Evaluating the Effect of New School Facilities on Student Achievement & Attendance in LAUSD

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Introduction: School Infrastructure Investments

- School infrastructure is an important component of K-12 spending:
  - $45 billion spent on capital expenditures in US schools in 2012
  - $13 billion spent in 2013 on school constructions

- Most research focused on effects of *instructional expenditures*, with less attention on capital expenditures

- School facilities are important component of public infrastructure, more generally
  - Potential bipartisan support for increasing infrastructure spending
  - Low interest rates – financing public works projects cheap
Motivation: New Facility Effects on Student Outcomes

1. Large disparities in school facility quality between rich and poor students, white and minority students, etc

2. No consensus in literature on impact of school capital expenditures on student outcomes

3. Little empirical work examining potential mechanisms

Research Question: What is the impact of new school constructions on student outcomes? What mechanisms might underly any effects?
This Paper

- Program evaluation of largest school construction program in US History:
  ⇒ Since 1998, Los Angeles Unified School District (LAUSD) has allocated $27 billion dollars to capital expenditure programs (mainly state and local money)

- Exploit variation in *timing* and *location* of new school constructions to examine potential student-level impacts
  ⇒ Event study design around time student begins attending newly constructed school
  ⇒ Outcomes: student test scores (math, ELA) and attendance
School Construction (Economics) Literature Estimates
Our Estimates
LAUSD in the L.A. Metro Area

- 2nd largest district in U.S.
- 747,009 students at peak
- Mostly non-white district
- Serves 26 cities:
  - City of L.A.
  - Some gateway cities
  - Unincorporated areas
  - Not e.g. Santa Monica
- Underachieving:
  - -0.2 SD below CA in Math
  - -0.25 SD in ELA
- Lack of facility investment:
  ⇒ Poor facility quality
  ⇒ Overcrowding
LAUSD Socio-Demographics by School
Section 1

Historical Context
The LAUSD Building Boom

Memories from 1996...

- Enrollment increase of almost 200,000 since 1980
- No bond passed in last 33 years
- Making the most of too little space
  - Multi-tracking
  - Portables
  - Busing
- Rapid deterioration of existing facilities
Memories from 1996...

- Enrollment increase of almost 200,000 since 1980
- No bond passed since 33 years
- Making the most of too little space
  - Multi-tracking
  - Portables
  - Busing
- Rapid deterioration of existing facilities

Breakthrough

- 150 new schools built in 2002-2012
- About 150,000 new 2-semester seats
- Largest school building boom in U.S. history
Poor Quality Facilities

• Common facility quality issues:
  • Broken tables, blackboards, other teaching materials
  • Broken plumbing, ventilation, heating; closed bathrooms
  • Pest infestation, mold, mites
  • Lead paint and arsenic

• Anecdotal effects or poor facility conditions:
  • Temperature and noise distraction
  • Low student and teacher motivation
  • Health issues such as asthma and developmental disorders
Overcrowding

• Common overcrowding conditions:
  • Temporary classrooms (portables)
  • Convert gyms, libraries, computer labs into classrooms
  • Multi-track calendars (year-round schools)
  • Long school ways, some busing (2-3%)
  • Overcrowded classrooms

• Anecdotal effects of overcrowding:
  • Diminished attention of students
  • Increased school violence
  • Limited access to non-classroom opportunities
  • Multi-track: longer school days and shorter school year
  • Rapid deterioration of facility conditions
New and Old School Sites in LAUSD

• School facility bonds:
  - 1997: $2.4 billion
  - 2002: $3.35 billion
  - 2004: $3.87 billion
  - 2005: $4 billion
  - 2007: $7 billion

• Building boom 2002-2012:
  ⇒ 148 new schools
  ⇒ 19% increase
  ⇒ Higher facility standards
New School Site Selection Process

- Select old schools most...
  1. overcrowded
  2. multi-track calendar
⇒ 109 schools identified (black dots)

- Assign search areas nearby:
  - Red: elementary schools
  - Blue: middle schools
  - Green: high schools

- Select sites from areas:
  - Feasibility study
  - CEQA
  - Property purchase
  - Public tender
  - Construction (1-3 years)
Relieved Overcrowding
Example: Madison Elementary
Example: Robert F. Kennedy Family of Schools
Computer Labs, Libraries, etc. Back to Original Purpose
Section 2

Data
Data

Two primary data sources:

1. Administrative data from LAUSD for 2002-2012
   - Math and ELA test scores G2-G11
   - Demographics
   - Attendance (annual)
   - Teacher records

2. New school projects from LAUSD Facilities Service Division
   - Location
   - Cost, number of seats
   - Completion timeline
Aggregate Trends in Test Scores

Year
ELA Math
-30 -25 -20 -15 10% of standard deviation
-10
Gap between LA and CA students large, but declining
Gap between LA and CA students large, but declining

![Graph showing the gap between LA and CA students over years, with actual and expected values. The gap is large but declining.]
By 2012, many students attending newly built schools...
Section 3

Empirical Framework
Identifying Facilities Effects

Estimate effects using an event study / DiD framework.

