

Benefits and Costs of K–12 Education Policies

Evidence-Based Effects of Class Size Reductions & Full-Day Kindergarten

Senate Early Learning
& K–12 Education Committee
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Legislative Direction to WSIPP

(From the 2006 and 2007 Operating Budget Bills)

- ✓ **WSIPP:** *“to begin the development of a repository of research and evaluations of the cost-benefits of various K–12 educational programs and services.”*
- ✓ **Reports:** *“The institute shall provide ...by March 1, 2007, a report with preliminary findings; and annual updates each year thereafter.”*
- ✓ **E2SSB 5627:** *Our efforts this biennium will be rolled into the K–12 basic education funding study.*

Previous Legislatively-Assigned WSIPP Cost-Benefit Studies and Evidence-Based Reviews

- **Prevention programs for youth**
- **Early childhood education**
- **Juvenile justice**
- **Adult corrections and incarceration**
- **Substance abuse**
- **Mental health**
- **Child welfare**

The Research Question

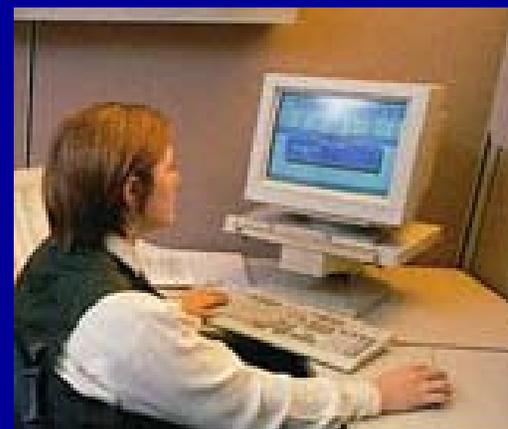
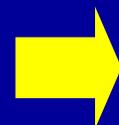
What Public Policy Levers Lead to Improved Education Outcomes?

Measured K–12 Student Outcomes in the Research Literature

- **Test Scores**
- **High School Graduation**
- **Subsequent College Enrollment**
- **Subsequent Labor Force Participation**
- **Special Education**
- **Grade Repetition**

Our Research Approach

First: What Works to Improve Education Outcomes?



1. WSIPP researcher gathers all the studies she can locate on a topic

2. She applies “standards of evidence” to identify the high quality studies

3. She analyzes all of the high quality studies to estimate an average effect

Our Research Approach (Cont.)

Second: What Are the Economics of Each Option?

1. Costs: what does each option cost?

- ✓ For example, we estimate the operating and capital costs to lower class sizes or fund full-day vs. half-day kindergarten.

2. Benefits: for each option, what is the economic value of any statistically significant increase in education outcomes?

- ✓ We estimate life-time labor market and other benefits (e.g. reduced costs of health care, crime, foster care) of gains in K-12 test score outcomes.

