Session 1
Impact Evaluation Methodologies
Impact Evaluation Workshop, Lilongwe, Dec. 14\textsuperscript{th}, 2011
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Workshop Schedule – Day 1

• Session 1: *Introduction to impact evaluations*

• Session 2: *Theory of change and measurement*

• Session 3: *Group work: Theory of Change*

• Session 4: *Randomized Evaluation Design*

• Session 5: *Group work: Evaluation Design*
Outline: Introduction to impact evaluations

• What is “impact”?  

• Programme evaluation  
  – Different aspects of evaluation  
  – Case study example: Fertilizer in Malawi  

• Impact evaluation methodologies
Introduction to Impact evaluation

• What is “impact”?  
• Programme evaluation    
  ─ Different aspects of evaluation  
  ─ Case study example: Fertilizer in Malawi  
• Impact evaluation methodologies
What is the impact of your marriage on your happiness?

Outcome = Happiness

Time

2006

2011

Marriage

Impact

Counterfactual
Measuring Impact (I)

Outcome = Income

Intervention: Microfinance

Impact

Counterfactual

Time

2010

2011
Measuring Impact (II)
Counterfactual

• The *counterfactual* represents how programme participants would have performed in the absence of the program

• **Problem**: Counterfactual cannot be observed

• **Solution**: We need to “mimic” or construct the counterfactual

→ Different impact evaluation methodologies differ in how they construct the counterfactual
Outline – Intro to Impact evaluation

• What is “impact”? 
• Programme evaluation
  – Different aspects of evaluation
  – Case study example: Fertilizer in Malawi
• Impact evaluation methodologies
Different types of evaluation

- Monitoring & Evaluation
- Programme Evaluation
- Impact Evaluation
Programme evaluation

Different aspects of programme evaluation:

• Needs assessment
• Process evaluation
• Impact evaluation

“To address the low literacy levels, the government will deliver free text books to schools to improve passing rates and increase employment prospects of school leavers.”
Fertilizer subsidies in Malawi
Fertilizer subsidies in Malawi

Needs Assessment

• In 2004/05, a severe drought led to a very poor corn harvest.

• Almost 5 million people (38% of the population) needed emergency food aid.
President Mutharika decided to tackle the problem by reinstating and deepening fertilizer subsidies.

Theory behind this policy:

Introduce subsidies
→ fertilizer is more affordable
→ use of fertilizer increases
→ soil able to support bigger harvest
→ famine ends
Fertilizer subsidies in Malawi

Impact

- 2006 and 2007: record-breaking maize harvests in Malawi.

Was this dramatic turnaround the result of the subsidy?

How can we tell what the true impact of the subsidies was?
Who can be our control group (counterfactual)?

- **Pre-post:**
  Compare the 2007 Malawi harvest to the 2005 Malawi harvest.

- **Simple comparison:**
  Compare the 2007 Malawi harvest to the 2007 Zambian harvest.

- **Difference in difference:**
  - Compare the change in Zambian harvests between 2005 - 2007 to the change in Malawian harvests over the same period.
Outline – Intro to Impact evaluation

• What is “impact”?  
• Counterfactual  
• Programme evaluation  
  – Different aspects of evaluation  
  – Case study example: Fertilizer in Malawi  

• Impact evaluation Methodologies
Methodologies in impact evaluation

• Non-experimental
  – Pre-post
  – Simple Comparison
  – Difference in difference

• Experimental:
  – Randomised Evaluations

→ Example: Community Monitoring of Nurses
• **Needs assessment:**
  – High nurse absenteeism. Result: Many children aged 0-5 years die of preventable causes due to very low rate of immunization.

• **Theory of change:**
  – Inform community about importance of immunizations & mobilize them to demand better services from clinics → immunization rates increase & health outcomes improve.

