Week 5:
Class Size Reduction
The STAR Experiment

• Very influential $12 million educational experiment (lasting four years) in TN

• **Random assignment** of students into small (13-17 students), regular (22-25 students), and regular/aid (22-25 students with an aid) classes
  – 80 schools and 6,000-7,000 students each year
    (11,600 students total for all four years)

• Strong statistically significant impact of assignment to small class, particularly for low income African-American students
Some Questions/Doubts About STAR/CSR (Hanushek)

• Class sizes in U.S. have fallen significantly over time, but performance has stagnated
• International evidence shows no relationship between pupil/teacher ratios & student performance
• Econometric (non-experimental) evidence provides little evidence of significant class size effects
• What about cost-effectiveness?
What Might Be Wrong With STAR (Hanushek)

• 4 potential sources of bias
  – Sizeable attrition from treatment and control groups
  – Schools (and maybe teachers) are not randomized
  – Large numbers of students did not take tests in each year (particularly grade 1 in regular classes)
  – Teacher expectations may play a role in explaining results

• All would likely bias results in favor of class size findings
Probing the STAR Results (Krueger)

• Potential problems: non-random attrition (half of students in study in K were present for all grades, K-3), “Hawthorne” and “John Henry” effects
  – Consistency of estimates with different estimation techniques (OLS, imputation of missing data, 2SLS) suggests that attrition is not a problem
  – Estimates of class size effects are similar for variation in size within “regular” group - unlikely we would see this if there were significant Hawthorne or John Henry effects
CSR Put Into Practice in CA

• 1996 SB 1777 enacted leading to reduction of class sizes from about 30/teacher to 20/teacher at a cost of well over $1 billion

• Implementation (scale) issues
  – Finding “qualified” teachers
  – Uniformity of funding irrespective of local costs

• Findings
  – Redistribution of “qualified” teachers from poor/minority districts to wealthy districts
CSR: Summary (Ehrenberg et al., 2001)

- Why class size matters is as important to know as whether it matters
  - Generalizability of results and maximizing of effects
- Non-experimental studies yield very mixed findings
  - Class size effects can easily be confused with other school or family effects
- Stronger evidence of class size effects from STAR experiment, but experiments are perfect either
  - Even a perfect experiment may not foretell larger-scale implementation effects (internal vs. external validity)