Design Diagnosis

European Field Experiments Summer School 2018

A "Design Diagnosis" is the process of simulating a study before it is conducted. Ideally, the process of declaring and diagnosing a design does four things:

- It clarifies exactly which social scientific questions the study will generate answers to.
- It forces you to write down what you think the answers to those questions are.
- It reveals properties of the design (the "diagnosands") like power, bias, rmse, etc.
- Perhaps most importantly, the diagnosis may prompt you to change your design.

The basic algorithm for design diagnosis is:

1. Simulate fake data (covariates, etc)
2. Simulate potential outcomes
3. Sample units according to sampling strategy (ignore if no explicit sampling strategy)
4. Assign units to treatments
5. Reveal potential outcomes (using the switching equation)
6. Estimate quantities of interest
7. Repeat steps 1 - 6 many times.
8. Summarize the power, bias, rmse of the design.

You can use the DeclareDesign package for this or write your own loop.

Important questions:

- What are the treatments?
- What are the outcome measures
- How much do the outcomes vary at baseline?
- What is a reasonable treatment effect? Does it vary by subject?