Workshop on Econometric Methods for Program Evaluation

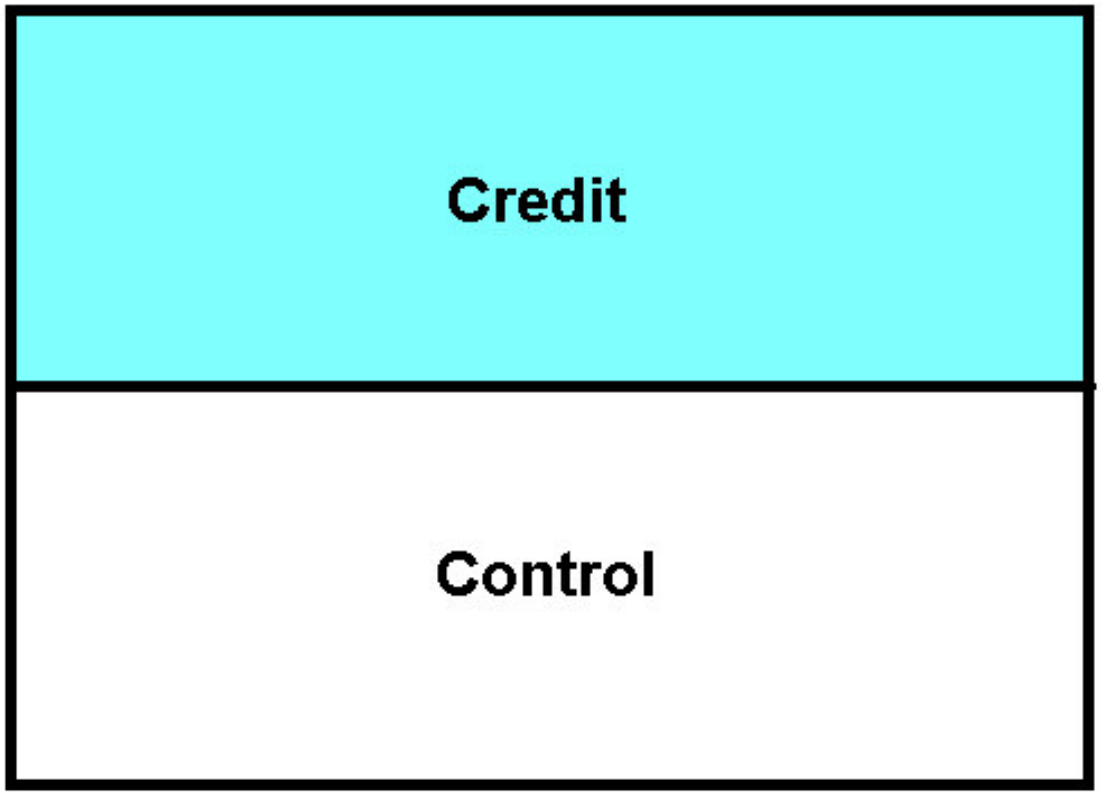
Day 3: Designing randomized experiments

Institutions for Growth RPC

Kampala, Uganda
28–30 January, 2008

Outline

Cross-cutting design



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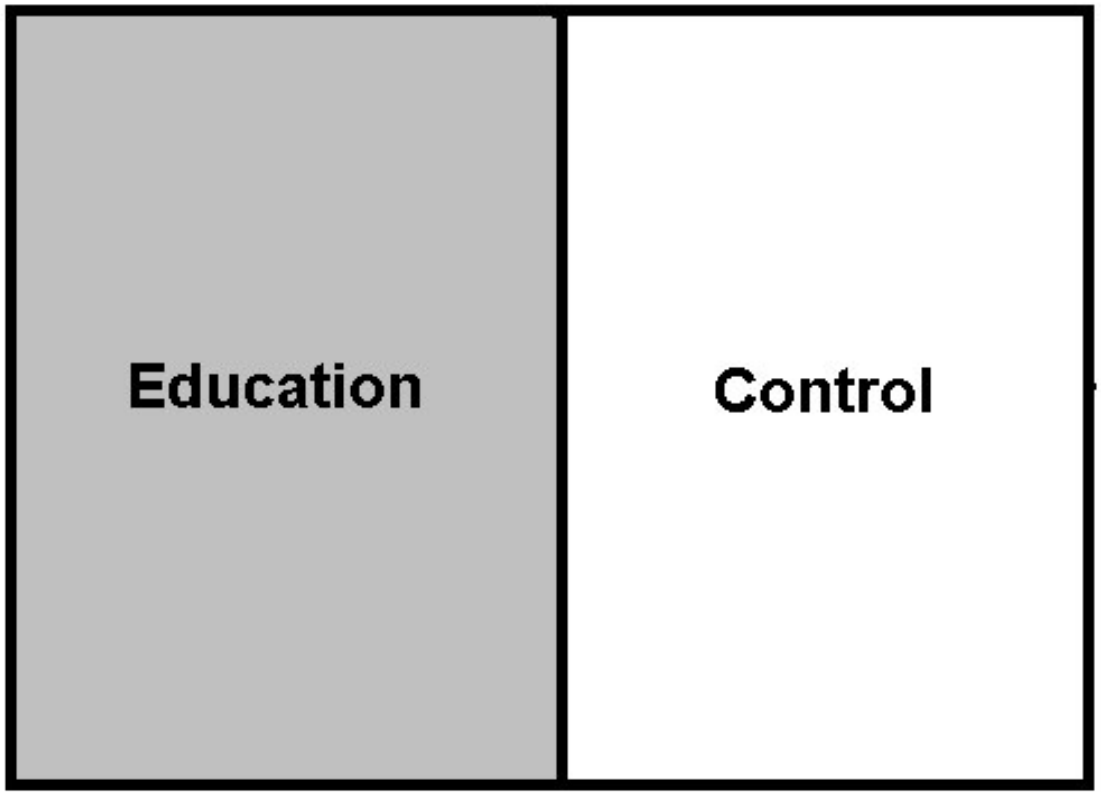

