Does Class Size Matter? The Effects of Class Size on Student Achievement and Educational Equity

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Political and Popular Support for Class-Size Reduction

- At least 32 states now fund voluntary or mandated class-size reduction (CSR) programs.
- California and Florida together have invested almost $20 billion dollars in CSR.
- Gallup Poll: Americans see smaller class sizes as the most effective way to recruit and retain highly-qualified teachers.
- Google provides 2,470,000 links for “class size”.

(Source: Ready, 2008)
The rationale of small class size

- Increase student achievement (Finn, 1999)
  - More interactive discussions than lectures (Mckeachie, 1990)
  - More teacher-student interactions (Siegfried and Kennedy, 1995)
  - Increased student engagement in learning (Finn & Achilles, 1999)
  - Improved critical thinking (Raimondo et al., 1990)

- Increase educational equity (Ready, 2008)
  - Optimal class sizes are *larger* for classes of engaged, well-behaved students.
  - Smaller classes have stronger effects on low-income and minority children since they are more likely to be in classes with low-performing and less-focused children.
The Tennessee STAR (Student/Teacher Achievement Ratio) Project

- Began in 1985 and lasted for 4 years. The largest, best-designed field experiment.
- About 12,000 students were involved in the 4 years.
- Students are randomly assigned to 3 conditions:
  - small class enrolling between 13-17 children
  - large class enrolling between 22 and 26 children
  - large class with a teacher and aide
- Began with a cohort of students entering kindergarten in the fall of 1985, who continued to attend the same type of class for 4 years.
The Findings from Project STAR

- Positive effects on student outcomes (Finn & Achilles, 1999; Krueger, 2000; Krueger & Whitmore, 2001, 2002)
  - By the end of third grade, small-class children were 5.4 months ahead in reading, and 3.1 months ahead in math.
  - No significant differences were found between teacher aide and regular classes in any year of the study.
  - The small-class advantage was also statistically significant for all school subjects in every subsequent year (Grade 4 and beyond).

- Differential effectiveness (Krueger & Whitmore, 2002; Schanzenbach, 2007)
  - Low-income and black children benefited more from smaller classes.
  - Effects for black children were long-lasting.
Wisconsin and SAGE (Student Achievement Guarantee in Education)

- Enacted by state law in 1995, last for 5 years
- Between-school design
  - 21 SAGE schools with classes of 15
  - 14 comparison schools with classes of 21+
- Unlike STAR, SAGE and comparison schools were all high-poverty.
The Findings from SAGE

- Results quite similar to STAR—students gained more skills in smaller classes (Molnar, et al., 1999).

- Differential effects (Molnar, et al., 2002):
  - Black children gain more skills than white children only in SAGE schools;
  - White children gain more than black children in non-SAGE schools.
Large-Scale CSR Implementations

- California (Shrag, 2007)
  - Politically initiated policy developed in 1996.
  - Provides additional funds to districts for every child in a K-3 classroom with ≤20 children

- Florida
  - Ballot initiative approved in 2002.
  - All schools receive funds
  - Caps K-3 classes at 18; 4-8 at 22; 9-12 at 25.
  - Phased in over time by measurement level:
    - 2006-2007: school level;
    - 2010-2011: classroom level.

(Source: Ready, 2008)
Unintended Consequences of Large-Scale Implementations

- **High costs**
  - Over $1.6 billion per year in both CA and FL.

- **Teacher labor markets:**
  - Supply issues: diminished quality, uncertified teachers;
  - Certified teachers migrating to more affluent schools.

- **Facilities:**
  - Loss of special ed, ELL, music/art classrooms;
  - In CA, dramatic increase in use of portable classrooms.

- **These consequences largely absent in STAR/SAGE.**
  
  (Source: Ready, 2008)
Factors in determining the Costs of CSR

- How small is “small”?
- Is the program targeted or universal?
- Grade level?
- Facilities capacity?
- School-age populations
- At what level are class sizes measured?
  - Classroom
  - School
  - District

(Source: Brewer et al., 1999)
Conclusions and Implications

- Considerable theoretical and empirical support for reducing class-sizes on improving student achievement: positive and lasting.
- CSR has potential to reduce racial/ethnic and income gaps in achievement.
- Less evidence for state-wide universal CSR programs…
  - Likely to increase inequality
- Policy Implications:
  - Reducing class-sizes for disadvantaged students is more cost-effective than universal CSR programs
  - Need to combine with other policy initiatives to ensure each classroom have high quality teachers.
What The Utah Educational Policy Center will do next…

- Need research specific to Utah
  - To what extent are findings from the Tennessee and Wisconsin studies applicable to *Utah*?
  - What are the costs of different CSR alternatives in *Utah*?

- Research agenda
  - How have class sizes in Utah’s elementary and secondary schools changed over the years?
  - How do class sizes influence student achievement in *Utah*?
  - Cost-effectiveness analysis for possible class size reduction program