

## THE RETURN ON INVESTMENT FOR IMPROVING CALIFORNIA'S HIGH SCHOOL GRADUATION RATE

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### Highlights:

- ▶ **Five interventions, ranging from pre-school to high school reforms, have demonstrated proven effectiveness in raising the rate of high school graduation.**
- ▶ **The cost of "producing" one additional high school graduate, using one of the five proven interventions, ranges from \$37,810 to \$131,000.**
- ▶ **Benefits per high school graduate range from \$53,000 (fiscal benefits to state and local government) to \$392,000 (total economic benefits to California).**
- ▶ **Benefits far exceed costs: each dollar invested in the five proven interventions generates \$2 to \$4 in fiscal benefits to all levels of government.**
- ▶ **The cost of inaction is high: a companion study found that California loses \$46.4 billion in total income, taxes, and economic activity from each cohort of 120,000 20-year-olds who never complete high school.**

**G**raduating from high school has important social and economic consequences not only for graduates themselves, but for taxpayers and society. Graduates earn more than dropouts, are in better health, are less likely to be involved in crime, and rely less on welfare supports. As a result, each high school graduate saves taxpayers' money by increasing tax revenues and reducing government expenditures.

California would realize a sizeable economic gain by investing in educational interventions that are both effective in raising the high school graduation rate and in generating benefits exceeding their costs. **The critical question is: What types of investments should be made to raise the graduation rate?**

To address this question, it is necessary to:

1. identify educational interventions proven to raise high school graduation rates;
2. calculate costs and benefits of providing the intervention;
3. compare the costs with the anticipated economic benefits.

Those interventions where benefits exceed costs would provide a positive economic return on investment.

### ▶ **Interventions That Improve Graduation Rates**

A wide range of educational interventions show evidence of increasing high school graduation. These include school-wide reforms, changes in classroom conditions (e.g., reducing class size), programs applied to children of a specific age (e.g., pre-school), and specific, small-scale instructional interventions (e.g., peer tutoring). Yet relatively few educational interventions have been evaluated in a rigorous manner that provides solid evidence of their efficacy, and even fewer provide accurate data on their costs.

A thorough review of the academic literature and government resources produced two categories of interventions. The first category includes educational interventions for which there is reasonably solid evidence of success in raising the rate of high school graduation.

Read the full report at: [lmri.ucsb.edu/dropouts](http://lmri.ucsb.edu/dropouts)

### Interventions with Demonstrated Effectiveness in Raising High School Graduation Rates

Intervention (Grade Levels)	Description	Increase in Graduation Rate, Per 100 Students
<b>Perry Pre-school</b> (Pre-K)	1.8 years of a center-based program for 2.5 hours per weekday; child-teacher ratio of 5:1; home visits; group meetings of parents	19
<b>Chicago Parent-Child Centers</b> (Pre-K through Grade 3)	2–6 years of education, parent outreach, and health/nutrition services in half-day pre-school program at ages 3–4; half- or full-day kindergarten; school-age program in grades 1–3	11
<b>Class Size Reduction</b> (Grades K through 3)	4 years of class size reduced from 25 to 15	
	<i>for all students</i>	11
	<i>for low-income students</i>	18
<b>Teacher Salary Increase</b> (Grades K through 12)	13 years of school with 10% increase in teacher salaries	5
<b>First Things First</b> (Grades 9 through 12)	4 years of high school with small learning communities; family advocacy; instructional improvement	16

The second category includes educational interventions that are promising, but presently lack rigorous evidence as to their cost or effectiveness in raising the rate of high school graduation. To illustrate the potential for reform—and the possible amounts that might be spent and still satisfy the benefit-cost criterion—the full report includes results for eight interventions from this category.

This brief focuses on the first category, which yielded five interventions with **demonstrated effectiveness in raising the rate of high school graduation**. Three of the interventions are specific programs that have been implemented in particular communities in various parts of the United States. The other two interventions are based on policy initiatives undertaken in two states.

The interventions also differ with respect to the age of the participants (ranging from pre-school-age children to high school students), as well as duration (ranging from two years to 12 years). Short descriptions of these five interventions and their demonstrated increases in number of high school graduates, per 100 participants, are shown in the table above. Together, they demonstrate that there is an array of possible investments California could make to improve its graduation rate.

Yet effectiveness alone is insufficient to determine whether the state should invest in these or any other interventions—program costs must also be considered.