**Intuition:** students in the same grade and cohort who switch to new schools at different times (or never switch to a new school) form useful counterfactual. Control for:

- Year and grade effects
- Time-invariant individual differences (observed and unobserved)

Causal interpretation relies on assumption that timing of switch as good as random (conditionally)

⇒ Selection problems would have to be *time-varying* and *unobserved*

⇒ **Key feature:** can examine pre-outcomes as placebo test
Estimating Equation

Non-parametric model:

\[ y_{igt} = \alpha_i + \gamma_t + \delta_g + \sum_{k=K}^{\bar{K}} \beta_k \mathbb{1}(t = t_i^* + k) + \epsilon_{igt} \]

Parametric model:

\[ y_{igt} = \alpha_g + \alpha_t + \alpha_i + \beta_1 \mathbb{1}(t \geq t_i^*) + \beta_2 \mathbb{1}(t \geq t_i^*) \times \tilde{t} + \beta_3 \tilde{t} + \epsilon_{igt} \]

For individual \( i \), grade \( g \), at time \( t \), where:

- \( y_{igt} \) is student \( i \)'s outcome
- \( t_i^* \) is student’s first year in new school
- \( \tilde{t} \) is a linear time trend

In non-parametric specifications, bin endpoints at \( K = -3 \) and \( \bar{K} = 3 \). Standard errors two-way clustered by student and school.
Estimation Strategy
Estimation Strategy

[Diagram showing time zero and event time with bars for different students (A, B, C, D) indicating their status at new or old school]
Grade of switch to new school

![Bar chart showing the grade of switch to new school with number of students on the y-axis and grade of move to new school on the x-axis.](chart.png)
### Table: Balance by treatment group

<table>
<thead>
<tr>
<th></th>
<th>Never Treated</th>
<th>Always Treated</th>
<th>Switchers</th>
<th>Stayers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Free/reduced lunch</td>
<td>0.75</td>
<td>0.86</td>
<td>0.87</td>
<td>0.85</td>
</tr>
<tr>
<td>Parent any college</td>
<td>0.27</td>
<td>0.23</td>
<td>0.16</td>
<td>0.19</td>
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<tr>
<td>Hispanic</td>
<td>0.72</td>
<td>0.85</td>
<td>0.89</td>
<td>0.86</td>
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<tr>
<td>Black</td>
<td>0.11</td>
<td>0.05</td>
<td>0.06</td>
<td>0.05</td>
</tr>
<tr>
<td>White</td>
<td>0.10</td>
<td>0.03</td>
<td>0.02</td>
<td>0.04</td>
</tr>
<tr>
<td>Asian</td>
<td>0.04</td>
<td>0.04</td>
<td>0.02</td>
<td>0.02</td>
</tr>
<tr>
<td>English at home</td>
<td>0.33</td>
<td>0.28</td>
<td>0.17</td>
<td>0.19</td>
</tr>
<tr>
<td>Grade</td>
<td>5.7</td>
<td>2.6</td>
<td>5.4</td>
<td>5.6</td>
</tr>
<tr>
<td>Math Score ($t = -1$)</td>
<td></td>
<td></td>
<td>-0.35</td>
<td>-0.22</td>
</tr>
<tr>
<td>ELA Score ($t = -1$)</td>
<td></td>
<td></td>
<td>-0.52</td>
<td>-0.41</td>
</tr>
<tr>
<td>Days Attended ($t = -1$)</td>
<td></td>
<td></td>
<td>156.7</td>
<td>154.7</td>
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<tr>
<td>N</td>
<td>6,711,383</td>
<td>108,749</td>
<td>702,614</td>
<td>1,004,523</td>
</tr>
</tbody>
</table>

**Note:** Stayers defined as students who have 10% or more of their cohort move to a new school.
Section 4

Results
Results: ELA Test Scores (Grades 2-11)
Results: ELA Test Scores (Grades 2-11)
Results: Math Test Scores (Grades 2-7)
## Results: ELA Test Scores

