

*California*

INVEST  
IN A  
STATE OF  
MIND

BY JENNIE HAY WOO



## About EdFUND

EdFUND, a private nonprofit corporation, delivers a wide range of student loan services under the Federal Family Education Loan Program, including loan application processing, status tracking, financial transactions, default aversion and defaulted loan collection. EdFUND processes approximately \$2 billion in student loans annually and manages a portfolio of outstanding loans valued at \$13.1 billion. Fundamentally committed to maximizing benefits for student loan borrowers, EdFUND is headquartered in Sacramento, with regional offices located in Alameda, Long Beach, Phoenix, Sacramento, San Diego and Seattle.

January, 1999

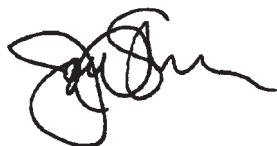
As a nonprofit public benefit corporation that provides a wide range of student financial aid services, EdFUND exists for one reason, and one reason alone: to provide the best possible service to our student, parent, school and lender customers, at the lowest possible cost.

Part of our public service commitment is a commitment to share information—and perspectives—that reflect our values as an organization. In that regard, I am delighted to present to you *California: Invest in a State of Mind*.

This report, prepared with great care and insight by Research Analyst Jennie Hay Woo of EdFUND's Research and Policy Analysis unit, defines and forecasts the fiscal landscape facing California's higher education community and makes recommendations for ensuring its future is a bright one.

This report puts real analytical feet under a premise that's been heard more and more in recent years: if California is going to remain the nation's foremost innovator, we have to invest more in the primary building block of innovation: education. Particularly higher education, which provides California with the kind of creative, forward-thinking, highly-skilled workforce it must have to excel.

I hope you'll enjoy and perhaps be enlightened by *California: Invest in a State of Mind*. We welcome your comments on it.



Jon Shaver  
PRESIDENT AND CHIEF EXECUTIVE OFFICER  
EdFUND



## Executive Summary

This paper argues that because of current national trends and conditions in California, the state is under-investing in higher education. It makes the case that investments of public funds in California higher education are very cost-effective.

Projections show that the future U.S. economy will require more educated workers. The chances for creatively expanding the economy are much better with an educated workforce. However, several trends in higher education finance have made higher education more difficult to obtain. The real cost of higher education is rising much faster than inflation.

Families today are paying more of the share of college costs and the government is paying less. Financial aid is now overwhelmingly loans. This requires more risk-taking from the students and their families and is therefore more difficult for students from less wealthy backgrounds.

California has a history of strong support of higher education through low public tuition. After the tuition hikes of the early '90s, however, California's public tuition has become the same as the national average for public sector colleges. The

private sector is now more expensive than average. Only the community colleges are relatively less expensive than the rest of the nation. While California has large numbers of students enrolled, the ratio of those enrolled to the population of traditional college age is just about the national average. For four-year programs, California's enrollment ratio is lower than the nation.

California's rate of obtaining degrees is no better than the country's as a whole. The rate of earning bachelor's degrees compared to those enrolled in school or to high school graduates is average or below the rest of the nation. The rapid rise in public sector fees has left many families without savings unprepared to meet these costs themselves.

Examining earnings differentials by educational attainment levels for men and women in California and the United States shows that obtaining a college degree is clearly associated with higher earnings. A hypothetical example of internal rate of return for a University of California bachelor's degree in California shows that it realizes a return for the state of 14 percent in just eight years. The numbers show that it still makes good economic sense for the government to subsidize higher education in California far more than it does now.

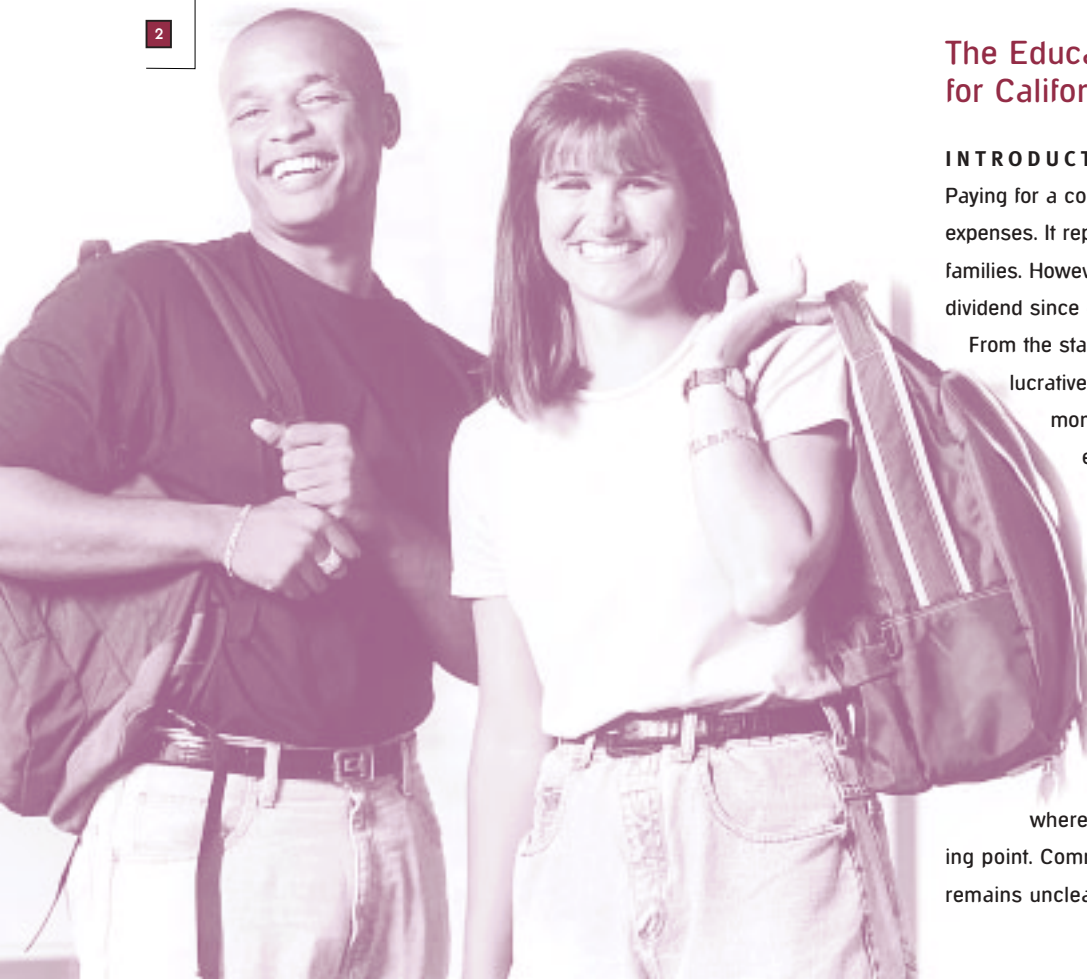
## The Educational Forecast for California: Partly Sunny

