

# Dissertation Defense

## Essays in Education Economics

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My dissertation examines the causes of, and one possible program to help alleviate, urban public school district enrollment decline. Enrollment decline has plighted many cities in the Northeast and Midwest over the past two decades, leading to financial struggles and, sometimes, large school closures or reorganizations.

In my first essay, "Determinants of Urban Enrollment Decline", I describe how changing birth rates, migration out of the Northeast and Midwest, suburban migration, and substitution to charter and private schools have led to disproportionate enrollment losses in large urban public school districts. Specifically, I use a panel of data on public, charter, and private school enrollment and city characteristics to analyze the impact of metropolitan enrollment losses and substitution to charter and private schools on the urban core district's education "market share".

My second essay<sup>1</sup>, "Bounding the Impact of a Gifted Program On Student Retention Using a Modified Regression Discontinuity Design", examines whether gifted programs can help urban districts retain students with higher SES backgrounds. Gifted programs often employ IQ thresholds for admission, with those above the threshold being admitted. These types of admission rules are often mandated by state rules and create strong incentives to manipulate the IQ score of students to increase access to the program. We propose two new tests that can be used to detect local manipulation of IQ scores. In the presence of local manipulation, the standard regression discontinuity estimator does not identify the local average treatment effect of the program. We show how to modify the approach to construct a lower bound for the effectiveness of the program. This lower bound can be estimated using a modified RD estimator. Our application uses a new and unique data set that is based on applications and admissions to a gifted program of an anonymous urban school district. Our point estimates suggest that there is a favorable effect on retention for students in higher SES households.

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<sup>1</sup> Co-authored with John Engberg, a senior researcher at the RAND Corporation; Dennis Epple, the Thomas Lord Professor at Carnegie Mellon University; Holger Sieg, the J.M. Cohen Term Professor of Economics at the University of Pennsylvania; and Ron Zimmer, Associate Professor of Public Policy and Education at Vanderbilt University.