3. Compute return-on-investment information & test the sensitivity of the results.

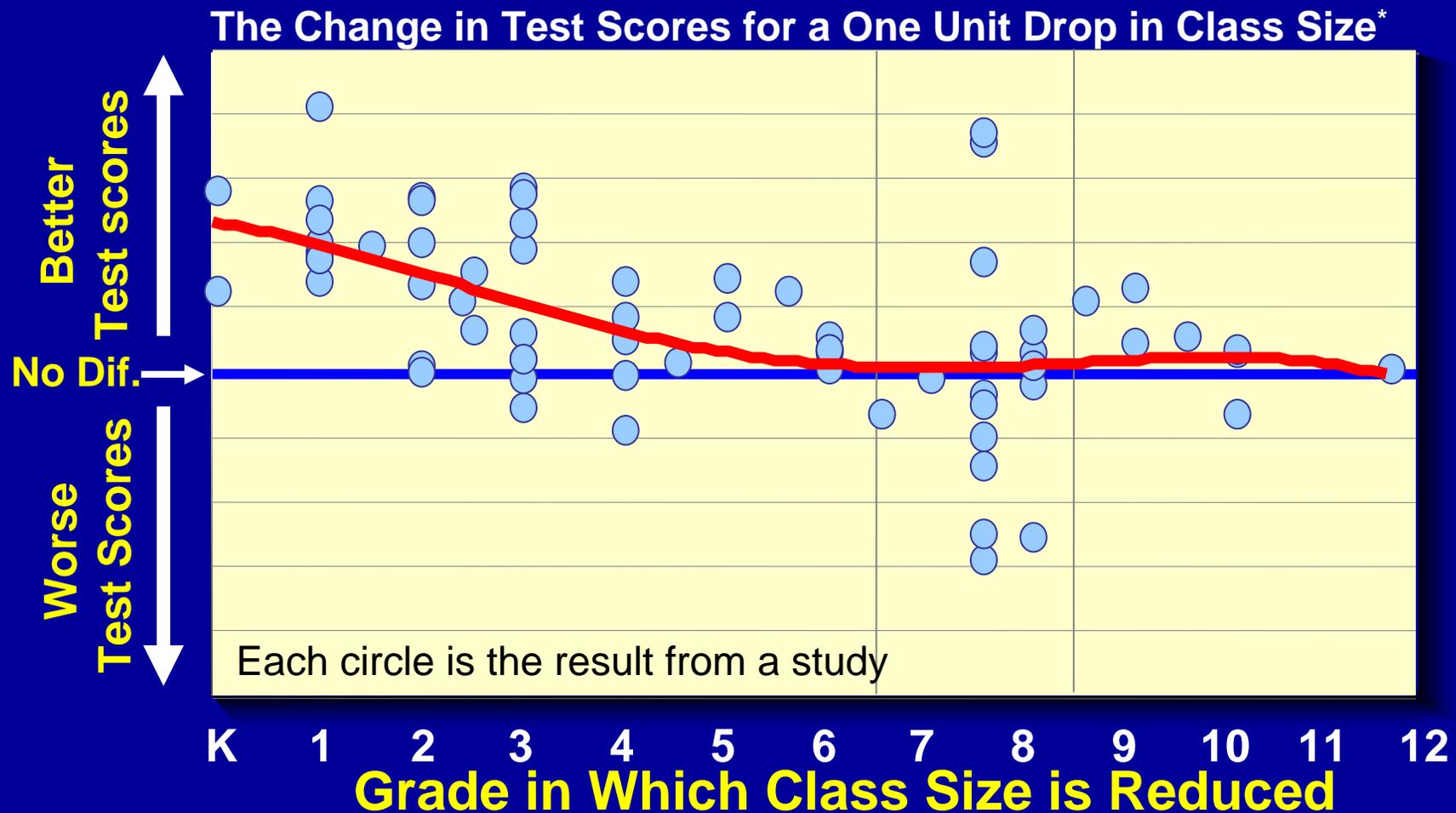
Class Size Reductions

&

Full-Day Kindergarten

Does Reducing Class Size Improve Test Scores?

The results of 38 statistically-sound studies (with 69 grade-level tests) of the effect of class size reductions on test-score outcomes.