### INTRODUCTION

Paying for a college education is one of life's major expenses. It represents a significant sacrifice for many families. However, there are few costs which yield a higher dividend since college influences a lifetime of opportunities.

From the standpoint of society as well, college generates lucrative returns. This analysis will show that public money is used wisely when it makes it possible for eligible students to earn college degrees. While college has many other purposes and benefits, policy-makers should incorporate an economic calculus when allocating scarce public resources. If they do, they will find overwhelming evidence that investment in higher education pays off handsomely.

This paper will focus on the returns of higher education to the state of California, where the financing of higher education is at a turning point. Commitment to public funding for higher education remains unclear after a recession where allocations to the



public university system were cut, financial aid rose slowly, and public tuition rose precipitously. This has occurred just before the number of college-age students is expected to rise considerably. However, the evidence is clear: investment in education, both by individuals and by society as a whole through state appropriations and financial aid, is a strategic use of funds that yields solid returns.

## National Conditions: The Current Climate

### HIGHER EDUCATION IS REQUIRED IN THE FUTURE ECONOMY

The U.S. economy is undergoing a transformation from one based on manufacturing goods and services to one based on information processing. While it is impossible to predict just exactly what jobs future economic conditions portend and what skills they will require, indications are that higher education will be even more important in producing them. The Bureau of Labor Statistics has projected that, in the next ten years, occupations requiring at least an associate's degree will grow faster than those which require less education. The fastest growing occupations for the period from now until 2006 are database administrators, computer scientists and systems analysts, all of which require at least a bachelor's degree. Besides the computer and data processing services industry, the other fast growing occupations are in the health services sector. Many of these occupations also require specialized training at the associate degree level or above. The health-related occupations also contain many of the occupations which will have the largest absolute number of jobs in the future. All of the occupations requiring at least an associate degree are projected to have faster-than-average employment growth in the next ten years. This is not true of jobs requiring less education and training.

In some sense, the very existence of highly educated workers will create its own demand. The nature of the future economy will be determined by the skills, talents and training of those who participate in it. A labor force of well-educated workers will steer the economy in different directions than one that is less educated and trained.

### HIGHER EDUCATION COSTS MORE

There have been several recent trends in the financing of higher education that have dramatically changed its basic structure. Higher education has become more complex and more expensive. The increased burden of paying for it has

shifted away from the government and towards the family, especially the student. Related to that, financial aid covers a smaller part of higher education costs and is most likely to be in the form of loans.

It is obvious to all concerned parents that tuition charges have soared in the last decade. Figure One (below) compares the cumulative percent increases in annual average tuition and fee charges with an index of inflation. During the eighteen-year period, average tuition at each sector has risen about 150 percent compared to the Consumer Price Index (CPI) which rose only 80 percent.

What is less obvious is that the inflation-adjusted cost of a college education has also increased, not just for the student and his or her family, but for all parties who pay any portion of the costs. Real cost increases are true for public as well as for private institutions. When expenditures from all sources, including tuition and fees, federal, state, and local governments, and private sources for all colleges are examined, the resulting growth in the amount spent per-student outpaced several inflation indexes. Figure Two (next page) shows per-student expenditures for colleges and universities for the period 1980-81 through 1994-95. Expenditures rose 100 percent cumulatively in this period, while the Consumer Price Index (CPI) rose 74 percent in the same period. Expenditures rose even faster than the Higher Education Price Index (HEPI), which rose 80 percent in the same fifteen years. The HEPI is

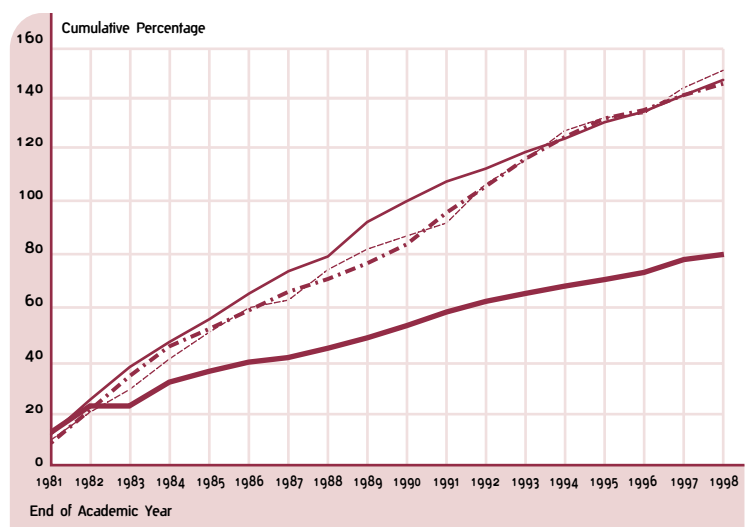


FIGURE ONE

Comparison of Increases in Average Tuition Fees with Increases in Inflation, 1980-81 through 1997-98 in Current Dollars

