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Class Size

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Reducing class sizes may be politically popular but research shows it is ineffective and extremely costly compared to other means of improving students' achievement. Many studies show its inconsistent effects, and states that have sharply reduced class size in recent years have encountered serious problems without resulting achievement improvements. In view of the costs and inconsistent effects, the constitutional amendment to reduce class size should be removed from Florida's constitution. State leaders should concentrate on high standards, clear accountability, and consequences for results—and leave operational decisions to school districts, which should be held accountable for the achievement of their students.

Background and Overview

The amendment to Florida's constitution requires substantial reductions of class size. This policy is exceedingly unwise and has already

caused major problems documented in this chapter. Class-size reductions result in huge expenditure increases that that would be far better concentrated on effective and efficient policies and practices. Far better for student achievement, for example, are larger classes with highly qualified, high performing teachers paid more for superior teaching than hiring poorly prepared and poorly performing teachers to reduce class size.

Even so, during the last four decades, policymakers have steadily a substantially reduced class sizes and reduced the pupil/teacher ratios.[1] Yet, students have learned no more as a consequence.[2] Thus, the large decline in school productivity (or the ratio of achievement to costs) is substantially attributable to the huge cost of smaller classes.

In response to domestic and foreign competition, U.S. industries normally increase productivity by improving quality and reducing costs, thereby benefiting American society. Because of rising expenditures and flat achievement, however, educational productivity has dramatically declined. As a famous book with the same title declared, we are *A Nation at Risk*[3] because of our schools' poor achievement relative to that of other countries—despite the high costs of the K–12 school system substantially attributable to class-size reduction and related changes associated with it.

The next section provides examples and issues of class-size reduction. It is followed by key findings about effects and costs of class-size reduction in Florida and the findings of scientific research on

1. From 1965 to 2001, pupil/teacher ratios in U.S. public elementary and secondary schools declined 34.4 % from 24.7 to 16.2, and constant-dollar expenditures rose 165.4 % from $3,390 to $8,996. See the U.S. National Center for Education Statistics: http://nces.ed.gov/programs/youthindicators/Indicators.asp?PubPageNumber=11.

2. Achievement scores of random samples of students show essentially flat patterns since the inception of the National Assessment of School Progress in early 1970s. http://nces.ed.gov/nationsreportcard/ltt/results2004/.

3. National Commission on Excellence in Education. Washington, DC.: U.S. Department of Education, 1983.

class-size effects. The final section recommends that that the class-size amendment be repealed so that educators can concentrate on improving local operations and the state can refine its specification, assessment, and enforcement of achievement standards.

Class-Size Examples and Issues

Though smaller classes obviously cost more money, it may seem intuitively obvious that they should be more effective. Some citizens believe this; and some educators, particularly those in the teachers' unions, espouse this idea. The evidence, discussed in the next section, does not support this view, but the following examples also challenge this common belief and its misleading policy implications:

- Excellent television programs for pre-school children such as Sesame Street and Electric Company can reach hundreds of thousands of children at once; with a massive "class size," they can be indefinitely re-broadcast, and yet they effectively increase young childrens' school language preparedness and achievement.
- Asian students usually achieve the highest test scores in the world in mathematics and science but attend the largest classes—up to 60 and more students per class.
- Catholic schools—the most numerous among private schools—have higher achievement than public schools, particularly for students in poverty, even though their classes are substantially larger, and their costs are typically half that of public schools.
- Some indefinitely repeatable computer- and Internet-based programs, which are potentially capable of reaching hundreds of thousands of students at the same time, have shown achievement results comparable to and, in some cases, better than conventional classes.
- Top scholar-teachers at America's finest universities lecture to as

many as a 1,000 students at a time and supervise paper grading and discussion groups conducted by graduate students.

These examples illustrate that arbitrary reductions in class size hardly solve educational problems and may even impede educational innovation and new technology. The adverse cost consequences of sudden reductions should also be obvious:

- Reducing class sizes requires more classes and hence more classrooms, which in turn require large capital expenditures for new schools or new additions to existing schools.
- More teachers to serve in more numerous smaller classes limits teacher salaries and magnifies shortages of qualified teachers at the present time of prospects for many teacher retirements in the next decade, and when young people have opportunities in more lucrative occupations.

Finally, class-size reduction goes against the evidenced-based policies in Florida and other states of dividing policy and operational responsibilities such that:

- States establish educational achievement standards and hold schools accountable for results while school staffs make operational decisions about class size and other policies and practices intended to help all students meet the standards.

These examples provide beginning points to illustrate that class-size reduction deserves no place in the Florida constitution. The purpose is to open consideration of the formal research evidence and recommendations to mitigate the adverse consequences of the amendment, or, preferably, repeal it.

