evaluate achieved against planned outputs and outcomes at given times (intermediate and final).
- *Comprehensive expenditure analysis*
Use of resources: observe and explain inconsistencies between actual and planned expenditures.
- *Impact analysis:*
Changes in selected indicators of outcomes that can be attributed to a specific intervention.

To do an impact analysis:

- We need to clearly identify a specific intervention (what program, what expected objectives, at what time, at what place, applied to what unit of analysis).
- We need to identify a counterfactual with no intervention against which the change with intervention can be measured: before/after, with/without.
- We need to specify indicators of outcomes (endogenous variables) to be used to measure impact. Hence, the project objectives (goals, mandates) need to be clearly defined. These indicators must be observable before/after or with/without the intervention. They can be indicators of intermediate or final outcomes.
- If there is impact heterogeneity, we need to identify exogenous variables that may make the impact differentiated across units of analysis.
- We need reliable/credible/verifiable information.

Objectives of evaluation systems:

Often required by law: Yearly in Mexico, as required by Congress; U.S. 1993 Government Performance and Results Act, fully implemented starting in 1997.

Allows to engage in results-based management. Use results of evaluation to:

- Assess value of program (ex-post).
- Adjust program (feedbacks): minor adjustments, major adjustments, redesign, cancel.
- Link to resource allocation, budgeting, personnel management.
- Evaluation is a learning process (hence role of participation, ownership).
- Improving evaluation = learning to learn (start simple, use pilots, and improve over time).
- Need incentives to learn, use results, and change programs.

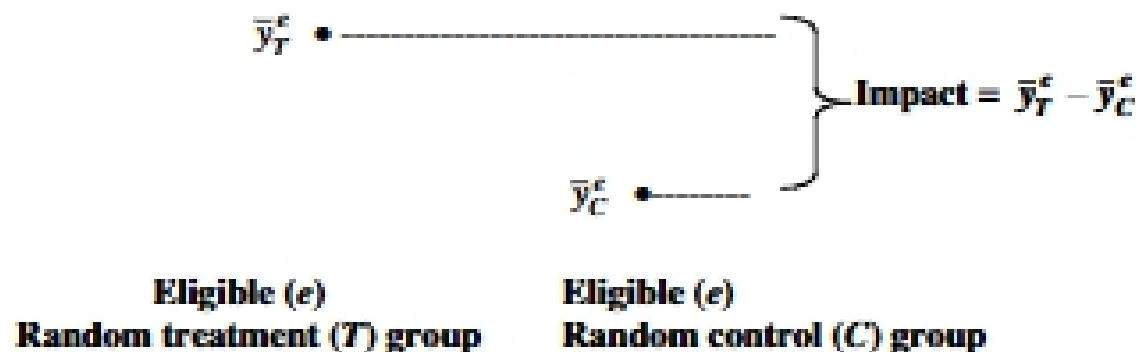
Impact evaluation challenge and techniques:

- Selection bias:
 - program placement
 - self-selection
- Techniques for impact evaluation
 - Experimental design, randomization. Treatment and control groups
 - Quasi-experimental design: Treatment and comparison groups
 - Matching methods, Double-difference techniques
 - Non-experimental design,
 - Instrumental variables
 - Statistical methods
 - Qualitative methods

2. Experimental design – Randomization

Randomization allows to create identical treatment and control groups.

- Procedure and ethical issue
 - Treatment group and control group
 - Example: Rural education program Progreso in Mexico
- Program impact from simple difference



$$\text{Impact} = \underbrace{\frac{1}{N_T} \sum_{i \in T} y_i}_{\text{average outcome in treatment group}} - \underbrace{\frac{1}{N_C} \sum_{j \in C} y_j}_{\text{average outcome in control group}}$$

Can be done on subgroups to evaluate heterogeneity of program effect

Example: School subsidy in urban Pakistan (Quetta)

Need to check that control and treatment groups have similar distribution of exogenous variables, outcome prior to program (if available), and behavior prior to the program (if available).

3. Matching method to construct comparison groups

Identify non-participants that are comparable in essential characteristics to the participants.

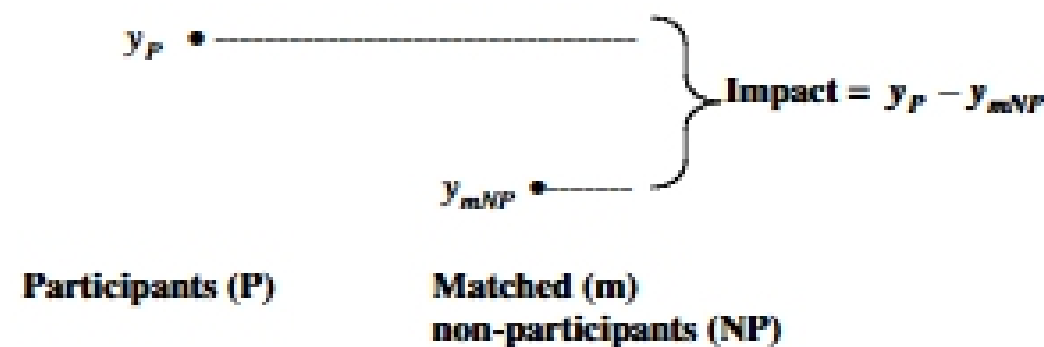
Possible for program with partial coverage, i.e., when there exists a large population which, for exogenous reasons, has been excluded from the program.

Key: The selection of the participants is not related to the outcome of the program

Examples: Local programs

By contrast to:

- credit program placed where economic opportunities are highest.
- health clinics placed where most needed
- self-selection for program participation



- **Data needed:** A sample of participants (usually from a special survey designed for the program evaluation) and a large sample of non-participants (usually some other large existing survey, such as LSMS for households) from which one can pick the comparison group. Both surveys must include variables X that are important determinants of program participation and outcome.
- **Simple matching:** Construct a comparison group with non-participants that have characteristics that are "similar" to those of the participants.
Example: Job training program for women, unemployed for 3 less than 3 months, and without kids.
- **Propensity score matching (individual matching):**
Variables X that help predicts program participation.