

# Leveraging Lotteries for School Value-Added: Biased Reduction vs. Efficiency

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## **Abstract**

An increasing number of US public school districts use centralized assignment mechanisms to allocate students to schools. These mechanisms typically involve partial lottery-based random assignment, which generates instrumental variables (IV) that can be used to estimate the causal effects of schools. This paper uses mechanism-based instruments to validate and improve upon observational value-added (VA) estimates of school quality. We develop a unified empirical Bayes framework that combines IV and observational VA estimates to assess the degree of bias in observational VA, and to produce estimates of school quality with lower mean squared error. We apply our method to data from the Boston Public Schools (BPS) assignment mechanism. Preliminary results suggest non-negligible bias in observational VA estimates for many schools. Our method generates estimates of school quality with lower mean squared error than either observational VA or IV alone.