#### ► Benefits and Costs

For each of these five interven-

tions we calculated the cost of delivery to each student, as well as the cost of “producing” one new high school graduate. The costs were calculated directly from the resources (e.g., personnel, classrooms, materials) required to provide the intervention. Accounting for the fact that not all students who receive an intervention will graduate, and that some would have graduated anyway, the cost of “producing” one additional graduate ranges from \$37,810 to \$131,000 across the five interventions, as shown in the table on Page 3.

Finally, we compare the costs of the interventions with the benefits they generate. In this analysis the benefits of educational interventions to increase high school completion were computed from the additional income and tax revenues that graduates generate, as

### Return on Investments (Federal/State/Local Government) to Raise High School Graduation Rates, Per Graduate

Intervention	Benefit	Cost	Benefit–Cost Ratio	Net Benefit
First Things First	\$168,880	\$37,810	4.47	\$131,070
Chicago Parent-Child Centers	\$168,880	\$47,000	3.59	\$121,880
Teacher Salary Increase	\$168,880	\$63,800	2.65	\$105,080
Perry Pre-school	\$168,880	\$72,370	2.33	\$96,510
Class Size Reduction				
<i>all students</i>	\$168,880	\$131,000	1.29	\$37,880
<i>low-income students</i>	\$168,880	\$80,060	2.11	\$88,820

well as reductions in the public and social costs of health, public assistance, and crime (all data on benefits taken from California Dropout Research Project, Policy Brief 1, “*Economic Losses from High School Dropouts in California*”).

If the benefits exceed the costs, then investments in the interventions yield a positive return. One method for comparing benefits and costs is to calculate the ratio of benefits to costs (known as a *benefit-cost ratio*); another method is to compute the difference between the benefits and costs. In both methods, we estimate the costs and benefits for “producing” a new graduate by age 20, and include the additional costs (including financial aid and subsidies for public colleges and universities) for those graduates who go on to attend college.

Three types of benefits are considered:

- *Fiscal benefits to California state and local governments*, which we estimate to be \$53,000 per each high school graduate.

If only these benefits are counted, two of the five interventions yield a positive return on investment: the First Things First school reform model, and the Chicago Child-Parent Center Program. These two interventions combine both relatively moderate costs with high levels of effectiveness.

- *Fiscal benefits to the federal government, in addition to state and local governments.* These benefits are estimated to be \$168,880 for each graduate. If we assume that the interventions are funded with matching state/local and federal contributions (in the present proportions), each of the five interventions yields a positive economic return. The benefit-cost ratios range from 1.29 to \$4.47 per graduate, with the highest return delivered by the First Things First school reform model.
- *Total economic benefits to the state (including taxpayers, citizens, and businesses)*, which we estimate to be \$392,000 per

high school graduate.

If we adopt the perspective of maximizing these overall benefits, **all five interventions generate benefits far in excess of the cost of providing the intervention.**

#### ► The Case for California's Investment in High School Graduation

The economic test for investment in education programs that increase the high school graduation rate is a simple one: do the benefits of an intervention exceed its costs, and are the returns sufficiently high? In the case of high school graduation, the benefits are proven to be substantial, and some educational interventions show very high returns on investment. An even larger set of promising interventions that improve high school graduation rates may yet exist.

If these interventions can be implemented as faithfully outside of their evaluation settings, and if their average costs do not change, the case for public investment in programs such as these is compelling. In particular, multiple studies of quality pre-school programs and emerging data on high school reforms reinforces the economic attractiveness of these approaches.

To make a substantial improvement in graduation rates, as well as student achievement and adult productivity, investing in multiple interventions could also be considered.

## Research Reports and Policy Briefs in Print

1. **THE ECONOMIC LOSSES FROM HIGH SCHOOL DROPOUTS IN CALIFORNIA** (*August 2007*)
2. **THE RETURN ON INVESTMENT FOR IMPROVING CALIFORNIA'S HIGH SCHOOL GRADUATION RATE** (*August 2007*)

## In Production (*Working Titles*)

- Career and Technical Education as a Strategy for Improving High School Graduation Rates in California
- Alternative Pathways to High School Graduation, Further Education, and Workforce Preparation in Other Countries
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- Why Students Drop Out of School
- Building District Capacity for Improving High School Graduation Rates in California
- Middle School Reform as a Strategy for Improving California's High School Graduation Rate
- Improving California's Data System for Measuring Dropout and Graduation Rates
- What's Motivating Youths in Differing Schools?
- Follow-up Study of Students Who Did Not Pass the California High School Exit Exam (CASHEE)
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- Profiles of High School Dropouts and Graduates in Los Angeles Unified School District
- California High Schools That Beat the Odds in High School Graduation
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