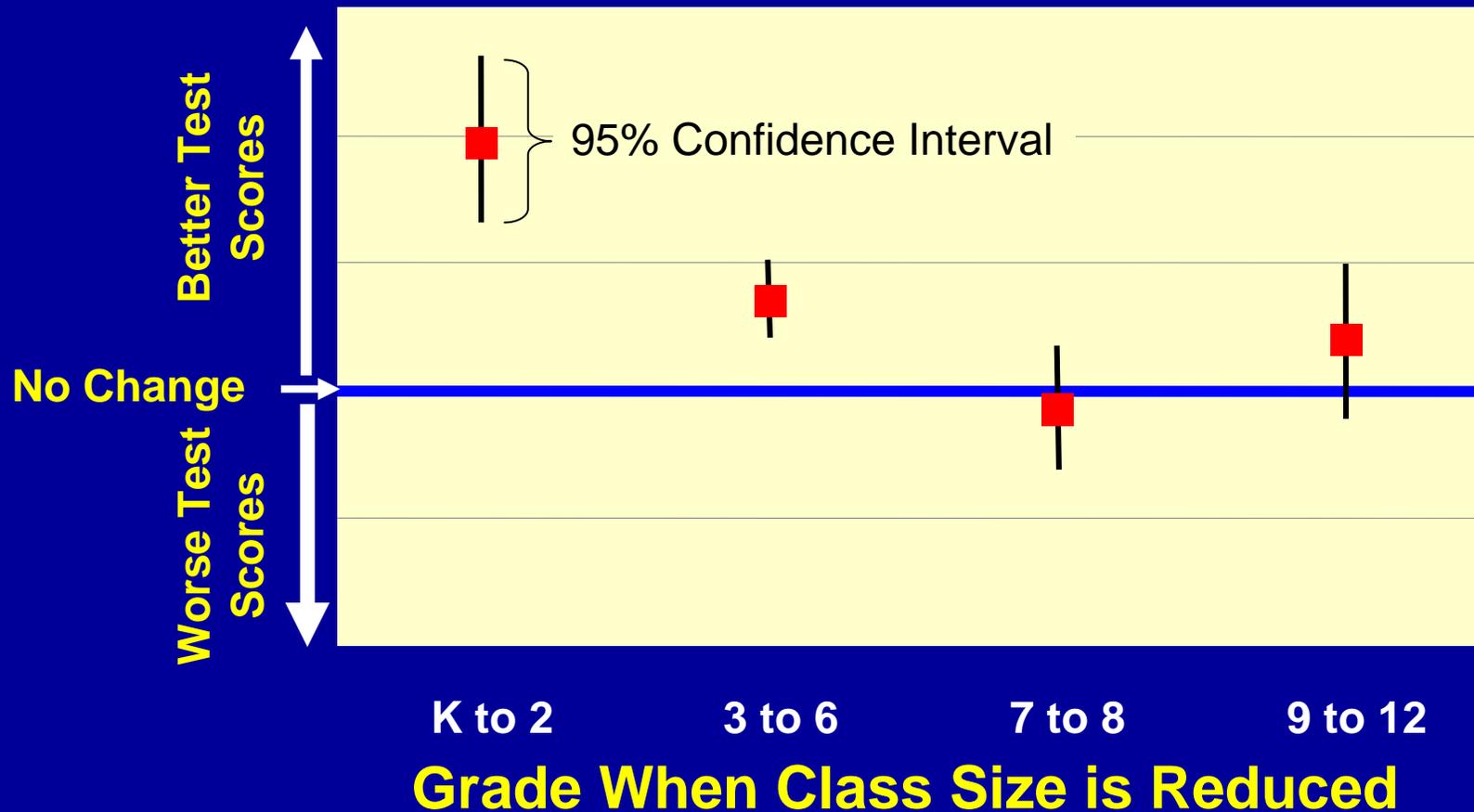


* Effect Size Metric: the change in the standard deviation of test scores on standardized tests.

Does Reducing Class Size Improve Test Scores?

Multivariate results

The Change in Test Scores Per Class Size Reduction*



* Effect Size Metric: the change in the standard deviation of test scores on standardized tests. Boxes are the average effects; vertical lines are 95% confidence intervals.

Bottom Line: Class Size Effects

1. Do Class Size Reductions Boost Test Scores?

- ✓ **The results are mixed, they vary by grade level:**
 - **Yes, in K through grade 2.**
 - **Yes, (but less so) in grades 3 through 6.**
 - **Apparently not in middle and high school (more research needed).**