• **Research question:**
  – What impact does a community-mobilization regarding healthcare services have on immunization rates?
Number of immunizations administered per month

Before

110

150

100

50

After

170
What would have happened without community mobilization?

Method 1: Before and After

Effect: 70% increase
Comparison Areas

Number of immunizations administered per month

<table>
<thead>
<tr>
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<th>Treatment</th>
<th>Control</th>
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What would have happened without community mobilization?

Method 2: Treated vs. Not Treated

Effect: 26% increase

2006                         2008

+26%?
Difference in Difference

<table>
<thead>
<tr>
<th></th>
<th>2006 Treatment</th>
<th>2006 Control</th>
<th>2008 Treatment</th>
<th>2008 Control</th>
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<tbody>
<tr>
<td>Number of immunizations administered per month</td>
<td>110</td>
<td>98</td>
<td>170</td>
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What would have happened without community mobilization?

Method 3: Difference in Difference

Effect: 26% increase

Assumption: C and T have equal trends without intervention
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The diagram on the right shows a map with hexagons representing different areas, colored red or blue to indicate the treatment or control groups, respectively. The map is overlaid with a randomised grid, highlighted in blue and red, to indicate the distribution of the immunizations.
Summary of Impacts

1: Before and After: 70% increase

2: Simple Comparison: 16% increase

3: Difference in Difference: 26% increase

4: Randomised Evaluation: 2.6% increase (not significant)
Fertilizer subsidies in Malawi Revisited

• How could the impact been evaluated through a randomised evaluation?

Fertiliser subsidies could have been randomly allocated to certain farmers in the country, then the harvests of those who received subsidies would be compared to those who didn’t receive subsidies.
Research Question: What is the impact of giving chocolate to workshop participants before class on learning outcomes?

– Identification strategy
  • Allocation Mechanism
  • Risk to validity

– Theory of Change
Basic setup of an evaluation

Example: Effect of Community Monitoring

- Clinics in Uganda
- Sample of clinics
- Medical staff
- Randomly assign
- Compare nurse staff
- Treatment clinics are monitored
- Measure immunization rates
Basic setup of a randomized evaluation

**Target Population**

- **Not in evaluation**
- **Evaluation Sample**
  - Baseline Survey
  - Random Assignment
    - **Treatment group**
    - **Control group**
  - **Balance Check**
- **Endline Survey**
- **Measure Impact**

**Example:** Effect of Community Monitoring

- Clinics in Uganda
- Random Sample of clinics
- • Count medical staff
  • Randomly assign
  • Compare nurse staff between C and T groups → are they balanced?
- Treatment clinics are monitored
- Measure immunization rates
Annex
Programme evaluation example

Community participation in education
Programme evaluation example

Context

• Enrolment in primary school is relatively high
• BUT nearly 50% of children in rural India are functionally illiterate anyway
• Can getting the community involved in the education system address this issue?
Programme evaluation example

Needs Assessment

Evaluate the needs of the relevant individuals/communities

– Who is the target population?
– What need will the programme fill?
– What are the programme benefits?
– What are the alternatives?
Evaluate **how the programme will address needs outlined in the needs assessment**

- What are the requirements to meet the needs?
- Why and how are these requirements currently lacking or failing?
- How will the programme provide these requirements?
- What services will be offered?

In other words, what is the intervention being offered?
Programme evaluation example

Process evaluation

Evaluate how the intervention is being implemented on the ground

– Are basic tasks being completed?
– Are the services being delivered?
– Is the intervention reaching the target population?
– Is the intervention being completed well/efficiently and to the beneficiaries’ satisfaction?
Evaluate the impact of the programme

- Did it have the expected effect?

- If not, was the effect:
  - Smaller or bigger than expected?
  - Negative instead of positive?
  - Non-existent?

- Did enough people receive the programme to ensure the results are sound?

- Can the results be generalised to other settings?
Method 4 - Randomised Evaluation:

Effect: 3% increase in vaccinations

→ but the estimate is not statistically significant at the 5% level

We cannot tell whether the observed increase is due to chance or an actual increase in income.