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EXECUTIVE SUMMARY

Return on Investment:

EDUCATIONAL CHOICES AND DEMOGRAPHIC CHANGE IN CALIFORNIA'S FUTURE

Investing in Higher Education: How Much Is It Worth to California?

Hard times should make us think hard about investment opportunities. California is now in the throes of a statewide budget crisis that forces tough decisions about important public services. What decisions should we be making about higher education?

A population explosion among Californians of college-going age (18-24) in the next decade will push this age group to a projected 4.26 million in 2015, an increase of 27% since 2000. California is in prime position to invest now in higher education to secure the State's economic future. If we fail to invest, the state is likely to face a host of social and economic difficulties associated with a population boom of young people ill-prepared for the demands of the 21st century economy.

This report quantifies the potential benefits of state investment in higher education — and the cost of failing to invest. We find that the *gains are substantial: For every new dollar California invests to get more students in and through college above current levels, it will receive a net return on investment of three dollars. Put another way, the possible gains in college-going analyzed in this study for each annual cohort of young adults entering their college-going years could provide more than 3 billion dollars to the state in additional net tax revenues over their lifetime.*

A number of previous studies have documented the personal benefits of higher education. Despite the critical relationship between demographics, education and the economy, this study is the first to analyze the costs and benefits to the State of California of increasing the number of students attending and completing a college degree, and place these

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graduates in the context of the changing state demographics of the coming decades.

Preparing the Workforce of the 21st Century

In today's 21st century economy, California's high-tech and service economies demand more educated workers while opportunities for less-educated workers are likely to grow dimmer. As the recent "California 2025" report by the Public Policy Institute of California found, over the next two decades, California businesses will require a much larger proportion of their workforce to have training beyond high school, including community college and university-level degrees.

"…(Californians) are now 5 percent below the national average with regard to the share of the population who are high school graduates."

Education pays off for the state, too. Highly educated, high-income workers pay more taxes on those higher incomes and demand fewer state services than less educated, low-income workers do. To regain the economic leadership California once enjoyed, the state must invest in a larger number of young people preparing for, enrolling in, and completing college programs.

California at a Crossroads

Forty-five years ago, California was one of the wealthiest and best-educated states in the country. Our per capita income was a full quarter above the rest of the country. Californians were also 25 percent more likely to be high school graduates and 25 percent more likely to have gone to college than residents in other states. In the years since 1960, California has dropped from economic leadership to mediocrity.

Today, California's per capita income rests at just 6 percent above the national average. California's educational advantage has also slipped. The proportion of our population with a four-year college degree has gone from a 25 percent advantage relative to the rest of the country to 10 percent. In addition, we are now 5 percent below the national average with regard to the share of the population who are high school graduates.

Over the past few decades, the Golden State has lost its luster, but what emerges clearly from our research is that California can reclaim its position as a national leader if it makes reasonable and attainable improvements in higher education and takes the steps necessary to prepare high school students for college-level work.

In light of our declining position relative to the rest of the country, California stands at a crossroads in terms of public policy choices that can influence the future of the economy and quality of life in our state.

Right now and for the next decade, California has an age distribution that favors educational investment. This abundance of young people represents a *precious opportunity*. The state's policy choices can substantially influence how young people progress through high school, into the community colleges and universities, and whether they successfully complete degrees.

This report provides educational scenarios which look at the fiscal impact that results from systematically varying the numbers of students attending and completing college. The "fixed capacity" scenario limits enrollment to current levels even as population grows, while "increased college-going" grows enrollment by population and increases high school completion and college-going rates at anticipated levels for each ethnic group. "Improved completion" goes further to have more college entrants finish their degrees.

Each of the scenarios above is compared to a fourth baseline scenario - "current conditions" – which increases college enrollment only with population growth and holds rates of high school graduation, college-going and college completion constant for each ethnic group.

KEY FINDINGS

Overview

1. Young adults entering the ages in which post-secondary education is usually acquired (18-24) are an important and quickly growing population. Department of Finance projections show that from 2005 to 2010, this population will add 426,000 more members to its ranks, an increase greater than in any period since 1970. Between 2010 and 2015, this population will add nearly 100,000 members more.