Public Two Year    Public Four Year    Private Four Year    Consumer Price Index

Source: The College Board, *Trends in College Pricing*, 1998  
Bureau of Labor Statistics, CPI, All Urban Consumers, (Old Series)

an index specifically designed to measure changes in the prices of goods and services commonly purchased by higher education institutions; for example, laboratory instruments or the salaries of faculty members. In this period, expenditures per student rose 19 percent higher than the HEPI. The United States General Accounting Office (GAO) studied this issue and concluded that this increase had three components:

- More than one quarter of the increase was due to a real (above and beyond inflationary) increase in faculty salaries at public colleges. The GAO attributed this to two factors. One was increased competition among colleges themselves and competition between colleges and industry for high-quality scholars. The other was a decline in faculty teaching workload.
- A significant part of the increase in expenditure was connected to the expansion of college administration. Colleges now devote substantial resources to such diverse tasks as legal counsel, public relations, academic computing support, development, recruiting, student services and compliance with federal statutes. Another important area where more and more resources are channeled is financial aid. Like all levels of education, colleges and universities have become more complex because they have taken on many more social functions. These costs are not instructional but they constitute a significant part of expenditures.

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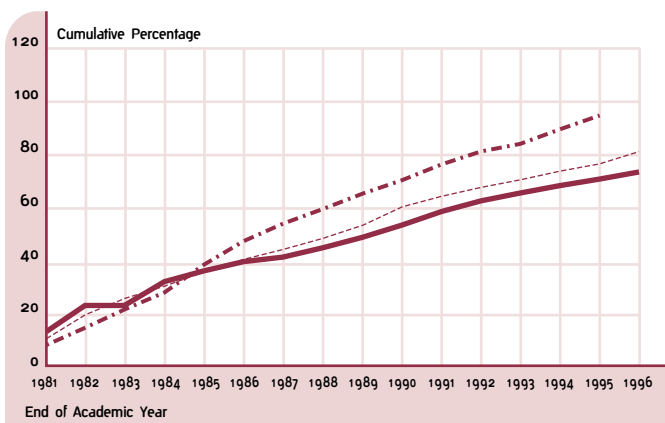
- The third component of increased college costs was growth in research expenditures. Colleges receive large amounts of funds specifically dedicated to research which were separated out from these per-student expenses in the GAO study. It is unclear, however, whether or to what degree there is an increase in costs net of those direct infusions of research support. What is clear is that higher education is conducting more research and that research is more complicated and expensive than previously. Modern science curriculums and research both call for increasingly sophisticated and expensive equipment. Undoubtedly at least some portion of these changes indirectly contributed to the increased costs of higher education.

Higher education is thus more expensive and has changed significantly in its objectives and accomplishments. The costs have usually been shared but the proportions and links between those who benefit and those who pay has shifted.

#### FAMILIES BEAR MORE OF THE BURDEN

The burden of paying the cost of education has shifted from the government to the family. In an analysis of college finance, Arthur Hauptman and David Roose decomposed college revenue data according to its source: the federal government, the state and local government, philanthropy, the family (parent and student) and other sources. (This last category comprises miscellaneous sources which include hospitals, bookstores and other revenue-generating campus activities.) Table One (next page) displays their results for the period from 1975 to 1990. The federal government dramatically reduced its share from 24 percent of total college revenue in 1975 to only 11 percent in 1990. Equally dramatic, the family burden grew from 39 percent to 49 percent in the same period. Thus the share of revenue from tuition has soared while that from federal grants, federal contracts and other federal financial aid has plummeted.

This reversal also illustrates the effects of less grant money and more loan money in financial aid. Grants constitute a government expense while loans primarily constitute an expense of the family with a small government subsidy component. Within the family, Table One shows the shifting of responsibility between parent and student. To construct this table, the authors assumed that the share that students pay is half of tuition not covered by financial aid and all loans except parent loans. Since 1990, the share of family expenses which has fallen to students has undoubtedly increased while the parents' share has decreased. Borrowing to pay for college has



**FIGURE TWO** Comparison of Increases in Per-Student Expenditures with Increases in Inflation Indexes, 1980-81 through 1994-95

College/University Expenditures per Student in Current Dollars  
Higher Education Price Index  
Consumer Price Index

Source: HEPI - Research Associates of Washington  
Expenditures - Digest of Education Statistics 1990, 1997  
CPI - Bureau of Labor Statistics, Annual Average CPI All Urban Consumers, (Old Series)

soared and this comes out of the student's future earnings. The number of independent and non-traditional, older students has also greatly increased and they are much less likely to receive parental assistance. The largest share of the financial burden for college now falls on the students themselves.

### FINANCIAL AID MEANS MOSTLY LOANS

The composition of financial aid has changed markedly in the last sixteen years. In 1980-81, 40 percent of all financial aid consisted of loans. In 1997-98, loans constituted 60 percent. Grants, either from federal or state sources, are targeted at those with the lowest income and do not even cover all tuition and fee charges except at junior colleges.

Figure Three (below) illustrates the dramatic shift in the composition of financial aid available to students nationally to attend college. It compares the cumulative percent increase in financial aid from all sources and all types per student to the two major inflation indexes – the CPI and the HEPI. Also shown is the percent increase in grants alone, a part of all financial aid awarded. Total financial aid increased below the rate of inflation during the period from 1980 to about 1993, but then increased significantly faster, reaching a total increase of 120 percent for the entire seventeen-year period.

But grant aid alone shows a very different story. Between 1981 and 1985 grant aid actually decreased. It began to rise in 1986 but by 1996 it had risen only 65 percent from its level in 1980. Grants rose 11 points below the rate of inflation. They increased 20 points less than the price levels of higher education as measured by the Higher Education Price Index. The dramatic increase in financial aid observed in the last five years has been primarily an increase in loans.

