

## Statistics and Data Science Seminar

### *Organizational Effectiveness: A New Strategy to Leverage Multisite Randomized Trials for Valid Assessment*

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**Abstract:** In education, health, and human services, an intervention program is usually implemented by many local organizations. Determining which organizations are more effective is essential for theoretically characterizing effective practices and for intervening to enhance the capacity of ineffective organizations. In multisite randomized trials, site-specific intention-to-treat (ITT) effects are likely invalid indicators for organizational effectiveness and may lead to inequitable decisions. This is because sites differ in their local ecological conditions including client composition, alternative programs, and community context. Applying the potential outcomes framework, this study proposes a mathematical definition for the relative effectiveness of an organization. The estimand contrasts the performance of a focal organization with those that share the features of its local ecological conditions. The identification relies on relatively weak assumptions by leveraging observed control group outcomes that capture the confounding impacts of alternative programs and community context. We propose a two-step mixed-effects modeling (2SME) procedure. Simulations demonstrate significant improvements when compared with site-specific ITT analyses or analyses that only adjust for between-site differences in the observed baseline participant composition. We illustrate its use through an evaluation of the relative effectiveness of individual Job Corps centers by reanalyzing data from the National Job Corps Study, a multisite randomized trial that included 100 Job Corps centers

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nationwide serving disadvantaged youths. The new strategy promises to alleviate consequential misclassifications of some of the most effective Job Corps centers as least effective and vice versa.

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