2. Investments in higher education result in substantial benefits for the individual and the state. If the state increases the number of college graduates, Californians' individual incomes will increase. Greater educational attainment and earning power will produce a windfall for state coffers due to increased revenue from income taxes and decreased spending on social services and incarceration (Figure 1). ***For every new dollar California invests to get more students in and through college, it will receive a net return on investment of three dollars.***

3. While the payback from the investment is not immediate, it is surprisingly quick (Figure 2). California's public sector will show a positive balance 10 years after these students have completed their education. By age 35, the state's initial investment will be repaid in full. For the next 30 years these individuals spend working until they retire at age 65, they effectively produce a "bonus" to the state in terms of income tax contributions.

4. A comparison of the "increased college-going scenario" to the "current conditions scenario" for 2015 shows that each class of graduating high school seniors can provide nearly 3 billion additional dollars in net tax revenue over their lifetime. Compounded year after year for each cohort of seniors, these gains are large enough to substantially improve the economic viability of the state.

5. If the level of higher education enrollment stalls where it is now, the short-term savings of under-investing soon turns into a long-term cost.

FIGURE 1 Net Lifetime Fiscal Benefits to the State Relative to the Baseline "Current Conditions" Scenario

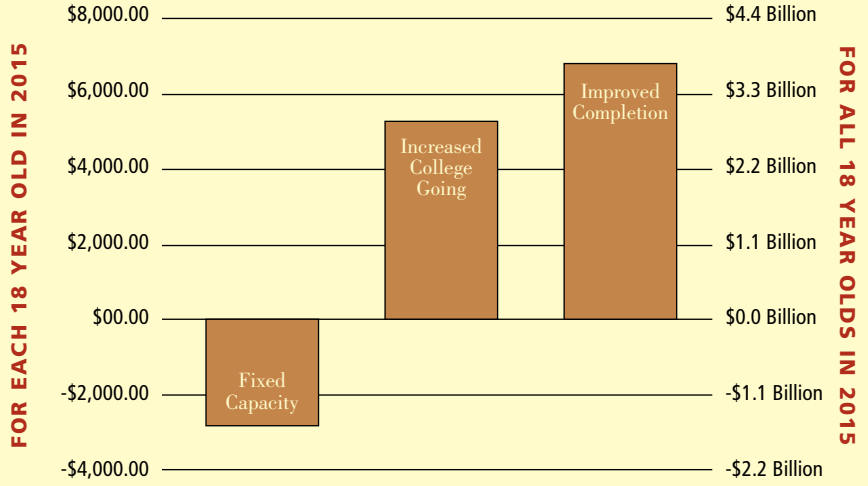
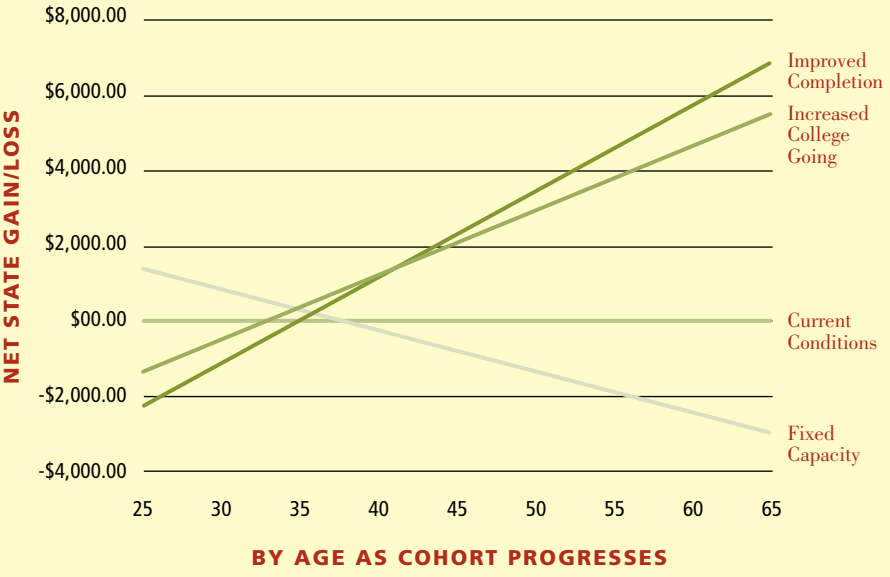


FIGURE 2 Cumulative Gain/Loss to the State under Selected Educational Scenarios



The state faces a net loss of two dollars in the long run for every dollar it failed to spend in the short run, a potential loss of 1.5 billion dollars over the lifetime of the 2015 cohort of potential college entrants.