As a form of financial aid, loans are not just a less costly form of college subsidy for government. Borrowing requires much more of the recipient. It first requires risk-taking. It requires the expectation of a future earnings stream, the willingness to stake one's future credit-rating on it, and a certain financial sophistication. Many young people don't have these characteristics, particularly those from more limited financial backgrounds. Even if they don't help materially in paying for college, parents have an enormous influence on how well a student manages his or her financial choices. If they have low expectations of future earnings or if they are averse to risk, their offspring will be reluctant to borrow. Because of this, offering loans instead of grants for the same cost can actually discourage college participation.

TABLE ONE

### Percentage Share of Financing Burden for Postsecondary Education

SOURCE	1975	1980	1985	1990
Federal	24%	18%	12%	11%
State/Local	25%	25%	24%	23%
Philanthropy	5%	5%	5%	6%
Other	7%	9%	10%	11%
Family	39%	43%	49%	49%
Parent	23%	23%	29%	31%
Student	16%	20%	20%	18%

Notes: Percentages represent share of total spending on higher education. 'Other' is revenues from university hospitals and other noneducational activities.

Source: Arthur Hauptman and David Roose, "Trends in Paying for Higher Education, 1950 - 1990", in *Background Papers and Reports of the National Commission on Responsibilities for Financing Postsecondary Education*, April 1993

In summary, the future for occupations requiring higher education is rosy. But the cost of attending college has risen as colleges have undertaken more tasks. More and more of the burden of paying for college is being assumed by the family, especially the student. This poses risks for a state with a burgeoning young population like California.

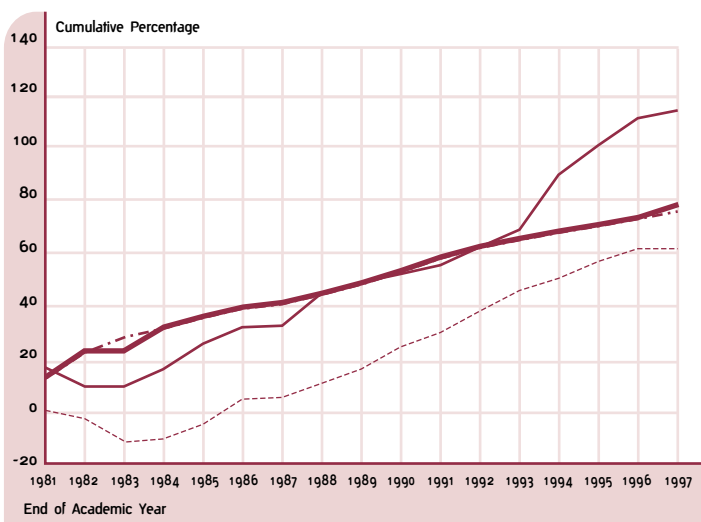


FIGURE THREE Comparison of Increases in Average Tuition Fees with Increases in Inflation, 1980-81 through 1997-98 in Current Dollars

— Total Financial Aid Awarded per Postsecondary Student  
 - - - Grant Aid Awarded per Postsecondary Student  
 . . . Higher Education Price Index  
 - . - . Consumer Price Index

Source: Financial Aid - The College Board, Trends in Student Aid, 1998  
 HEPI - Research Associates of Washington  
 CPI - Bureau of Labor Statistics, Annual Average CPI, All Urban Consumers, (Old Series)

## Local Conditions in California: Partly Cloudy

### HISTORY OF LOW PUBLIC TUITION THAT HAS VANISHED

California is like the United States only more so. It exemplifies the nation's outer limits and possibilities. Its economy is at the cutting edge of new technologies, especially in entertainment and computer-related products. The congregation of highly-educated workers and the creative synergy they produce has sparked much of California's recent economic growth. This dynamism reflects the large numbers of college graduates now in its workforce.

California has a history of low tuition and high state appropriations for its public higher education system. This changed dramatically after the recession of 1990-91. In 1986-87, before the first significant tuition hikes, California ranked 13th lowest of all the states in tuition at public four-year colleges. This figure is an average and masks the very different fees assessed by the State University and the University of California systems. California State University charged just \$680 in total fees in 1986 while the University of California had fees of \$1,345. As a result of a series of large annual increases in 1990 through 1994, California's average four-year public tuition ranked 23rd highest in 1996-97, or squarely in the middle. The tuition was just under the national average of \$2,986 in 1996-97. The

State University is now somewhat less expensive than the average American four-year public college, at \$1,946 for average total annual resident fees. The University of California, charging on average \$4,212, had risen by 1997-98 to the sixth most expensive public four-year system in the nation. However, this trend will probably not continue. Tuition and fees for California's public colleges have been frozen since the 1994-95 year. In the current 1998-99 year, tuition and fees have been reduced by 5 percent and the public sector has agreed not to increase fees the following year.

California's private four-year tuition is now also higher than average. In 1996-97, the average tuition in the nation was \$12,920 for private four-year colleges. California's average tuition for this sector was \$14,650. The state ranks eleventh most expensive in the nation for the private four-year sector.

In contrast, the community college system in California still has very low student charges. From its inception until 1984, there were no charges at all. In 1984 a \$100 annual enrollment fee was assessed. This remained until 1991, when in the space of three years it was increased 290 percent to \$390 per year. It has remained at this level for the past five years. Even with this increase, California's public two-year tuition is the least expensive junior college tuition in the nation. In 1996-97, the national average for two-year public tuition was \$1,283 per year.

