Aftershocks of Chile’s Earthquake on an Ongoing, Large-Scale Experimental Evaluation

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Presentation Overview

- The Intervention and the Evaluation
- The Earthquake and its Aftermath
- The Challenges, the Options, and the Decision
- Lessons Learned
The Intervention and the Evaluation
The Intervention

- *Un Buen Comienzo (UBC)* Program

- Early childhood intervention targeted at:
  - Teachers in public (municipal) schools
  - Impoverished children attending public schools

- **Goals:**
  - Improve teacher capacities for supporting language and socio-emotional development
  - Improve children health

- Sponsored by Fundación Educacional Oportunidad in Chile
The Intervention

- Offers services during two years to the whole preschool (prekinder and kindergarten)

- Staggered implementation:
  - 2008: 1 municipality (comuna) with 6 schools
  - 2009: 2 municipalities with 29 schools
  - 2010: 3 municipalities with 29 schools

- Municipalities are purposively selected:
  - Located in urban area of Santiago
  - At least 30% of their students are at or below poverty level
The Evaluation

- Research question: How can pre-school education be improved?
- All schools in a municipality are eligible to participate
- Schools are randomized through a public lottery for transparency
- The evaluation compares:
  - Intervention 1: Full UBC program
  - Intervention 2: Different and limited treatment
The Evaluation

- Evaluation follows for 2 years students entering pre-kindergarten

- For each cohort, students are assessed at:
  - Start of pre-kindergarten (baseline in March-May)
  - End of pre-kindergarten (October-November of year of enrollment)
  - End of kindergarten (October-November of the following year of enrollment in pre-kindergarten)

- Impact analysis will pool the data of the three cohorts
The Earthquake and its Aftermath
February 27, 2010 at 3:34 a.m.; 8.8 magnitude
Internal validity is unaffected because of the clustered randomized design

External validity is compromised because of staggered implementation of the intervention
  - UBC schools had a similar proportion of vulnerable students (30%) than other non-UBC schools in Santiago

Evidence suggests that the earthquake did not compromise randomization:
  - Cohort 3 compliance higher than cohort 2 (91% vs. 80%) after a full year of participation
The Challenges, the Options, and the Decision
The Challenges

- Effects of the earthquake to normal life left three challenges:
  - Potential effects on the implementation of the intervention and evaluation for cohort 3
  - Potential effects on remaining round of data collection for cohort 2
  - Potential effects on the feasibility of pooling data across cohorts
The Options

- **Suspend the study in 2010 and reinitiate it in 2011**

- **Hypotheses:**
  - School infrastructure was damaged
  - Data collection could take longer than under regular conditions
  - Substantial psychological impacts on students and teachers
  - Intervention may need to change substantially
    - 2010 not comparable to 2008 or 2009

- **If hypotheses proved true, large cohort effect**
The Options

- **Maintain the evaluation calendar**

- **Hypotheses:**
  - The earthquake’s effects were temporary and minor in Santiago
  - Data collection was not going to be heavily affected by the earthquake
  - The cohort effect of a 1-year delay could be similar to the earthquake’s psychological effect on children and teachers
  - Delaying the project could reduce funds and disrupt retention of trained staff

- **If hypotheses proved true, negligible cohort effect**
The Decision

- Based on data collected in 1 week
- The implementation team visited the 3 municipalities and their schools
- The evaluation team discussed speeding up data collection with schools and municipalities and interviewed teachers and parents
- Consulted the Foundation on the impacts of the two options
- Consulted education and evaluation experts on how to deal with the situation
The Decision

- Continue the study as planned
- Intervention to include stress management sessions for teachers and children
- Only 1 control school suffered damages but shared space with another school
- Cohort 3 parents reported:
  - Structural damages at home: 4%
  - Children with sleep problems: 19%
  - Changes in family income: 23%
- No statistically significant differences between Intervention 1 and Intervention 2 schools
Lessons Learned
Lessons Learned

- Most adjustments to the intervention in response to the 2010 earthquake are specific to Chile
- Most likely nontransferable to other settings
- Other lessons could conceivably become the basis for developing contingency plans for the implementation of evaluations and programs
Lessons Learned

- From a methodological perspective:
  - Unlikely worth planning for an extremely rare shock
  - Experimental design preserved the evaluation’s internal validity
  - Effects of shock must be measured in relation to the evaluation design and the proportion of the sample affected
  - Examine if shock had differential effect on the treatment and control groups or across sites
  - Collect data to understand the interplay between shock and claims of causality
  - Limit staggered program implementation or evaluation
Lessons Learned

- From an implementation perspective:
  - Assess the extent to which the intervention needs to change to offer additional services
  - Consider how long must the interruption of the program last
  - Consider the psychological effects on implementers and evaluators, and survival needs, such as health care
  - Maintain excellent communication among implementers, evaluators, and key decision makers
  - Have plans for alternative means of communication
  - Consult all relevant stakeholders
  - Follow a deliberative process
Available in *Evaluation Review* at:

http://erx.sagepub.com/content/early/2011/04/01/0193841X11400685.abstract
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