Educational Attainment: Benefits to the Quality of Life for Californians

We examine the impact of increased college participation and completion in terms of 1) benefits to California taxpayers and the fiscal balance of the state, including increased tax revenue and reduced expenditures on welfare and prisons; and 2) personal benefits to California workers who can expect higher lifetime earnings, fewer interruptions in their careers, better jobs overall, and increased home ownership (Table 1).

Benefits to California Taxpayers

Reduced poverty: The State has much to gain from investing in a greater number of Californians who attend and graduate from college. Currently, individuals who have less than a high school education are nearly six times more likely to live in poverty than people who have bachelor's degrees, which has repercussions for their relative use of state services. Among adults, one in five Californians with less than a high school education lives in poverty. One in ten adults with a high school degree lives in poverty, compared to one in 20 for those with a B.A. or more. Similar trends are observed in the level of crowding in California households.

Reduced need for social services: The dependency on welfare benefits for someone who did not graduate high school is nearly double that of a high school graduate. As education increases beyond high school, dependence on public assistance decreases dramatically: welfare use among those with B.A.'s is a quarter that of those who earn only a high school degree.

Reduced incarceration: Incarceration is among the most expensive state-funded programs. Further investments in college going and completion rates are likely to reduce jail time and state costs significantly. A Californian whose education stops at a high school diploma is nearly nine times more likely to spend time in jail than a Californian with a college degree.

TABLE 1 Synthetic Benefits Associated with Education:
Outcomes presented relative to high school graduates

OUTCOMES RELATIVE TO HS GRADUATE	LESS THAN HS	HS GRADUATE	SOME COLLEGE	BA	ADVANCED DEGREE
Years Employed	0.75	1.00	1.14	1.23	1.30
Occupation					
Professional	0.39	1.00	2.11	4.32	6.98
Managerial	0.32	1.00	1.51	2.56	1.89
Self-Employed	0.67	1.00	1.56	3.08	2.72
Routine White Collar	0.48	1.00	1.04	0.66	0.27
Skilled Manual	1.14	1.00	0.61	0.23	0.10
Less Skilled Manual	1.89	1.00	0.60	0.23	0.09
Earnings	0.57	1.00	1.33	2.05	2.81
Income	0.59	1.00	1.32	2.02	2.78
Poverty: <100%	2.13	1.00	.064	0.38	0.38
Home Ownership	0.76	1.00	1.08	1.14	1.14
Value of Owned Home	0.78	1.00	1.18	1.60	1.87
Crowding: >1.5 Persons/Room	3.45	1.00	0.59	0.41	0.34
Welfare use	1.85	1.00	0.61	0.22	0.19
Incarceration	1.14	1.00	0.50	0.13	0.09

To compare any group to any other group, do not add or substract. Instead divide the number for one group from the other. For example, divide 1.23 by .75 to find how much more years a person with a BA is employed compared to a person with less than a high school degree.

In the following section, we also describe how Californians' years in the labor force and earnings increase substantially with increased education. Increased earnings in turn result in greater tax revenues. The combination of increased tax revenues and the reduced costs for social programs and incarceration contribute to the net return on investment for the state.

These gains occur not just with the completion of bachelor's degrees or advanced degrees, but substantial and notable gains are made with high school graduation and attaining "some college" which includes community college, other post-secondary options, and those who start but do not complete a bachelor's degree.

With these net state savings, California can thus increase its tax revenue while maintaining a constant tax rate, or it can maintain a constant level of income while reducing tax rates. **In short, we could replace today's unpleasant choice between raising taxes and cutting spending with the more popular choice between cutting taxes and increasing spending.**

Benefits to California Workers

Increased Lifetime Earnings: If current trends hold, high school dropouts will make just $538,000 (in 2004 dollars) over the course of their lifetimes. Californians with a high school diploma will earn $934,000, and those with some college will earn $1,240,000. But those with a B.A. will make $1,915,000, which, compared to high school graduates, represents a lifetime difference of nearly $1 million and an average of $24,000 more for each year between the ages of 25 and 64. Greater levels of education also increase likelihood of home ownership, and more significantly, the value of the home that is owned, a critical asset.

Increased Time and Position in Labor Force: One factor contributing to the gains in lifetime earning is that Californians with a college degree spend 34 full-time equivalent years employed and earning money, 64% more than a Californian who does not complete high school, who spends 21 years employed. In addition, California workers with higher levels of education are more likely to occupy professional and managerial positions.