Key Findings about Class Size

The class-size amendment was approved by only 52 percent of Florida's voters, and the Florida Department of Education characterizes it as follows:

> In November 2002, Florida voters approved a constitutional amendment that limits the number of students in the state's classrooms. By the 2010–11 school year, a maximum of 18 students are permitted in Pre-K–3 classrooms; 22 students in 4th–8th grade classrooms; and 25 students in 9th–12th grade classrooms. Through the 2005–2006 fiscal year, $2.97 billion in operating funds, and $800 million in capital outlay have been allocated for class size reduction. For fiscal year 2006–07, $2.15 billion was appropriated for class size reduction, operating funds, and capital outlay. The total cost is projected to rise as the amendment reaches full implementation in 2010–11. The Department of Education estimates that the total cost of implementation will range between $22 billion and $26.5 billion.

Implementation Difficulties

This set of requirements led to serious difficulties, particularly since the amendment was interpreted as requiring *every* class to be limited in size. Earlier, the districts could meet the requirements if the averages of class sizes for schools or districts met the limits, which allowed them to have some larger classes provided they had sufficient numbers of smaller classes to bring the average to the required size.

As might have been expected, too few classrooms were available to accommodate the smaller, more numerous classes.[4] Students had to be "double shifted," meaning that some went to school early in the morning, and others used the same classrooms later in the day. If there were a few more students in one grade in a small school than required,

4. The characterization of these local problems of schools is based on conversations with Florida educators and reading of some 150 news accounts and editorials published in such newspapers as the Tampa Tribune, the Lakeland Ledger, the Florida Times-Union, Orlando Sentinel, the Pensacola News Journal, Florida Today, St. Petersburg Times, Tallahassee Democrat, Gainesville Sun, and the Miami Herald.

two very small classes would have to be created to accommodate them, or the few extra students would have to be sent to a different school—interfering with their school friendships and instructional continuity.

At a time of financial difficulty, school boards faced urgent needs for capital expenditures on new construction to accommodate the more numerous, smaller classes. At the same time, space was wasted in the present buildings since they had been designed for larger than the new required class sizes. District administrators, moreover, seemed unable to recruit sufficient numbers of qualified teachers to serve the classes. Hernando County reported a shortfall of teachers four times larger than usual.

Class-Size Effects

Researchers have carried out many studies of class-size effects on achievement. The first summation of the studies suggested a small beneficial effect of smaller classes. The biggest apparent effects were in reductions below class sizes of ten; classes between 15 and 35 students differed very little in achievement. Few studies had been made of classes between 8 and 15 because classes in this range were rare and prohibitive in cost. In any case, the overall effect of class-size reduction appeared to be much smaller than the use of effective teaching methods.[5]

Even the small estimated effect was disputed. Large-scale studies, mostly by economists, showed no consistent effect of smaller class sizes. Average pupil/teacher ratios, moreover, fell 35 percent between 1950 and 1995 in the U.S. with no proportional rise in achievement.[6]

5. Gene V. Glass and Mary Lee Smith, "Meta-analysis of research on class size and achievement," *Educational Evaluation and Policy Analysis* 1, no. 1 (1979): 2–16.

6. Eric A. Hanushek, *The Evidence on Class Size* (Rochester, NY.: University of Rochester, W. Allen Wallis Institute of Political Economy, 1998). In addition, Asian classes, which have as many as 60 students, usually rank at the top of international achievement surveys.

A much-noted Tennessee experiment seemed to show an effect of reduced class sizes,[7] even though a single study should not outweigh the inconsistent results of many other studies. Even at face value, moreover, the Tennessee study showed a small effect and only in Kindergarten. Continuing exposure to smaller classes in 1st through 3rd grade showed no advantage of smaller classes, and returning students to normal size classes in 4th through 6th grades showed no harm. So, reduced class only benefited Kindergartners, and changes in class sizes did not affect achievement in the six later grades.[8]

A more recent large-scale natural experiment on all Connecticut elementary schools overcomes limitations of the Tennessee research. It is perhaps the most comprehensive study ever made of the class-size question, because it measured the effects of natural changes in class sizes in the range from 10 to 30 students over two decades. It showed no class-size reduction effect overall, nor any at the upper or lower range of class-size reduction, nor in the earlier or later grades, nor for disadvantaged or middle class students.[9]

Perhaps the largest study ever made of class size included 18 countries.[10] The authors could find no consistent effects. In fact, the highest-scoring countries, Singapore, Japan, and Korea, had the highest average class sizes, up to 55 students. In 11 of the 18 countries,

7. Jeremy D. Finn and Charles M. Achilles, "Answers and Questions about Class Size: A Statewide Experiment," *American Educational Research Journal* 27, no. 3 (Fall 1990): 557–77.