TABLE TWO Ratio of Enrollment to College-Age Population

CALIFORNIA	Year	Population Aged 18 - 24	Undergrad Enrollment Aged 18 - 24		Undergraduate 4-Year Enrollment-All Ages	
			Enrollment	Ratio	Numbers with transfers	Ratio
	1992	3,256,429	1,032,944	31.7%	588,080	18.1%
	1993	3,180,070	978,812	30.8%	578,749	18.2%
	1994	3,089,426	984,965	31.9%	582,380	18.9%
	1995	3,025,218	978,087	32.3%	593,906	19.6%
	1996	3,003,076	993,941	33.1%	606,637	20.2%

UNITED STATES	Year	Population Aged 18 - 24	Undergrad Enrollment Aged 18 - 24		Undergraduate 4-Year Enrollment-All Ages	
			Enrollment	Ratio	Number	Ratio
	1987	27,693,000	6,795,866	24.5%	6,270,013	22.6%
	1992	26,017,957	-	-	6,814,307	26.2%
	1993	25,797,003	7,435,121	28.8%	6,758,398	26.2%
	1994	25,462,790	-	-	6,732,999	26.4%
	1995	25,181,424	7,383,526	29.3%	6,739,621	26.8%

Source: Digest of Education Statistics, 1989, 1991, 1992, 1995, 1996 and 1997  
 Enrollment data from U.S. Dept. of Education, Center for Education Statistics, "Fall Enrollment" surveys  
 Enrollment data by age is only collected in odd-numbered years  
 Population data from U.S. Census Bureau, Annual Time Series of State Population Estimates  
 California: estimates derived from age-related enrollment data at California State University Chancellor's Office, California Community Colleges Office of the Chancellor, University of California, and various campus data sources  
 California Postsecondary Education Commission

Population: <http://www.census.gov/population/estimates/state/96agesex.txt>  
 U.S. Enrollment: <http://nces.ed.gov/pubs/digest97/d97t175.html>

## HIGH ENROLLMENTS BUT LOW ENROLLMENT RATIO

Because of its historically low tuition, California has traditionally had high numbers of students enrolled in higher education. But its enrollment ratio, the numbers of students enrolled compared to the population of that age group, is just above the nation's. A great deal of California's enrollment is students outside of the traditional college age group. This is apparent in Table Two (previous page), which on the left displays total undergraduate enrollment aged 18 to 24 years and the population 18 to 24-years-old, for California and for the United States. The ratio of enrollment to population indicates roughly what percentage of the traditional college-aged population actually obtains higher education in some form. This age-adjusted enrollment ratio indicates the coverage of higher education for the group most likely to undertake it. This table shows that California has only a slightly higher enrollment ratio than the nation as a whole.

In 1995, California's enrollment ratio of 32 percent was only somewhat higher than the national figure of 29 percent. However, this enrollment figure contains many community college students. A great many community college students were not attending college to obtain a general education or to transfer to a four-year school, but for specific job-related reasons. A large number were also part-time. Sixty-four percent

of community college students in the fall of 1997 were taking less than nine units. Thus, the ratio probably overstates the proportion of California young people in the traditional college age group who finally receive a general higher education.

Some young people do end up enrolling when they are over 24-years-old, so they may not be completely lost to higher education. In fact, large numbers of undergraduates at the California State University and Community Colleges are over 24-years-old. In 1996, 33 percent of undergraduates at the California State University were over 25-years-old. For the Community Colleges in 1996, 55 percent of students were older than 24-years-old.

Even with relatively inexpensive four-year tuition charges, higher education is reaching fewer of California's young people at the bachelor's degree level than in other states nationwide. On the right, Table Two also shows the four-year undergraduate enrollment for all ages and its ratio in comparison to the same population group for California and the United States. This includes private four-year schools which account for about one quarter of all four-year enrollment. A large number of students attend community colleges and then transfer to four-year schools. The enrollment number therefore includes an estimate of future transfer students in their first two years as well as those enrolled in four-year

**TABLE THREE** Earned Degrees as a Percent of Enrollment for 2-Year Public and 4-Year Undergraduate Schools

CALIFORNIA						
Year	2-Year Public Schools			4-Year Undergraduate Schools		
	Enrollment	Associate degrees earned	Degrees as a percent enrolled	Enrollment plus transfers	Bachelor's degrees earned	Degrees as a percent enrolled
1987-88	1,065,800	47,503	4.5%	567,478	90,920	16.0%
1988-89	1,104,504	48,018	4.3%	590,755	91,508	15.5%
1992-93	1,167,701	54,688	4.7%	588,080	111,010	18.9%
1993-94	1,074,175	56,417	5.3%	578,642	111,848	19.3%
1994-95	1,085,873	60,503	5.6%	582,380	109,714	18.8%
1995-96	1,063,516	57,076	5.4%	593,906	-	-

UNITED STATES						
Year	2-Year Public Schools			4-Year Undergraduate Schools		
	Enrollment	Associate degrees earned	Degrees as a percent enrolled	Enrollment	Bachelor's degrees earned	Degrees as a percent enrolled
1987-88	4,541,054	435,085	9.6%	6,270,013	994,829	15.9%
1988-89	4,612,388	435,210	9.4%	6,436,050	1,017,667	15.8%
1992-93	5,484,600	514,756	9.4%	6,814,307	1,165,178	17.1%
1993-94	5,337,300	530,632	9.9%	6,758,398	1,169,275	17.3%
1994-95	5,308,467	539,691	10.2%	6,732,999	1,160,134	17.2%

Definition: California 2-year public enrollment is for credit only

Sources: California Postsecondary Education Commission, October, 1996 "Student Profiles 1997" <http://www.cpec.ca.gov/stuprfl/stuprfg6/section2/2-0296.htm>  
 "Digest of Education Statistics 1990, 1995, 1997", National Center for Education Statistics, U.S. Department of Education <http://nces.ed.gov/pubsoled/D95/dtab237.html>

**TABLE FOUR Earnings Differentials for California**

**CALIFORNIA Mean Earnings for Men by Educational Attainment in Current Dollars**

Year	(1) Less than 9th grade	(2) 9th to 12th grade, no diploma	(3) High school graduate	(4) Some college or AA degree	(5) Bachelor's degree or more	(6) Ratio (5)/(3)
1988	-	\$16,119	\$25,288	\$28,194	\$40,715	1.61
1989	-	\$16,423	\$26,174	\$31,571	\$43,787	1.67
1990	-	\$17,057	\$26,770	\$32,756	\$44,309	1.66
1991	\$13,682	\$19,562	\$25,442	\$31,544	\$43,696	1.72
1992	\$15,719	\$19,983	\$25,285	\$31,296	\$45,677	1.81
1993	\$14,051	\$20,268	\$24,086	\$31,396	\$47,765	1.98
1994	\$16,505	\$18,936	\$26,476	\$31,195	\$48,557	1.83
1995	\$15,439	\$20,389	\$29,099	\$36,125	\$56,758	1.95
1996	\$15,810	\$20,308	\$28,569	\$39,155	\$59,673	2.09

