

Using School Choice Lotteries to Test Measures of School Effectiveness

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Online Appendix

Table A1: Descriptive Statistics

	Baseline Means		Pr (lottery sample)
	Non-lottery	Lottery	
	(1)	(2)	(3)
Male	0.506	0.468	-0.007* [0.003]
African-American	0.449	0.619	0.043** [0.004]
Latino	0.070	0.056	0.009 [0.006]
Free / Reduced Lunch	0.542	0.638	0.003 [0.004]
2002 Math Score	0.074	-0.037	0.001 [0.002]
2002 Reading Score	0.001	-0.070	0.007** [0.002]
Grade-by-Neighborhood School Fixed Effects			X
Sample Size	31,455	2,599	35,596

Notes: Columns 1 and 2 display descriptive statistics for students in the non-lottery and lottery samples respectively. Students in the lottery sample applied to non-guaranteed schools and were in lottery priority groups where some randomization occurred (i.e. the probability of admission was neither zero nor one). Column 3 presents results from a regression of an indicator variable that is equal to one if the student is in the lottery sample on the characteristics in Table 1 plus grade-by-neighborhood school fixed effects. This model assesses within-school selection into the lottery sample. Free / reduced lunch is a proxy for poverty. 2002 math and reading scores are standardized at the state, grade and year level and have mean zero and standard deviation one. * = sig. at 5% level; ** = sig. at 1% level or less.

Table A2: The Persistence of School Effects Over Time

	(1)	(2)	(3)	(4)	(5)	(6)
School "Value-Added" in 2004	0.815* [0.365]	0.683* [0.282]	1.315** [0.444]	1.045** [0.370]	1.716** [0.571]	1.441* [0.636]
School "Value-Added" in 2003		0.282 [0.446]		0.989* [0.431]		1.189* [0.588]
Years of Prior Data	2002 only		1998-2002		1998-2002	
Covariates in VAM	demogs + prior scores		demogs + prior scores		demogs + prior scores	
Shrinkage Adjustment	none		none		Empirical Bayes	
p-value on F(VA in 2004 = 1)	0.611		0.478		0.210	
p-value on F(VA in 2003 = 1) and F(VA in 2004 = 1)	0.001		0.994		0.485	
p-value on F(VA in 2003 + VA in 2004 = 1)	0.910		0.008		0.002	
Sample Size	1,760	1,760	1,760	1,760	1,760	1,760

Notes: Each column shows results from an estimate of the two-stage least squares (2SLS) system in equations (2) and (3) in the paper, where the "value-added" model (VAM) estimate in a student's Fall 2002 school is the first-stage endogenous variable, and the instrument is the VAM estimate in the first choice school for lottery winners and the VAM estimate in the neighborhood school for lottery losers. All models also control for student demographics, prior test scores and lottery fixed effects - see Section II of the paper for details. The outcome in each regression is the average of students' Spring 2003 and/or Spring 2004 math and reading scores. The reported coefficients will thus be equal to one if the VAM indicated in each column is a perfect predictor of the impact of attending a student's first choice school on student achievement. Columns 1 through 6 report results from different choices of prior covariates, estimation samples, and "shrinkage" adjustments - see the indicated Column and the text for details. The even numbered Columns report results for both the 2003 and 2004 VAMs, which tests for the persistence of school effects from one year to the next. For each regression, I also report the p-value on an F-test of the hypothesis that the coefficient is "unbiased", i.e. equal to one, as well as tests of the hypothesis that both years' VAMs are equal to one and that they jointly add up to one. Standard errors are block bootstrapped at the lottery level. * = sig. at 5% level; ** = sig. at 1% level or less.

Table A3: Impact of Winning the Lottery on Enrollment, School Characteristics, and Achievement

	Enrollment in Fall 2002			Fall 2002 School Characteristics				Spring 2003 Achievement	
	In 1st Choice	Neighborhood School	Magnet School	Percent Minority	Percent Free Lunch	Average Test Scores	"Value Added"	Math	Reading
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Won Lottery	0.557** [0.036]	-0.352** [0.040]	0.198** [0.046]	-0.093** [0.036]	-0.113** [0.029]	0.227** [0.058]	-0.011 [0.011]	-0.037 [0.043]	-0.060 [0.047]
Sample Size	2,599	2,599	2,599	2,599	2,599	2,599	2,599	2,585	2,584

Notes: Columns 1 through 3 show the intent-to-treat (ITT) impact of winning the lottery on school attendance, based on equation (3) in the paper. Columns 4 through 7 show the local average treatment effect (LATE) of attending one's first choice school on school characteristics, using the two-stage least squares (2SLS) setup in equations (2) and (3) in the paper. Columns 8 and 9 show the LATE of attending one's first choice school on achievement at the end of the first school year after the lottery. Minority is African-American or Hispanic. Free Lunch is a proxy for poverty. Average test scores are the average of math and reading scores, which are normalized at the state-grade-year level and have mean zero and standard deviation one. * = sig. at 5% level; ** = sig. at 1% level or less.