Economics of Earnings Inequality
Jan 12, 2006 lecture (How to think like a social scientist)

Proportion of Students Scoring Advanced or Proficient on
Indicated California State Standards Test

<table>
<thead>
<tr>
<th>Grade (when tested)</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geometry</td>
<td>76%</td>
<td>43%</td>
<td>15%</td>
<td>5%</td>
</tr>
<tr>
<td>(number tested)</td>
<td>12,478</td>
<td>89,792</td>
<td>127,456</td>
<td>71,208</td>
</tr>
<tr>
<td>Algebra II</td>
<td>57%</td>
<td>33%</td>
<td>10%</td>
<td></td>
</tr>
<tr>
<td>(number tested)</td>
<td>13,250</td>
<td>78,848</td>
<td>89,285</td>
<td></td>
</tr>
</tbody>
</table>

Source: http://star.cde.ca.gov/star2004/viewreport.asp
(statewide statistics)

How to think like a social scientist:

1) Observe a pattern: Students who take math ahead of schedule do better on the test

2) Quantify the relationship: This is a strong relationship based on a large, representative sample

3) Form a hypothesis: Think of 2-3 different models that might explain this pattern

4) Test the hypothesis: Think of how you might distinguish between the models

Hypothesis 1: Students with natural ability in math take the courses earlier. They would do well no matter what.

Hypothesis 2: Students can learn math more easily if they are younger.

Hypothesis 3: Students with strong interest in math get assigned to classes with the best teachers and motivated classmates. They have the opportunity to learn more. Other students would benefit from having the same opportunities.
Leadership Skills and Wages

Peter Kuhn & Catherine Weinberger

1) Observe a pattern:  (examples of 2 people I knew who showed exceptional leadership ability in high school, photos from the yearbook, and later as successful professionals)

2) Quantify the relationship:

Data Source: Longitudinal Studies of High School Students, Followed for 8-13 Years

High School Seniors in 1960, 1972 or 1982 (n>15,000)

Senior Year Data:
Math Test Scores, Parents’ Education, School Activities

About 10 years Later:
Educational Attainment & Labor Market Outcomes

Leadership Measures:

Activity Based:

Captain of an athletic team and/or president of an organization…

…in the past 3 years (Talent)
…in the past year (NLS72 & HSB)

Self-Assessed:

Talent:
Sum of positive responses to:

1. I am the leader in my group.
2. I am influential.
3. I have held a lot of elected offices.
4. People naturally follow my lead.
5. I like to make decisions.

HSB:
Sum of positive responses to:

1. Spoke before a group of 50 or more.
2. Headed a group problem-solving session.
3. Chaired a meeting.
4. President
5. Captain

Results:

Leaders earn more than otherwise similar classmates who participated in sports and clubs (same school, same math scores, same parent education level)

- Using “both captain and president” to indicate leadership:
  5% earnings advantage for 1960 seniors in 1970
  15% for 1972 seniors in 1986
  25% for 1982 seniors in 1991

  - The earnings advantage is conferred equally on leaders with high and low math scores (perhaps slightly higher if low scores)

- High school leaders are (a bit) more likely to be managers
  (18% vs. 15%)

3) Form a hypothesis:

Hypothesis 1: Students with natural leadership ability become high school leaders. They would do well no matter what.

Hypothesis 2: Students who have the opportunity to develop leadership skills during high school do well.

Hypothesis 3: Students with a propensity to leadership tend to be assigned to high school leadership positions. These opportunities help them develop their leadership abilities even more.

Evidence for Hypothesis 3:

Students with a strong propensity for leadership earn more as adults if they are in schools with more leadership opportunities. Other students are not affected by the number of leadership opportunities in the school.