<table>
<thead>
<tr>
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<th>(1)</th>
<th>(2)</th>
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<th>(4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>New School</td>
<td>0.010</td>
<td>-0.004</td>
<td>-0.014</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.008)</td>
<td>(0.008)</td>
<td>(0.009)</td>
<td></td>
</tr>
<tr>
<td>New School * Trend</td>
<td>0.019***</td>
<td>0.020***</td>
<td>0.017***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.004)</td>
<td>(0.004)</td>
<td>(0.004)</td>
<td></td>
</tr>
<tr>
<td>Trend</td>
<td></td>
<td></td>
<td>0.004***</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(0.001)</td>
<td></td>
</tr>
<tr>
<td>Grade FEs</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Year FEs</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Stu FEs</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>N student-years</td>
<td>4,961,136</td>
<td>4,961,136</td>
<td>4,961,136</td>
<td>4,961,136</td>
</tr>
<tr>
<td>N students</td>
<td>1,007,950</td>
<td>1,007,950</td>
<td>1,007,950</td>
<td>1,007,950</td>
</tr>
<tr>
<td>N treated students</td>
<td>102,277</td>
<td>102,277</td>
<td>102,277</td>
<td>102,277</td>
</tr>
<tr>
<td>N treated schools</td>
<td>132</td>
<td>132</td>
<td>132</td>
<td>132</td>
</tr>
<tr>
<td>R2</td>
<td>0.84</td>
<td>0.84</td>
<td>0.84</td>
<td>0.84</td>
</tr>
</tbody>
</table>

**Note:** OLS regression according to specification (2). Standard errors clustered on students and schools.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. 
### Results: Math Test Scores

#### Table: DiD Estimates for Math (Grades 2-7)

<table>
<thead>
<tr>
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<th>(1)</th>
<th>(2)</th>
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<th>(4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>New School</td>
<td>0.004</td>
<td>-0.021</td>
<td>-0.026</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.015)</td>
<td>(0.017)</td>
<td>(0.017)</td>
<td></td>
</tr>
<tr>
<td>New School * Trend</td>
<td></td>
<td>0.028***</td>
<td>0.033***</td>
<td>0.031***</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.007)</td>
<td>(0.008)</td>
<td>(0.008)</td>
</tr>
<tr>
<td>Trend</td>
<td>0.004</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.002)</td>
<td></td>
<td></td>
<td></td>
</tr>
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</table>

<table>
<thead>
<tr>
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<th>(1)</th>
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</thead>
<tbody>
<tr>
<td>Grade FEs</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Year FEs</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Stu FEs</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>N student-years</td>
<td>3,095,724</td>
<td>3,095,724</td>
<td>3,095,724</td>
<td>3,095,724</td>
</tr>
<tr>
<td>N students</td>
<td>769,827</td>
<td>769,827</td>
<td>769,827</td>
<td>769,827</td>
</tr>
<tr>
<td>N treated students</td>
<td>89,439</td>
<td>89,439</td>
<td>89,439</td>
<td>89,439</td>
</tr>
<tr>
<td>N treated schools</td>
<td>82</td>
<td>82</td>
<td>82</td>
<td>82</td>
</tr>
<tr>
<td>R2</td>
<td>0.82</td>
<td>0.82</td>
<td>0.82</td>
<td>0.82</td>
</tr>
</tbody>
</table>

*Note:* OLS regression according to specification (2). Standard errors clustered on students and schools.  
* p < 0.1, ** p < 0.05, *** p < 0.01.
Results: Attendance (Grades K-12)

![Graph showing attendance over years of exposure to new school facility.](image-url)
## Results: Attendance

### Table: DiD Estimates for Days Attended

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>New School</td>
<td>3.878***</td>
<td>3.269***</td>
<td>3.294***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.544)</td>
<td>(0.590)</td>
<td>(0.630)</td>
<td></td>
</tr>
<tr>
<td>New School * Trend</td>
<td>1.707***</td>
<td>0.821***</td>
<td>0.830***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.213)</td>
<td>(0.191)</td>
<td>(0.199)</td>
<td></td>
</tr>
<tr>
<td>Trend</td>
<td></td>
<td></td>
<td>-0.010</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(0.084)</td>
<td></td>
</tr>
</tbody>
</table>

### Feasibilities

- Grade FEs: X
- Year FEs: X
- Stu FEs: X

### Summary Statistics

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>N student-years</td>
<td>5,615,447</td>
<td>5,615,447</td>
<td>5,615,447</td>
<td>5,615,447</td>
</tr>
<tr>
<td>N students</td>
<td>1,163,271</td>
<td>1,163,271</td>
<td>1,163,271</td>
<td>1,163,271</td>
</tr>
<tr>
<td>N treated students</td>
<td>127,940</td>
<td>127,940</td>
<td>127,940</td>
<td>127,940</td>
</tr>
<tr>
<td>N treated schools</td>
<td>150</td>
<td>150</td>
<td>150</td>
<td>150</td>
</tr>
<tr>
<td>R2</td>
<td>0.51</td>
<td>0.51</td>
<td>0.51</td>
<td>0.51</td>
</tr>
</tbody>
</table>

