Who We Are

• Non-partisan data based research organization located at Stanford University
• Student level data from 29 states, ~85% of charter students in the country
• National perspective on the charter sector
Overview

• Acknowledgements
  – MA Department of Education
  – Walton Family Foundation

• Study Approach

• Findings

• Summary & Implications
Study Approach
What Did We Ask?

• How do charter schools compare to TPS in their math and reading growth?

• What charter school characteristics are associated with higher growth?

• Do charter schools have more success than TPS working with certain student subgroups?
## What Years Are We Looking At?

<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic Year Covered by Test</td>
<td>2005-06</td>
<td>2006-07</td>
<td>2007-08</td>
<td>2008-09</td>
<td>2009-10</td>
<td>2010-11</td>
</tr>
<tr>
<td>Grades*</td>
<td>3-10</td>
<td>3-10</td>
<td>3-10</td>
<td>3-10</td>
<td>3-10</td>
<td>3-10</td>
</tr>
<tr>
<td>Growth Period</td>
<td>2007</td>
<td>2008</td>
<td>2009</td>
<td>2010</td>
<td>2011</td>
<td></td>
</tr>
</tbody>
</table>

*Excluding Grade 9.
Virtual Control Record

Charter School Student

MATCHING VARIABLES:
✓ Race/ethnicity
✓ Gender
✓ English proficiency
✓ Lunch status
✓ Special education status
✓ Grade level

MATCHING VARIABLE:
✓ Test scores from $t_0$

Feeder School(s) Students

Provide List of Potential Match Schools

Find Matches Based on Demographic Variables

Eliminate Matches Who Attend Charter Schools

Match Test Scores

Average $t_1$ Test Scores

Virtual Control Records

MA Match rate is 83%
Are These Results Valid?

• **Internal Validity**
  - Mathematica found no significant difference between VCR and “lottery” methods on the same students (2012).
  - Recent meta-analysis found VCR results consistent with other quasi-experimental methods (Betts et. al).
  - What Works Clearinghouse gives VCR the highest rating possible for quasi-experimental methods (IES, 2010).

• **External Validity**
  - Greater than 80% of charter students included in VCR.
  - Fixed Effects only includes “switchers” (~40%).
  - Lotteries include only over-subscribed charter schools.
Results

• Massachusetts Student Findings

• Massachusetts School Findings

• Boston Findings
MA Student-level Findings
<table>
<thead>
<tr>
<th>Growth (in standard deviations)</th>
<th>Gain (in months of learning)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.00</td>
<td>0.0</td>
</tr>
<tr>
<td>0.05</td>
<td>1.8</td>
</tr>
<tr>
<td>0.10</td>
<td>3.6</td>
</tr>
<tr>
<td>0.15</td>
<td>5.4</td>
</tr>
<tr>
<td>0.20</td>
<td>7.2</td>
</tr>
<tr>
<td>0.25</td>
<td>9</td>
</tr>
<tr>
<td>0.30</td>
<td>10.8</td>
</tr>
<tr>
<td>0.35</td>
<td>12.6</td>
</tr>
</tbody>
</table>

(Hanushek et al, 2006)
Charter students outperform TPS students in reading (1.5 months) and math (2.5 months). Results are especially strong in Boston charters.
Charter School Impact by Year

Charter students outperform TPS in both subjects in all years, with the exception of reading growth in 2008. On a general positive trend.
Charter students have mixed learning gains compared to their TPS counterparts in the first year and significantly higher gains in future years.

First Year
Math: 1.1 months
Read: -1.5 months

Four or More Years
Math: 5 months
Read: 7.5 months

* Significant at p ≤ 0.05  ** Significant at p ≤ 0.01
Black and Hispanic students have larger learning gains at charter schools than at TPS. Charters have closed the growth gap in math.
Students in poverty have an advantage in charter schools in both math and reading. The difference is statistically significant.
School-level Findings
# Distribution of Charter School Impacts

## Table: Subject Impact Distribution

<table>
<thead>
<tr>
<th>Subject</th>
<th>Significantly Worse</th>
<th>Number</th>
<th>Percent</th>
<th>Not Significant</th>
<th>Number</th>
<th>Percent</th>
<th>Significantly Better</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading</td>
<td>7</td>
<td>7</td>
<td>13.0%</td>
<td>23</td>
<td>23</td>
<td>42.6%</td>
<td>24</td>
<td>24</td>
<td>44.4%</td>
</tr>
<tr>
<td>Math</td>
<td>9</td>
<td>9</td>
<td>16.7%</td>
<td>15</td>
<td>15</td>
<td>27.8%</td>
<td>30</td>
<td>30</td>
<td>55.6%</td>
</tr>
</tbody>
</table>
Black and Hispanic students in poverty have higher learning gains at Boston charter schools than at TPS. Closing the achievement gap in math.
First charter sector in country CREDO has analyzed with no charters worse than their local TPS options.
Are These Effects Real?

- Similar Results to Previous Analyses

- Percentage of Students Above State Average – 4 or more years in sector

<table>
<thead>
<tr>
<th>Year</th>
<th>Read - CH</th>
<th>Read - TPS</th>
<th>Math - CH</th>
<th>Math - TPS</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>44%</td>
<td>40%</td>
<td>53%</td>
<td>31%</td>
</tr>
<tr>
<td>2008</td>
<td>60%</td>
<td>44%</td>
<td>64%</td>
<td>34%</td>
</tr>
<tr>
<td>2009</td>
<td>66%</td>
<td>44%</td>
<td>74%</td>
<td>33%</td>
</tr>
<tr>
<td>2010</td>
<td>78%</td>
<td>46%</td>
<td>84%</td>
<td>34%</td>
</tr>
<tr>
<td>2011</td>
<td>81%</td>
<td>44%</td>
<td>85%</td>
<td>41%</td>
</tr>
</tbody>
</table>
Summary & Implications
Summary of Findings Massachusetts

- Typical charter student has greater learning gains than TPS
  - 1.5 months in reading
  - 2.5 months in math

- Better for most subgroups
  - Black, Hispanic, Poverty, SPED better.
  - ELL lagging.

- Some Charters in Danger Zone
  - Math: 20%
  - Reading: 17%
Summary of Findings
Boston

• Largest Effect Sizes CREDO Has Seen
  – 12.3 months in reading
  – 12.9 months in math

• Better for All Subgroups Analyzed
  – Black, Hispanic, Poverty.
  – Black and Hispanic students in poverty closing achievement gap in math

• Most charter schools outperform their TPS market
  – Reading: 83% Boston vs 44% statewide
  – Math: 83% Boston vs 56% statewide
Implications

• Boston math and reading effect sizes the largest CREDO has seen, but weaker in rest of MA.
• Boston charter sector is a good candidate to transfer knowledge to the MA and national charter sector.
• Boston has a chance to become the first charter sector to close the achievement gap in math.
• Charter sector in Boston is the current standard by which other sectors should be judged.
Thank You