Definition: Mean earnings of men with earnings, 25-years-old and over

Source: California State Department of Finance, Demographic Research Unit using Current Population Survey, March Surveys

**CALIFORNIA Mean Earnings for Women by Educational Attainment in Current Dollars**

Year	(1) Less than 9th grade	(2) 9th to 12th grade, no diploma	(3) High school graduate	(4) Some college or AA degree	(5) Bachelor's degree or more	(6) Ratio (5)/(3)
1988	-	\$8,821	\$14,772	\$17,858	\$23,634	1.60
1989	-	\$10,049	\$15,391	\$18,959	\$26,995	1.75
1990	-	\$10,754	\$16,010	\$19,206	\$28,244	1.76
1991	\$8,077	\$11,307	\$16,975	\$20,612	\$29,640	1.75
1992	\$9,165	\$10,911	\$16,798	\$20,278	\$29,288	1.74
1993	\$8,440	\$10,979	\$16,904	\$20,793	\$32,062	1.90
1994	\$8,911	\$11,166	\$17,154	\$21,112	\$32,355	1.89
1995	\$8,718	\$12,243	\$19,944	\$24,452	\$35,264	1.77
1996	\$9,928	\$13,193	\$18,623	\$23,483	\$36,109	1.94

Definition: Mean earnings of women with earnings, 25-years-old and over

Source: California State Department of Finance, Demographic Research Unit using Current Population Survey, March Surveys

schools. Even with this adjustment, California's ratio is much lower than the nation's. In 1992, when the United States had 26 percent of its young population in four-year schools, California had only 18 percent. In 1995, the latest year available, the United States as a whole had 27 percent of the college-age population enrolled at four-year schools while California had only 20 percent. This indicates how much of California's higher education enrollment is not in four-year schools.

**AVERAGE GRADUATION RATE**

How successful has California higher education been at graduating Californians with degrees? The answer for community colleges is quite murky. While they enroll great numbers of students, those students are very diverse and have many objectives. Many of these activities don't lead directly to measurable outcomes in the sense of certificates obtained or degrees conferred. It's hard to separate out only those intending to get a general higher education.

Table Three (previous page) shows degrees earned as a percent of those enrolled. For the California Community Colleges, this ratio averaged about 5.6 percent in 1994-95. For the United States as whole the ratio was over 10 percent. But in a survey in 1996 of community college students, only 27 percent said they intended to obtain an associate degree. Many more said they were pursuing other goals such as getting a vocational certificate, changing careers or simply pursuing cultural development. Thirty-two percent intended to transfer to a four-year school. Only two-thirds of those who intended to transfer even planned to obtain an associate degree. In 1994-95, 60,000 students transferred, which is 5 percent of enrollment. If one assumes the survey results to be representative, the total number of students who either transferred or obtained an associate degree or both in 1994 is estimated to be 69,000 or 6 percent of enrollment. This is still lower than the national ratio of associate degrees to enrollment of 10 percent. However, with no real basis of comparison, it is difficult to estimate how successfully the system graduates students with degrees.

Four-year schools in California have a marginally better success rate than elsewhere in the nation. In 1994-95, 19 percent of those enrolled earned

a bachelor's degree. This enrollment included the transfers from community colleges and all levels, not just seniors about to graduate. For the United States, this figure was 17 percent. In fact, an examination of four-year degrees compared to high school graduates shows that California has a rate lower than the United States as a whole. When the number of bachelor's degrees in 1995 is compared to students who graduated from high school four or five years earlier, California's rate is 43 percent and the United States has a rate of 46 percent. This discrepancy holds true for other years as well. So it appears that at least since the large increases in public four-year tuition, California has not exceeded the nation in the rate its young people obtain bachelor's degrees.

### SURPRISED WITH NO SAVINGS

The dramatic effects of the public sector tuition increases, combined with continued increases in private tuition, are hard to overstate. The tuition hikes have taken many students and their families by surprise, because tuition has traditionally been low enough that it could be covered out of current earnings. Suddenly, tuition is a significant expense that even upper-middle income families find challenging. Most families have not planned for it, and they have not saved for it. The Bureau of Economic Analysis reported that in 1986, national personal savings were 7 percent of disposable personal income. By 1996, the personal savings rate was only 3 percent.

As a result, families and students in California are going into debt in greater numbers and for greater amounts than ever before. In 1985-86, the average amount of debt for students who borrowed in California was \$6,036. In 1994-95, the average debt burden more than doubled to \$13,977. Furthermore, California has more independent students and older, non-traditional students who have no family support. In general, when the price rises, demand drops. The likely result is that Californians are under-investing in higher education.