**Note:** OLS regression according to specification (2). Standard errors clustered on students and schools.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. 
Results: Robustness

Table: DiD Estimates: Robustness

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>Only Treated</th>
<th>Only Switchers</th>
<th>Balanced</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ELA Score</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New School * Trend</td>
<td>0.019***</td>
<td>0.018***</td>
<td>0.016***</td>
<td>0.027*</td>
</tr>
<tr>
<td></td>
<td>(0.004)</td>
<td>(0.005)</td>
<td>(0.005)</td>
<td>(0.014)</td>
</tr>
<tr>
<td><strong>Math Score</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New School * Trend</td>
<td>0.028***</td>
<td>0.034***</td>
<td>0.035***</td>
<td>0.059*</td>
</tr>
<tr>
<td></td>
<td>(0.007)</td>
<td>(0.011)</td>
<td>(0.012)</td>
<td>(0.033)</td>
</tr>
<tr>
<td><strong>Days Attended</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New School</td>
<td>3.878***</td>
<td>3.869***</td>
<td>4.294***</td>
<td>8.521***</td>
</tr>
<tr>
<td></td>
<td>(0.544)</td>
<td>(0.779)</td>
<td>(0.790)</td>
<td>(1.654)</td>
</tr>
</tbody>
</table>

*Note: OLS regression according to specifications (1) (row 3) and (2) (rows 1 and 2). Standard errors clustered on students and schools.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. 
Comparing to All Major Projects: ELA

Test Scores (Standard Deviation Change)

Years of Exposure to New School Facility

New School Projects

All Large Projects
Comparing to All Major Projects: Math

Test Scores (Standard Deviation Change)

Years of Exposure to New School Facility

New School Projects

All Large Projects
Comparing to All Major Projects: Attendance

![Graph showing the additional days attended over years of exposure to new school facility comparing New School Projects and All Large Projects. The graph illustrates an upward trend in additional days attended as the years of exposure increase.]
Interpreting Size of Impacts

1. Significant reduction of gap to California average:
   - ELA gap of 28% of SD and math gap of 23%
   ⇒ 5% ELA score increase: 18% of gap closed
   ⇒ 10% Math score increase: 45% of gap closed

2. Equivalent to meaningful class size reduction effects:
   - 1/3 class size reduction leads to 18% increase
   ⇒ ELA score increase: 10% reduction in class size
   ⇒ Math score increase: 20% reduction in class size

3. Equivalent to a large increase in instructional days:
   - 25% increase is a 35 in math, 45 in ELA
   ⇒ ELA score increase: 9 more instructional days
   ⇒ Math score increase: 14 more instructional days
Wider Implications for the District

1 Adult earnings:
   • $3,530 for 10% SD increase in test scores (Chetty et al. 2011)
   • About 442,274 student-years treated
     ⇒ $225 million up to 2012
     ⇒ $740 million up to 2022 with capped occupancy

2 LAUSD operational funds:
   • About 3.5 additional ADA and $42 per student-year ADA
     ⇒ ADA increase of 1,547,959
     ⇒ $65 million in increased operational funds

This does not take into account district-wide effects!
Section 5

Mechanisms
Unpacking the “Black Box”

**Why do students benefit from attending new schools?**

Non-exclusive list of potential reasons:

1. Facility quality and overcrowding
2. Switch from multi- to single-track
3. Staff and teacher sorting
4. Student health/motivation
5. Teacher health/motivation
6. Way-to-school quality
Unpacking the “Black Box”

Why do students benefit from attending new schools?

