Santa Barbara High School
Today’s Topics

- The market for public school quality
- California’s Academic Performance Index
School District Choice

- Urban areas have many school districts
- Families choose a school district when they choose where to live
What Do We See?

- Many districts from which to choose
- Exception?—Los Angeles Unified
Impact on Housing Market

- Housing prices should reflect school quality
- Are there premiums for good school districts?
Study of School Quality Premiums

- “For Better or For Worse: School Finance Reform in California,” Sonstelie, Brunner, and Ardon, Public Policy Institute of California, 2000
- 41,852 records of house sales in Los Angeles and Orange County in 1999
# Data on Houses

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Feature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bathrooms</td>
<td>Air conditioning</td>
</tr>
<tr>
<td>Fireplaces</td>
<td>Age</td>
</tr>
<tr>
<td>Lot area</td>
<td>Interior area</td>
</tr>
<tr>
<td>Pool</td>
<td>View</td>
</tr>
<tr>
<td>Miles to beach</td>
<td>Crime index</td>
</tr>
<tr>
<td>Time to work</td>
<td>Air pollution</td>
</tr>
<tr>
<td>Sale price</td>
<td></td>
</tr>
</tbody>
</table>
Framework

\[ P = \text{price} \]
\[ x_i = \text{characteristic i (pool, age, lot size, etc)} \]

\[ p = e^{b_0 + b_1 x_1 + b_2 x_2 + \ldots} \]

\[ \frac{dp}{dx_i} = b_i e^{b_0 + b_1 x_1 + b_2 x_2 + \ldots} \]
The Premium for Characteristic i

\[ p = e^{b_0 + b_1 x_1 + b_2 x_2 + \ldots} \]

\[ \frac{dp}{dx_i} = b_i e^{b_0 + b_1 x_1 + b_2 x_2 + \ldots} \]

\[ \frac{dp}{dx_i} = b_i p \]

\[ \frac{dp}{dx_i} \frac{1}{p} = b_i \]

the percentage increase in \( p \) for one more unit of \( x_i \)

= the premium for char i
Estimating the Premium

\[ p = e^{b_0 + b_1 x_1 + b_2 x_2 + \ldots} \]

\[ \ln(p) = b_0 + b_1 x_1 + b_2 x_2 + \]

Estimate log of price as function of characteristics

Coefficients are percentage premiums
### Some Premiums

<table>
<thead>
<tr>
<th>Feature</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 more bathroom</td>
<td>6%</td>
</tr>
<tr>
<td>100 sq ft of inside space</td>
<td>0.4%</td>
</tr>
<tr>
<td>Pool</td>
<td>7%</td>
</tr>
<tr>
<td>View</td>
<td>9%</td>
</tr>
<tr>
<td>1 mile further from beach</td>
<td>-1.5%</td>
</tr>
<tr>
<td>10 more crimes per thous</td>
<td>-1%</td>
</tr>
<tr>
<td>1 more minute to work</td>
<td>-1.5%</td>
</tr>
</tbody>
</table>

Average price was $255,000
<table>
<thead>
<tr>
<th>School District Premiums</th>
</tr>
</thead>
<tbody>
<tr>
<td>La Canada Unified</td>
</tr>
<tr>
<td>Palos Verdes Unified</td>
</tr>
<tr>
<td>Pasadena Unified</td>
</tr>
<tr>
<td>Irvine Unified</td>
</tr>
<tr>
<td>Los Angeles Unified</td>
</tr>
<tr>
<td>Garden Grove Unified</td>
</tr>
<tr>
<td>Norwalk-La Mirada U</td>
</tr>
<tr>
<td>Hawthorne Elem</td>
</tr>
</tbody>
</table>
Plumbing versus Education

☐ Premium for a bathroom—6%
☐ Premium for a good school—30%
Next Time

☐ Good schools are valuable for homeowners
☐ How are good schools produced?
☐ The supply side of public education
☐ California’s school finance system
Assessing School Quality

☐ Academic Performance Index

☐ www.cde.ca.gov
  ■ “Accountability Progress Reporting”
  ■ Column labeled “Academic Performance Index”
  ■ Select “School Reports”
  ■ Type in school name, select from list
What is the Academic Performance Index?

- Scores of school’s students on state standardized tests
- Performance levels and scores
  - Advanced = 1000 (80-90th npr)
  - Proficient = 875 (60-79th npr)
  - Basic = 700 (40-59th npr)
  - Below Basic = 500 (20-39th npr)
  - Far Below Basic = 200 (1-19th npr)
- NPR means national percentile rank
Calculating API

- Average every student’s score for each test (200-1,000)
- Different weights for different tests
API Goal

- Ultimate goal for all schools is 800
- 800 API equivalent to 70 percent of students above national median
- Annual goal is API growth of 5 percent of difference between last year’s score and 800
Considering the 1,300 plus schools that had at least 80 percent of students on free and reduced price lunch, only 3 had an API exceeding 800. For middle and high schools with this same poverty level, no schools achieved an 800 API.

This is a systematic relationship.
Similar School Rank

- Compares a school’s API with schools of similar characteristics
- 10 means in top ten percent of 100 similar schools
- 1 means in bottom ten percent of 100 similar schools
Monday

☑ Financing California’s Public Schools

☑ Read *For Better or For Worse, pp 1-65.*