A Unified Conceptual and Empirical Approach to Understanding Treatment Heterogeneity

Session Chair:

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First Choice Section:

Education Policy

Second Choice Section:

Research Methods

Paper Presentation Order and Authors:

1. A Conceptual Approach to Understanding Treatment Heterogeneity in Human Capital Interventions
   
   Greg J. Duncan*, UC Irvine, gduncan@uci.edu
   Deborah L. Vandell, UC Irvine, dvandell@uci.edu

2. Preschool Center Quality and Socioemotional Readiness for School: Variation by Demographic and Child Characteristics
   
   Tran Dang Keys*, UC Irvine, tran.keys@uci.edu
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   Erik A. Ruzek, UC Irvine, eruzek@uci.edu
   Carollee Howes, UCLA, howes@gseis.ucla.edu

3. Distributional Effects of a School Voucher Program: Evidence from New York City
   
   Marianne Bitler*, UC Irvine & NBER, mbitler@uci.edu
   Thurston Domina, UC Irvine, tdomina@uci.edu
   Emily K. Penner, UC Irvine, penner@uci.edu

4. Does Detracking Work? Evidence from a Mathematics Curricular Reform
   
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**Symposium Discussant:**
Pamela Morris, Steinhardt School of Education, NYU, pam7@nyu.edu
Justification

Our symposium proposal speaks to the heart of the “Understanding Variation in Treatment Effects” theme of the spring, 2012 SREE conference. It features early results from a recently-awarded program project from NICHD which has the five-year goal of conceptualizing and testing for the heterogeneous nature of the impacts of various educational interventions across developmental stages, using the latest experimental and quasi-experimental methods. The project is based at UC, Irvine and involves a highly interdisciplinary group of faculty from education, economics, criminology, psychology and social behavior and business school. Greg Duncan serves as PI of the program project grant and will chair the proposed session.

Our common conceptual approach assumes that children and youth profit from education-related interventions to varying degrees, for two fundamental reasons. First is what we call stage/policy fit. Children in different developmental stages vary in their responses to policies because of differences in the fit between policy-induced changes in children’s immediate environments and the accomplishment of stage-salient developmental tasks. For example, Eccles et al. (1993) argue that the primary/middle-school model of education structure is inferior to an integrated K-8 structure because middle schools are ill-matched to the emerging developmental demands of children as they transition to adolescence. But there is also substantial variation in treatment impacts across children within a given stage (Imbens & Angrist, 1994), which we call child/policy fit. Early childhood interventions such as Head Start and Early Head Start are geared toward providing learning experiences to children whose family environments are unlikely to provide enough of them. Thus, they “fit” better, and likely generate larger impacts, for children from economically disadvantaged than advantaged circumstances. A contrasting view is the Cunha-Heckman skill production model and its “skill begets skill” assumption that education interventions are most productive for children with the highest levels of skill.

The four papers in this session provide a conceptual and empirical overview of our approach to understanding variation in treatment effects of education interventions:

Paper 1, written by Greg Duncan and Deborah Vandell, provides an overview of the stage/policy and child/policy approach to conceptualizing treatment heterogeneity in education interventions at different stages of childhood and adolescence.

Paper 2, written by Tran Dang Keys and George Farkas, employs the child-environment fit perspective to derive and test hypotheses regarding which combinations of child and family characteristics lead to larger child care treatment effects on cognitive and socio-emotional school readiness outcomes for children. It uses data from four large-scale studies of high-quality child care.

Paper 3, presented by Marianne Bitler, focuses on both the average effects of educational policies and their distributional consequences. It builds on recent innovations in quantile regression, quantile treatment effect (QTE) estimation, and other explicitly distributional approaches.

Paper 4, written by Thurston Domina, draws data from several school districts to evaluate the distributional impacts of the California State Board of Education’s requirement that all public school students take Algebra I by 8th grade.

Pamela Morris, Steinhardt School of Education, NYU, has agreed to discuss the papers in the session.