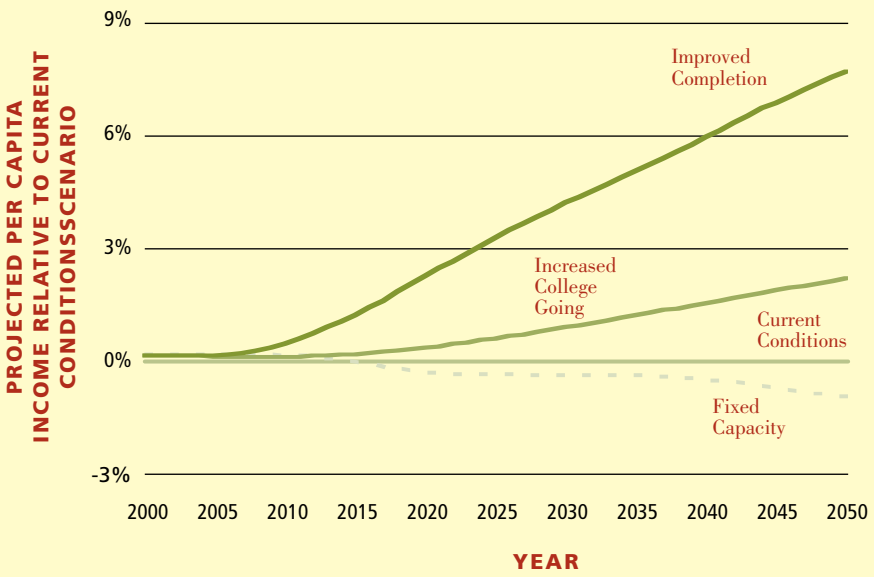
These economic benefits, as well as reduced incarceration and poverty, all present enormous benefits to the taxpayers and residents of California. These benefits are estimated using synthetic cohorts of residents based upon data from the 2000 census. Researchers who estimate the impacts of education often adjust estimated benefits to account for background characteristics and conditions which are not present in our data; the effect of those adjustments typically place the "real" effects of education between 80% and 120% of unadjusted figures. Even using the lower bound for educational effects indicates large gains to the state from educational investments.

Return on Investment: The Net Benefits of Greater College-Going

- **Comparison to Current Conditions:** This study uses a cohort model that analyzes average benefits to the entire population over their lifetime, not just the additional individuals going to college. In the scenarios, improvements in educational success are phased in gradually between 2005 and 2020. For illustrative purposes, lifetime gains and losses are discussed below for the 2015 cohort and compared to the current conditions scenario, which holds educational success rates fixed at current ethnicity-specific rates.
- **Fixed capacity:** The state will save $1,300 in educational costs on average per 18-year-old, but it will pay heavily for these savings later by racking up $4,100 in lost tax receipts per person and increased costs for incarceration and subsidies for the poor. The state's net lifetime losses will average $2,800 per person or $1.5 billion for the entire cohort. Each 18-year-old will cost the state more than $2 net over his lifetime for every dollar the State did not invest in educational support.

"…individuals who have less than a high school education are nearly six times more likely to live in poverty than people who have bachelor's degrees…"

FIGURE 3 California Per Capita Income for Three Alternative Scenarios Relative to the "Current Conditions" Scenario



- **Increased college-going:** The state will pay an additional $1,400 per person but, over time, will reap a combined $6,700 per person in additional taxes and decreased spending for welfare and incarceration. The state will gain $5,300 per person, or $3 billion over the life of the 18-year-old cohort. This represents a nearly 4 to 1 net return on the state's initial investment.
- **Improved completion:** If the state were to increase educational investment to influence rates of college going and completion for young people who will be 18-year-olds in 2015, the net return on investment would be $6,800 on anticipated investments of $2,200 per 18-year-old, yielding a potential lifetime gain to the state of $3.7 billion.

In each case, potential losses or gains could be partially offset by interstate migration.

Implications for Policymakers

While the study does not make policy recommendations for how the state can achieve the gains in college-going and college-completion, the following emerged as significant implications for policymakers:

- **Improve the high school to college transition.** Improving high school graduation rates and increasing college-going among high school graduates will yield substantial benefits to the state. Recent gains have not kept pace with employers' needs.
- **Improve college opportunity by making best use of all higher education assets.** Given the solid success rates of community college students who do transfer to university and the cost-efficiency of a community college education, the case is strong for strengthening this pathway. In addition, public universities, as well as private colleges, can and should be part of the solution. Another major opportunity with promising returns is to increase the number of California college students who complete their college degrees.
- **Plan for California's economic future by enhancing college access and outcomes for all students.** Currently underrepresented groups can not be left behind. Latinos are California's largest and fastest-growing population, particularly in the 18-24 demographic, but have the lowest college-going rates. For African-American students, substantial attention needs to focus on improving college completion rates.