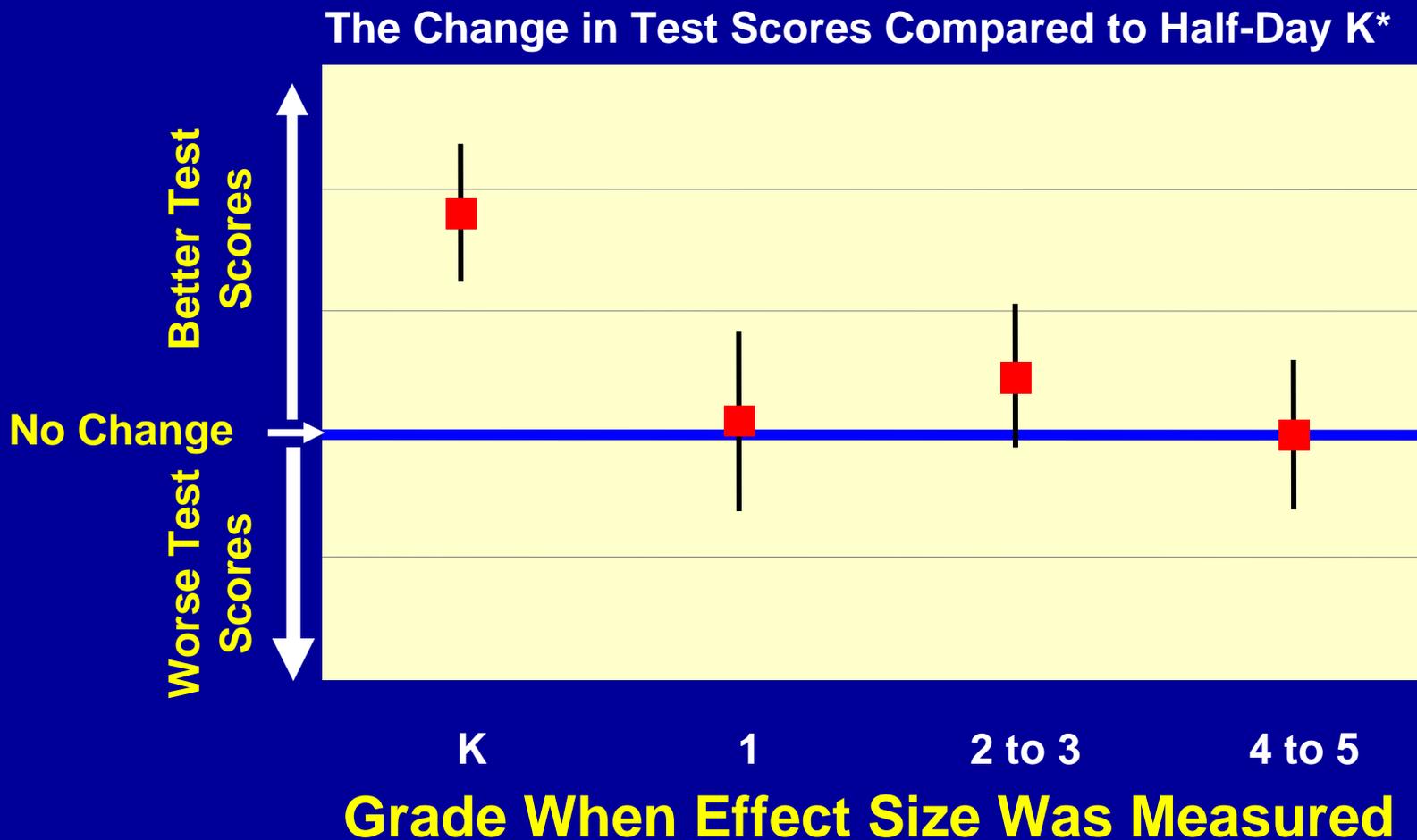
2. What are the economics?

- ✓ **A one-unit drop in class size costs about \$220 per student per year (operating and amortized capital costs).**
- ✓ **For K-2, the return on investment (ROI) is 8.3% (range 5.7 to 11%). This is equal to \$2.79 in benefits per dollar of cost.**
- ✓ **For grades 3 through 6, the ROI is 6%.**
- ✓ **For middle and high school, return is negative.**

3. Additional Tentative Finding: Low-Income Students Benefit More from Reductions in Class Size.

Does Full-Day K Improve Test Scores?

The results of 23 statistically-sound studies with 32 grade-level tests of the effect of full-day K on test-score outcomes.



* Effect Size Metric: the change in the standard deviation of test scores on standardized tests. Boxes are the average effects; vertical lines are 95% confidence intervals.

Full-Day v. Half-Day K Conclusions

1. Does full-day K improve test scores?

- ✓ Effects are significant at the end of kindergarten...
- ✓ But they erode quickly between grades 1 and 3

2. What about disadvantaged students?

- ✓ Test score gains at the end of K are about the same and benefits erode at about the same rate.

3. What are the economics of full-day K?

- ✓ Moving from half-day to full-day K costs an additional \$2,611 per student.
- ✓ To generate long-term net benefits, public policies need to examine how to sustain the early gains from any investments in full-day kindergarten.
- ✓ Experimentation seems warranted.

Thank You

Questions?

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