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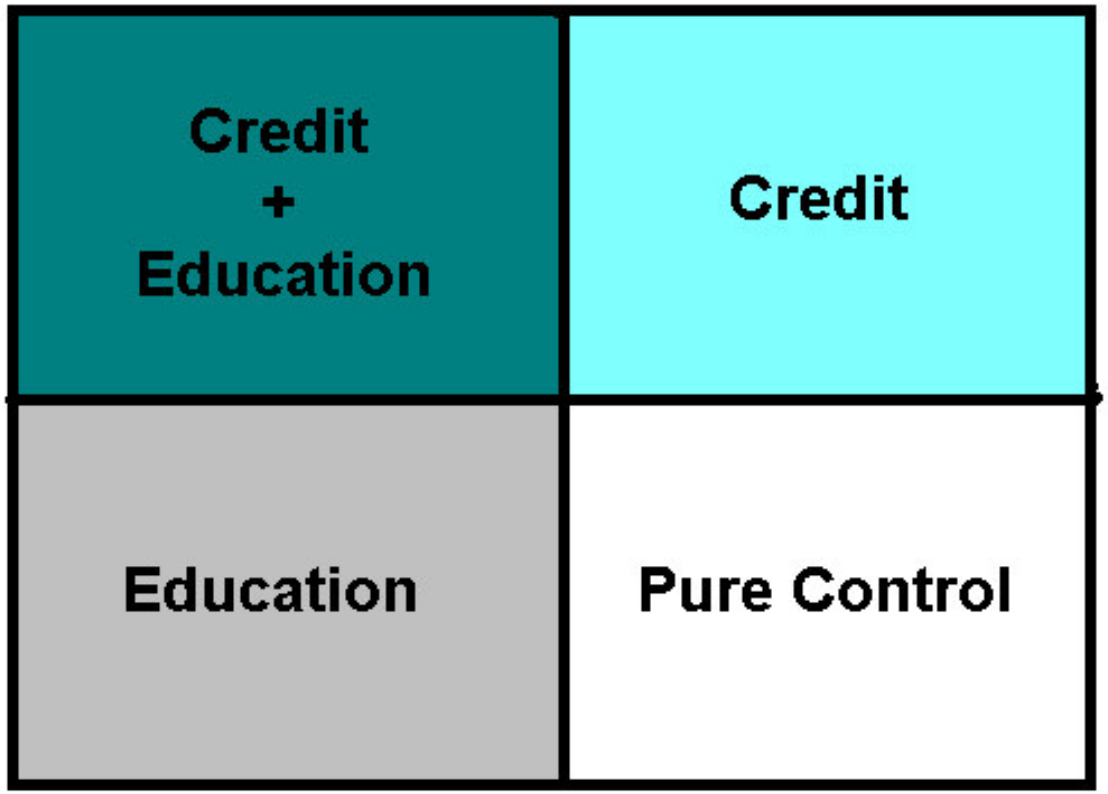

Cross-cutting design

Advantages:

- Test various interventions, relative to control group and to each other
- Test whether interactions matter (perhaps credit only improves nutrition if accompanied with education)

Implications for power calculations:

- If you care about evaluating credit and education separately
  $\Rightarrow$ Increase the size of the pure control group
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Option #1. Avoiding the issue of externalities

Tradeoffs between comparability and contamination.
Want the groups close enough but not too close.

- Close enough b/c unobservables may be correlated across space
  $\Rightarrow$ if treatment and control group are, say, in same school, school dummy can absorb most of this noise
- Not too close b/c treatment externalities may contaminate control group
  $\Rightarrow$ Lesson of worms: positive externalities may lead to serious underestimation of impacts
- Implications for the 'level' of randomization
  $\Rightarrow$ If spillovers are localized, randomization at group level can measure total effect
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Option #2. Explicitly measuring externalities

Measuring externalities **WITHIN** groups:

- vary the level of exposure to a treatment within a group
- this requires within-group randomization
- e.g., randomly treat 1, 5, or 10 students in each class

Measuring externalities **ACROSS** groups:

- exploit the variation in exposure across groups that naturally arises from randomization.
- Miguel and Kremer (2004) use differences in the density of treatment schools in your vicinity
- $y_{ij} = \beta_0 + \beta_1 T_j + \sum_d \gamma_d N_{dj}^T + \sum_d \phi_d N_{dj} + \varepsilon_{ij}$