First pass: add interactions to baseline parametric model* 
\((1(t \geq t_i^*)) \cdot \tilde{t} \text{ or } 1(t \geq t_i^*)\) to examine heterogeneity by

- Cost per pupil of new construction
- Prior achievement quartiles
- Prior school condition / prior school congestion quartiles
- Prior school calendar (multi vs single)
- Grade & parental education / SES

*Recall:

\[ y_{igt} = \alpha_g + \alpha_t + \alpha_i + \beta_1 1(t \geq t_i^*) + \beta_2 1(t \geq t_i^*) \cdot \tilde{t} + \beta_3 \tilde{t} + \epsilon_{igt} \]
Heterogeneity by Cost per pupil: ELA

Test score (sd)

Cost per seat quartile
effect of extra year at new school
Heterogeneity by Cost per pupil: Math

Test score (sd) vs. Cost per seat quartile

Cost per seat quartile

Test score (sd)

Effect of extra year at new school
Heterogeneity by Cost per pupil: Attendance

Days attended vs. Cost per seat quartile

- Effect of extra year at new school
Heterogeneity: Other Results

Using same methodology, little sign of heterogeneity by:

- Prior school condition (roughly defined)
- Prior school congestion (roughly defined)
- Parental background / SES

*By grade*: Test score effects slightly larger in elementary school; attendance effects larger in later grades (middle and high school).
Unpacking the “Black Box”: Multi-Track Calendars?

Proportion of Schools on Multi-Track Calendar

Year

Proportion multi-track

Unpacking the “Black Box”: Multi-Track Calendars?

Decomposing results by prior “track”, find that:

- Attendance effects 2x larger when going from multi- to single-track
  ⇒ Mechanical; more instructional days at single track

- Insignificant differences in ELA and math effects

Eliminating multi-track calendars may still have had positive impacts on district-wide student outcomes, but we estimate little difference in relative outcomes of students at new constructions.

→ “Stayers” still saw reductions in overcrowding / multi-track scheduling
Unpacking the “Black Box”: Class Size?

Can estimate analogous event study with class size as student outcome, $y_{igt}$:

![Graph showing the non-parametric estimate of class size over time relative to first enrollment.](image)
Unpacking the “Black Box”: Teachers

Effects of new facilities could be mediated through teachers.

Better/new facilities might:

1. Attract better teachers from *within* district
2. Attract better teachers from *outside* district
3. Improve teacher productivity

Today, try to address (1) and (2) using teacher observables (age, education, experience).

Eventually, use student outcome data to quantitatively assess (3).
Teachers at New Schools

Proportion Teaching At Newly Constructed School

Year

At New School


Proportion Teaching At Newly Constructed School

0 .05 .1 .15

At New School
Table: Teacher Observables, by School Type

<table>
<thead>
<tr>
<th></th>
<th>Existing school</th>
<th></th>
<th>Newly built school</th>
<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Median</td>
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<td>10.07</td>
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Teachers Switching

Number of switching teachers, by school type

Year
Number of teachers
Existing school
New construction

Number of switching teachers, by school type

Existing school
New construction

Number of teachers
0 1000 2000 3000
## Teacher Selection into New Schools

<table>
<thead>
<tr>
<th></th>
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<th>Newly built school</th>
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New Teachers

Number of new teachers

Year

At New School

Number of new teachers
New Teachers

Proportion of New Teachers at New Schools

Year
Prop. of New Teachers

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Teacher Selection into New Schools

Table: New Teachers, by Starting School Type

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Teacher Persistence

Number of exiting teachers

Year

Number of teachers


2000 4000 6000 8000
Teacher Persistence

Proportion Exiting LAUSD

Prop. of Teachers


Year

Existing school New school

Proportion Exiting LAUSD

0.05 0.1 0.15 0.2 0.25

Prop. of Teachers


Year

Existing school New school
Unpacking the “Black Box”: Teachers

If anything, teachers at new schools are (slightly) negatively selected on observables:

1. Less experience overall, and within LAUSD
2. Switching teachers slightly less experienced, educated
3. Higher share of new teachers at new schools
4. New teachers begin with slightly less experience, education

But, magnitude of differences small.

⇒ Observable differences unlikely to explain estimated facilities impacts
⇒ Unobserved differences? Teacher value-added?
Unpacking the “Black Box”: Takeaways

Find little evidence of strong mediating effects of:

1. Class size
2. Observed teacher differences
3. Switch away from multi-track calendars
4. Physical congestion (roughly defined)
5. Prior facility condition (roughly defined)

**Importantly**, (4) and (5) could still be crucial factors, but hard to examine by only looking at heterogeneity between students switching from more or less congested/deteriorated schools.
Conclusions

Each additional year of attending a newly constructed school is associated with robust gains in test scores and attendance:

⇒ 1.9% of SD increase in ELA test scores
⇒ 2.8% of SD increase in math test scores
⇒ 4 additional days in attendance

Results imply large reductions in achievement gap relative to average CA student.

Can rule out non-facilities mediators, including class size, school calendar type, and teacher observables.

Further work necessary to understand:

1. Impacts of new facilities spending on teacher productivity and recruitment.
2. Cost/benefit of new facilities spending (vs. instructional spending, etc).