### EARNINGS BY EDUCATION ATTAINMENT — THE PAYOFF

Obtaining a college education is a smart investment. The evidence is clear that the average person who gets a bachelor's degree earns so much more after

TABLE FOUR cont. **Earnings Differentials for the United States**

UNITED STATES						
Year	(1) Less than 9th grade	(2) 9th to 12th grade, no diploma	(3) High school graduate	(4) Some college or AA degree	(5) Bachelor's degree or more	(6) Ratio (5)/(3)
1988	\$14,659	\$17,823	\$23,900	\$27,851	\$41,386	1.73
1989	\$14,581	\$18,199	\$24,915	\$29,570	\$44,987	1.81
1990	\$14,914	\$18,180	\$24,727	\$30,340	\$44,864	1.81
1991	\$14,464	\$18,419	\$24,531	\$29,233	\$45,539	1.86
1992	\$14,775	\$18,297	\$24,744	\$29,275	\$47,800	1.93
1993	\$14,411	\$18,585	\$26,182	\$30,590	\$53,791	2.05
1994	\$18,427	\$19,701	\$27,376	\$30,878	\$55,046	2.01
1995	\$16,119	\$21,019	\$28,624	\$33,726	\$56,038	1.96
1996	\$17,179	\$22,602	\$30,073	\$36,058	\$57,661	1.92

Definition: Mean earnings of men with earnings, 25-years-old and over

Source: U.S. Census Bureau, "Historical Income Tables-Persons", Current Population Reports, Series P-19, P-20, published 7 November 1977  
<<http://www.census.gov/hhes/income/histinc/p19.html>>

Note: After 1990 the measurement of educational attainment changed

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UNITED STATES **Mean Earnings for Women by Educational Attainment in Current Dollars**

Year	(1) Less than 9th grade	(2) 9th to 12th grade, no diploma	(3) High school graduate	(4) Some college or AA degree	(5) Bachelor's degree or more	(6) Ratio (5)/(3)
1988	\$7,558	\$9,093	\$12,796	\$16,094	\$22,221	1.74
1989	\$8,164	\$9,706	\$13,444	\$16,753	\$24,179	1.80
1990	\$8,602	\$10,350	\$13,999	\$17,188	\$25,388	1.81
1991	\$8,389	\$10,305	\$14,269	\$17,241	\$26,622	1.87
1992	\$8,915	\$10,834	\$14,878	\$17,742	\$27,895	1.87
1993	\$8,721	\$11,697	\$15,347	\$18,104	\$29,905	1.95
1994	\$9,163	\$10,968	\$15,888	\$18,269	\$31,646	1.99
1995	\$10,021	\$11,469	\$17,016	\$19,223	\$30,941	1.82
1996	\$10,727	\$12,263	\$17,297	\$20,674	\$33,666	1.95

Definition: Mean earnings of men with earnings, 25-years-old and over

Source: U.S. Census Bureau, "Historical Income Tables-Persons", Current Population Reports, Series P-19, P-20, published 7 November 1977  
<<http://www.census.gov/hhes/income/histinc/p19.html>>

Note: After 1990 the measurement of educational attainment changed

graduation that it quickly makes up for the cost of the degree. A look at the earnings differentials by educational attainment for men and for women in both California and the United States in Table Four (previous pages), shows that those who have higher education earn more.

In 1996, the average earnings for male high school graduates in California 25-years-old and over was \$28,600 in a year. Those men with a bachelor's degree or higher earned on average almost \$60,000, over twice as much. For women, the differential was also high. In 1996, female high school graduates earned an average of \$18,600 while college graduates earned \$36,000. Considering that an average college graduate earns more each year for an entire career, which could stretch for forty years, the fact that they earn nothing for four years when they are a student, and that they have to pay for college, is relatively insignificant in the long run. The college graduate ends up financially much more prosperous than the high school graduate. The situation in California is about the same as in the United States as a whole, with a more advanced degree having a decided financial advantage over lower levels of education.

Furthermore, the ratio between the earnings of high school graduates and college graduates has been increasing for both California and the entire nation. In 1990, it was 1.81 for men in the United States and in 1996 it was 1.92.

For women in this period the ratio went from 1.81 to 1.95. This means the advantage of a bachelor's degree over a high school diploma has been increasing through time, probably as the economy has rebounded and demand for more educated workers has increased.

The use of mean earnings to indicate the pecuniary advantages of higher education has difficulties because there are many other causes for differences in earnings besides educational attainment. The analysis is more accurate if it controls for some of these other influences. That is why it is preferable to examine men's earnings separately from women's. Until women began entering the workforce in large numbers, their earnings history was very different from men's, and subject to very different effects. Factors such as intermittent work history, limited job choice and wage discrimination played a more important role in determining women's earnings than it did for men. If men's and women's earnings were considered together these effects would distort the overall conclusions. However, when women's mean earnings are examined separately, although they are lower than men's, they also show a distinct relationship between higher education and higher earnings. For women as well as men, it appears a college degree is a smart investment.

Another problem with using earnings differentials to demonstrate the value of higher education is known as the 'ability'

TABLE FIVE

Returns of a University of California Bachelor's Degree Over High School Graduation

Academic year	Tuition and general funds per FTE	Foregone earnings	Average pre-tax earnings	Total costs or benefits adjusted for ability	Total costs and benefits adjusted for inflation	Net present value assuming 5% rate
1985-86	-\$13,223	-\$9,344		-\$22,567	-\$22,567	Total costs -\$80,346
1986-87	-\$13,847	-\$9,794		-\$23,641	-\$22,896	
1987-88	-\$14,272	-\$10,039		-\$24,311	-\$22,596	
1988-89	-\$14,506	-\$10,956		-\$25,462	-\$22,567	
1989-90			\$36,000	\$28,440	\$23,996	Total benefits \$131,876
1990-91			\$37,000	\$29,230	\$23,414	
1991-92			\$38,571	\$30,471	\$23,556	
1992-93			\$40,370	\$31,892	\$23,887	
1993-94			\$42,262	\$33,387	\$24,574	
1994-95			\$43,471	\$34,342	\$24,848	
1995-96			\$48,049	\$37,959	\$27,075	
1996-97			\$51,423	\$40,624	\$28,319	

Internal Rate of Return for 8 years: 14%

Experience Adjustment: 79%



problem. Earnings differentials do not account for preexisting differences between those who attend college and those who don't. In other words, those who go on to college may have other attributes such as perseverance, ingenuity, or innate ability that, regardless of what they learned in school, would make them better workers and thus paid more. Their higher earnings may reflect those differences as much as their enhanced training from college. Thus, most economists would discount some portion of the higher earnings and attribute it to native ability and background differences. A reasonably conservative adjustment would be to multiply earnings by 79 percent to account for inherent personal advantages. This is the average adjustment found in a collection of studies on the returns of education reviewed by Larry Leslie and Paul Brinkman.

