From Design to Implementation: Forging Partnerships and Mitigating Threats to Validity in Field Experiments

Eric N. Mvukiyehe

May 20, 2011

"In order to study the effects of real-word intervention, the researcher must understand what the treatment means in practical termswhen it is delivered, by whom, in what form "
-(Green, forthcoming).

This memo discusses two issues that are important for successful implementation of field experiments: (i) forging partnerships and sustaining cooperation with a partner throughout the projects life; and (ii) anticipating and mitigating pitfalls that can potentially threaten the validity of the study. I discuss these in turns.

I. Forging partnerships and sustaining cooperation

Perhaps one of the most important requirements to conduct a successful field experiment is to find partner willing and able to implement the study according to specific research protocols, especially those pertaining to the assignment of treatment to different units and to the administration of treatment regimes. Below I discuss possible outlets for partnerships; the types of partnerships that can be negotiated; and the conditions that make it more or less likely to secure partnership.

A. What are possible outlets for partnerships?

There are several possible outlets through which researchers can carryout randomized studies. These are typically individuals, private entities, agencies or organizations that have some control over (or working with) the population you wish to study. These include government agencies, political parties, community organizations, research institutions, non-government organizations (NGOs), and international organizations, to name a few. Different types of partners face different sets of constraints and flexibility, which should be borne in mind when shopping around for a suitable partner. Government entities are typically expected to serve the entire populations and may perhaps be least flexible. NGOs, on the other hand, are not expected to serve entire populations and can buy into randomization approaches

relatively easily (Dufflo and Kremer 2003). Though NGOs tend to lack adequate resources to finance field experiments. While international institutions such as the World Bank or the UN are more resourceful, they tend to have bureaucratic red tapes that can hamper rollout of the study. They also tend to have relatively frequent changes in personnel and to be sensitivity to extraneous events. Entities such as political parties are perhaps the least flexible, in part because of the sensitive nature of their business (e.g., election). However, recent innovative work has demonstrated that experimental manipulations can be conducted sensitively, without tempering the ultimate outcome. [1] In short, it is important to investigate the types of constraints potential partners may face before entering into a partnership.

B. What are the conditions for collaboration?

Potential for mutual interests: Field experiments are not a charity. Researchers come to potential partners because they want to gain something (e.g., improve knowledge about the real world; advance their career, etc.) Potential partners need to something for them too before the can agree to the experiment proposal. This would also ensure they have a buy-in the project, which is important for sustaining the partnership at least until the end of the experiment. So, unless a potential partner already understands the value of randomized control trials or they are required to integrate these approaches in their programs (which is usually the case with many NGOs that receive funding from external donors), the burden is on the researcher to convince prospective implementing partners that they stand to gain something from the partnership.

Feasibility of the experiment: Feasibility here refers both to the moral/ethics of the study (e.g., studies that may be harmful to the subjects and/or carry little benefits to society) as well as to its costs and logistics (e.g., studies interfere with a partners operations or divert resources away from programs). Either or both of these two problems would discourage potential partners from agreeing to a field experiment or stop cooperating if one has already started. Green (forthcoming) and Loewen et. al (2011) suggest specific conditions that should make field experiments more likely:

- Uncertainty about the outcome of an intervention;
- Intervention is known to work, but mechanisms of an effect are not known;
- Field experiment carries low likelihood of harm (physical, mental and emotional) to the subjects and project staff; and
- Implementation can be done in a flexible manner, without disrupting the partners operations in major ways or requiring them to divert their scarce resources.

[1] See, for example, Wantchekons (2003) study of different campaign messages in a presidential election in Benin. Randomization occurred in the first round of the elections (where the stakes are often fairly low given the large number of candidates). He also carefully screened villages and only selected those where the votes were not close in the previous election to help ensure that the experiment would not influence the result. See, Browning (2002) for a discussion on the merits and ethnics of this experiment.

C. How to negotiate partnerships?

Knowing when the conditions are right for a field experiment is not enough, however. In addition, researchers must also have a set of different skills that are necessary not only to secure partnership, but also to maintain cooperation with the partner and keep the project on tract, at least until the conclusion of the experiment. To this end, Green (forthcoming) suggests that the researcher be able to play multiple roles at different stages, including that of a diplomat, an ethnographer and a business consultant. Furthermore, partnerships should be formalized in a Memorandum of Understanding (MoU) that defines respective roles, responsibilities, obligations and expectations. The MoU should especially be explicit about the use of randomization in assigning treatment, staffing and financing of research activities and about data ownership and usage terms.

II. Threats to validity of field experiments and mitigating measures

In implementing field experiments, things dont always go according to plans. There is always a chance that something might go wrong or be done incorrectly. Such missteps can threaten statistical and internal validity of a field experiment (e.g., undo random assignment) and render it difficult to draw causal inference (Barrett and Carter 2010). Below I discuss potential sources of these threats and how they can be mitigated.

A. Common threats to validity and their sources

The literature on field experiments suggests a number of problems that may threaten validity of experimental studies. These include:

- Compliance problems (i.e. subjects dont take treatment assigned to them);
- Attrition (i.e. subjects or units drop out of the study);
- Interference and spillovers (i.e. units switching groups or getting indirect treatment).
- Power (i.e. minimum number of units you need to detect meaningful effects).

These problems can originate from a variety of sources (Barrett and Carter 2010; Loewen et.al 2011; Green, forthcoming):

- Randomization protocols may be compromised or impractical;
- Treatment regimes might be administered poorly (e.g., not administered or administered to everyone, including in the control group;)
- Communities may be inaccessible (especially in unstable countries);

- Collaboration between researchers and the implementing partner might strain; and
- Resources might be insufficient or come in late. Researchers must have the ability to foresee these problems and take preventive (or mitigating) measures.

B. How to prevent or mitigate these potential threats?

Experts provide some general advice on how to avoid or mitigate some of the pitfalls of implementing field experiments:

- Coordinate closely with the implementing partner, but dont expect them to do the research for you. At the minimum, hire your own research manager who would work alongside the partner to ensure the strict respect of research protocols, especially those pertaining to treatment assignment and administration.
- Limit knowledge of the experiments. Everyone among your partners staff does not need to know that you are conducting experiments. This will help minimize the chances of treatment distortions such as interference and spillovers.
- Learn as much as possible about the research environment: What are the key features of the research setting? Who are the stakeholders or key players? How do they perceive the project? Are there people who are not willing participate in the study? Are there security, social, and political dynamics that may compromise implementation?
- Dont underestimate logistics (i.e. are there any particular logistical challenges that might require making adjustments in the original design? If so, can you make such adjustments without undermining the robustness of the design?)
- Documentation, Documentation, Documentation: Corrective measures are often necessary either during the project or in the analysis. However, As Loewen et. al (2011) pointed out, mistakes can only be corrected if they are discovered and documented. Thus, it is imperative for researchers and their partners to establish a paper trail and carefully record all instructions, decisions and actions during the process of randomization and treatment administration. Moreover, careful documentation can also provide data that may be use gauge the movement on key indicators of interests during the rollout of the program.

III. Background reading

1. Green, Donald (forthcoming.)"Experimental Challenges and Opportunities." Chap 13.
2. Loewen, John, Daniel Rubenson and Leonard Wantchekon. 2011. "Conducting Field Experiments with Political Elites"
3. Barrett, Christopher and Michael Carter. 2010. "The Power and Pitfalls of Experiments in Development Economics: Some Non-Random Reflections." (esp, pp 5-24.)
4. Dufflo, Ester and Michael Kremer. 2003. "fUse of Randomization in the Evaluation of Development Effectiveness," (from pp 17).