8. Eric A. Hanushek, "Some Findings from an Independent Investigation of the Tennessee STAR Experiment and from Other Investigations of Class Size Effects," *Educational Evaluation and Policy Analysis*, Spring 1999, 143–164.

9. Caroline M. Hoxby, "The Effects Of Class Size On Student Achievements: New Evidence From Population Variation," Quarterly Journal of Economics, 2000, v115 (4 Nov), 1239–1285.

10. Ludger Woessmann and Martin West. "Class Size Effects in School Systems Around the World: Evidence from Between-Grade Variation in TIMSS." Working paper, presented at NBER Education Meeting (2002). Also, see Crowd Control: An International Look at the Relatoinship between Class Size and Student Achievement, Education Next, Summer 2003, http://www.educationnext.org/20033/pdf/56.pdf.

including Australia and those in eastern and western Europe, and East Asia, larger classes were associated with higher achievement.

Do smaller classes benefit poor children, as sometimes claimed? With a history of more than three decades, Title 1 for poor children is the largest federal K–12 education assistance program. Its budget was about $8 billion for roughly 11 million children per year in recent years. Its evaluation showed: "Class size shows an inconsistent and unexpected relationship with student outcomes. For example, in the 1st grade cohort, larger class is positively related to reading outcomes."[11] Similarly, a 1998 review of 13 Title 1 schoolwide studies concluded that Title 1 programs often made use of reduced class size and additional staff. Its conclusion: "The data presented here do not offer compelling evidence for or against [Title 1] schoolwide programs."[12]

What would happen if a state concentrated resources on reducing class sizes? California policymakers did just this at a cost of $6 billion. About two-thirds of California school districts took money from other programs to reduce class sizes in the first three grades. After several years, evaluators concluded, "There is no clear relationship between changes in the amount of exposure to CSR [Class Size Reduction] and changes in the average level of achievement. Increased exposure is not associated with greater gains in achievement."[13]

In view of inconsistent research and California's experience, class-size reduction is unpromising. Such reductions, moreover, have been

11. M. J. Puma, N. Karweit, C. Price, A. Ricciuti, W. Thompson, and M. Vaden-Kiernan. Prospects: Final report on student outcomes [prepared for the U.S. Department of Education, Office of the Undersecretary]. Cambridge, MA: Abt Associates (1997), p. 72.

12. Kenneth K. Wong and S. J. Meyer, "Title 1 Schoolwide Programs: A synthesis of findings from recent evaluation." Education Evaluation and Policy Analysis, (1998), 20, p. 132.

13. Brian M. Stecher and George W. Bohrnstedt, Class Size Reduction in California: Findings from 1999–00 and 2000–01 (California Department of Education, 2001).

exceedingly costly. They are even more costly today since student/teacher ratios have already been cut massively in recent decades. For example, reducing class size by a single student from 15 to 14 incurs more than twice the teaching costs of a single-student reduction from 35 to 34, even aside from the costs of new buildings, classrooms, and administrators.

Recommendations for Future Reforms

The benefits of reduced class size are small, evanescent, and possibly nonexistent. Class-size reduction has clearly been exorbitant, and has shown adverse effects as demonstrated in California and Florida. It has no place in Florida's constitution, and the amendment should be repealed.

Florida legislators have proposed allowing school districts flexibility in class-size calculations. Some classes could be larger, for example, provided sufficient numbers of smaller classes bring the school or district average to required minimum. Co-taught by two teachers of two classes in the same room could be credited for the ratio of teachers to students rather than the number of students in the classroom.

These solutions would mitigate the problem. Even so, the idea that the state should prescribe school-level policies presumes that lawmakers know better than professional educators and citizens about local conditions and neighborhood schools throughout the state and what uniform prescription is best.

This presumption not only appears false but is contrary to the major principle of division of educational responsibilities that have made Florida and several other states leaders in improving educational achievement. It should be the state's role to set clear, rigorous standards, devise assessments to measure the degree the standards have been attained, and provide incentives to schools to maintain progress.

It is the role of local school boards to plan and carry out programs to attain the standards.

When the state intervenes to prescribe local program features such as class-size reductions, it presumes greater knowledge of local preferences and conditions than those on the ground. It risks jeopardizing local morale because it cannot delegate. It distracts itself from its major responsibilities of standard setting, accountability, and designing consequences for good and poor progress.

Thus, expedient accommodations to the unwise policy of class-size reduction now being considered by the legislature are themselves unwise. Better to allow citizens the opportunity to cleanly repeal the policy itself.

Few doubt that, like other states, Florida needs to raise its student achievement. Given the improvement momentum of Florida legislation, policies, and practices, substantial achievement progress can indeed be continued. In an important particular, if schools are released from the arbitrary policy of class-size reduction, education leaders could concentrate the resource savings into far more promising policies described in other chapters in this volume.