Methodology

This study represents one of the most comprehensive demographic forecasts for the State of California to date, thanks to improved and more detailed projections. In addition, the study makes middle course assumptions about likely future benefits and costs of education, giving a balanced view of return on investment. The study analyzes the following:

- **Demographics** (Chapter 2): This analysis includes typical factors such as age, sex, race and ethnicity, but also considers more specific factors such as nativity, period of entry for immigrants,

parental education and other indicators that are important for understanding California's future.

- **Outcomes** (Chapter 3): This provides an analysis on the benefits of educational attainment for the individual (job, wages, home ownership, etc.) and for the state in terms of fiscal health.
- **Educational pipeline and costs** (Chapter 4): This presents a detailed analysis of student progress through the educational pipeline from high school to completion of college, and measurements of educational costs to the state.
- **Scenario analysis** (Chapter 5): We consider four scenarios for change in public higher education using demographic projections to determine how much each scenario would cost the state in increased funding and produce in returns to the state.

These scenarios are:

1. **Fixed Capacity:** In this bleak scenario, the number of available seats at community colleges and universities stays the same over time, even as the college-age population continues to grow. Given limited mobility and financial means, this scenario assumes that the unserved young people will not leave the state or seek private vocational or college programs.
2. **Current Conditions:** In this "baseline" scenario, current rates of high school graduation, college-going, and college completion for students in public colleges are held fixed at rates currently typical for students of their ethnic group. As ethnic groups with a lower college-going rate grow as a proportion of the population, this scenario projects an overall decline in California's college-going rate, even as a greater number of students attend college.
3. **Increased College Going:** In this "expanded enrollment" scenario, we estimate achievable increases in high school graduation rates, largest among Latinos, with moderate gains for non-Hispanic Blacks and Whites, and small gains among Asians, gradually phased in between now and 2020. These gains in high school completion are complemented with fixed increases in college-going among high school graduates. The gains projected are marginal and achievable, most closely matching the study's demographic projections and the Department of Finance enrollment forecasts.
4. **Improved Completion:** In this "optimal" scenario, the gains in high school completion and college entry from the prior scenario are achieved. In addition, this scenario estimates the impact of cutting attrition rates for each ethnic group by half in public universities, which is an ambitious target. However, because community college students pursue many different goals beyond the ability of this study to measure, we do not test improvements in community college completion, an area with important opportunity.

For the purposes of this study, we estimate educational costs borne by the state to fund instruction of college students to be equal to their historic average rates (which are higher than current rates), and we do not include costs for construction of facilities or financial aid. Due to limitations on data, the study provides only a limited analysis of private colleges, a topic that merits a separate in-depth analysis given their important contributions to the state.

In measuring costs and benefits, we base estimates on patterns in current data, rather than relying on additional predictions about the future direction of changes in costs or benefits. These estimates are framed by identifying factors which could influence the over or under-estimation of costs and benefits, and these provide upper and lower bounds given these potential changes. For example, on the one hand, if demand for college degrees in the economy grows as is expected, earnings for those graduates would also likely increase. Conversely, if demand for college degrees slips, then their relative earnings would decrease. Because the gains in college-going are gradual and moderate, we assume that additional students will reap benefits at the average rate. In addition, the study also does not predict any "multi-

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plier" benefits in the workforce or the economy in current or future years, a topic that merits separate analysis.

In producing this report, the researchers recognize that investment in higher education is not a "silver bullet" for re-establishing California's economic security and standing as a national leader. Other public policy choices, both state and federal, as well as the decisions of the private sector will also influence the future quality of life in the state and merit attention. In addition, many of the elements in the study outside of education, for example incarceration, are themselves subject to policy decisions. Nevertheless, investments in education are certainly some of the most important ones that California must make.

CONCLUSION

As the State of California looks to secure its economic future and provide opportunity for its residents, a greater investment in higher education is an essential piece of the equation. These investments will more than pay for themselves. As our analysis shows, money invested in increasing the number of students entering and completing college results in increased workforce earnings which, in turn, increase the state's tax revenue and reduce the state's outlays for welfare and incarceration.

Supporting higher education produces significant net savings for the state in as little as 10 years following initial investment, setting California on the path to reversing its decline in per-capita personal income and re-establishing itself as a national leader.

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