Teaching to the Student:
Charter School Effectiveness in Spite of Perverse Incentives

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Key Findings

Recent work has shown that Boston charter schools raise standardized test scores more than their traditional school counterparts. I test the critique that their score gains are attributable to test preparation by estimating the impact of charter school attendance on subscales of the MCAS and examining them for evidence of score inflation. If charter schools are teaching to the test to a greater extent than their counterparts, one would expect to see higher scores on commonly tested standards, higher stakes subjects, and frequently tested topics. However, I find no evidence of this type of test preparation.

• Boston charter middle schools perform consistently across all standardized test subscales.
• Gains are similar for rarely tested and commonly tested standards.
• Gains in 8th grade science are just as large than those in 8th grade math, and higher than gains in English language arts.
• Students perform similarly on multiple choice, open response, and short answer items.
• Within subjects, gains are similar for less frequently tested subtopics (e.g. measurement and geometry in math) as in more frequently tested subtopics (e.g. number sense and algebra in math).

Research Questions

I argue that score inflation may be visible in test score results if gains are largest in test items that are more frequently tested, easier to coach to, or in higher stakes subjects. In order to test this, I ask:

• Are there differences in Boston middle school charter test score gains between rare and common standards, low and high stakes subjects, multiple choice and open response questions, and infrequently and frequently tested topics?

Data

I used spring 2002 to 2010 lottery records for Boston charter schools linked to MCAS data from 2004 to 2011 for the outcomes. To estimate outcomes on MCAS subscores, I categorized MCAS item-level responses by topic, question type, and Massachusetts curriculum standard. I used SIMS data to gather background characteristics of students in the sample and to match to the lottery records. The charter
lottery data has been collected by Harvard and MIT since 2008 for a series of research projects in partnership with the Massachusetts Department of Elementary and Secondary Education.

**Research Methods**

To calculate per-year charter school subscale test score impacts, I employed an “apples to apples” comparison by using the charter school lotteries. I compared subscale test scores between those offered a seat and those not offered a seat, adjusting for charter school attendance. I then inspected the subscale scores to see if more frequently tested topics, particular question types, or more frequently tested standards had larger gains for charter school students than other subscales.

**Detailed Results**

- Boston charter middle school gains are just as large for rarely tested standards as for commonly tested standards, both when looking across the entire sample period, and when looking just at standards from last year’s exam.

- The charter school effect is 0.25 standard deviations in 8th grade math and 0.29 standard deviations in 8th grade science, indicating no evidence of allocation of effort away from science, which is less emphasized in accountability ratings and public information about schools. Results are similar within subjects, when examined by topic subscores, with few differences between frequently and infrequently tested topics.

- In general, charter school students do just as well on each type of test item as they do on the subject as a whole. For example, in 6th grade, the overall two-stage least squares effect on math scores is 0.53 standard deviations. The scores by item type are quite similar: 0.55 standard deviations on multiple choice, 0.54 standard deviations on short answer, and 0.40 standard deviations on open response.

- The results remain substantively the same when baseline scores are assigned to those with missing outcomes, to account for the fact that those that leave the sample may be different from those that stay. Nor is there evidence that charter schools are focusing on “bubble” students—at a greater rather other schools in Boston.

**Implications for Policy and Practice**

These results suggest that the charter school gains in Boston are not due to differential test preparation. This suggests, along with evidence that charter schools in Boston have positive impacts on SAT, AP, and four-year college enrollment, that Boston charters are successfully improving their students’ human capital. Greater access to these schools and emulation of their practices may result in human capital gains for students.