Economists began applying financial tools to education and its income-enhancing properties to illuminate a powerful economic argument for public spending on education. In the thirty years since this was first attempted, the arguments for investing in higher education have only become stronger. This approach emphasizes the economic value of education but it should not preclude consideration of all the other values of higher education.

#### **HYPOTHETICAL EXAMPLE OF INTERNAL RATE OF RETURN**

A simple exercise shown in Table Five (previous page) can illustrate the concept that education is a good investment of public dollars. By calculating the internal rate of return, we can demonstrate the relationship between

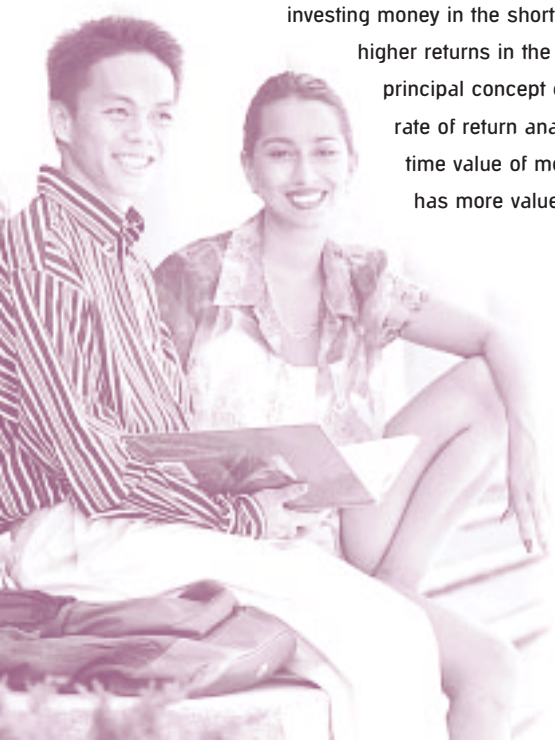
investing money in the short term to reap higher returns in the long run. The principal concept embedded in rate of return analysis is the time value of money. Money has more value in the

current time period than in the future. Costs and benefits of education occur in different time periods with the costs coming first and the benefits occurring later. The internal rate of return provides an easy way of describing the value of a certain stream of costs and benefits and how they compare to alternative uses of funds. In the analysis, all costs and benefits are first adjusted for inflation to avoid distorting the result. The internal rate of return is the interest or discount rate which equates the sum of costs, discounted to current dollars, and the sum of earnings, also discounted to current dollars. This rate can be compared with the rate of return on other investments such as stocks and commodities. This makes it a useful tool for decision-making since there is an easy basis for comparison.

The argument for public investment lies in examining returns to society as a whole. If the returns are large enough, then it is worthwhile for taxpayers to lower the individual costs and encourage investment beyond what might occur without such help. Therefore, the costs and benefits will be calculated to illustrate the investment from a social, not individual, point of view. The question addressed is whether it is worthwhile to invest public money in higher education, regardless of the individual benefits.

This example uses the returns of a bachelor's degree from the University of California. It is assumed that the degree takes four years and that the costs are incurred between 1985 and 1989, because income data is available for that period onward. The costs of earning this degree consist of the direct costs of the education and the foregone earnings. The direct costs are all education costs incurred by any party for the education. This is tuition and fees and the share of government appropriations required to educate one theoretical student. This ranges from \$13,223 in the first year to \$14,506 in the last. Room and board is not included because these are not costs associated with college. People incur these costs whether attending college or not.

Foregone earnings are another major expense of college. They are the money students could have earned at a full-time job instead of studying in school. In this example, we use the mean annual earnings of men aged 18 to 24 years with a high school degree. This ranges from \$9,344 in 1985 to \$10,956 in 1988. Together these make up the total costs which are then adjusted for inflation and discounted to their value in the first year.



The benefits are the average annual earnings of California men 25-years-old or over who hold a bachelor's degree. The benefits range from \$38,571 in 1992 to \$51,423 in 1997. These pre-tax earnings are considered the most reliable and available measure of the economic worth of an employee to society. They denote only the direct contribution of the average worker and thereby actually understate the full effects of a higher education. These earnings are also adjusted for inflation and discounted to their value in the first year of the investment. The contribution of native ability is corrected for by multiplying the benefits by 79 percent.

The calculated internal rate of return for this hypothetical example, eight years after starting school, is 14 percent. In other words, California, by investing in a college degree for a young man, realizes a return on its investment of 14 percent for this period. The investment breaks even after only five years. This is clearly a very lucrative investment which compares very well with stock market returns. It makes good economic sense for the state to subsidize higher education.

## CONCLUSION

It appears that California has pulled back from its historic commitment to generously subsidize higher education. And this retraction, due to changes in federal financial aid and an economic recession at the state level, has had major effects. Investment in higher education makes sense if California is to lead the nation's economy in the next century. If California is a harbinger state, then the rest of the nation might also pay attention to these effects. The numbers show this investment is not only sensible—it pays!

## WHAT IS TO BE DONE?

There are several steps that can be taken to increase the participation of California students in higher education.

**Outreach** - Communicate to families who are hesitant about the rewards of a college degree the overwhelming financial returns possible in the long run. While this will not convince everyone, many who had not thought of college in these terms might be persuaded to change their minds about a college education. The concept of the time value of money is counter-intuitive and warrants expounding.

**Savings** - Savings should be a fundamental means for a family to invest in college and they should receive more emphasis. The recent changes in Federal law allowing for an education IRA and state tuition savings plans such as Scholarshare are significant steps in this direction.

**Government support** - Financing from state and federal governments must reduce the cost to students and families to encourage students to invest in higher education. More financial aid, particularly grants, is the clearest way to obtain this outcome. The recent increases in Cal Grant appropriations by the state of California are an excellent example of this.

**Increase four-year degree holders** - California must expand the number of students obtaining bachelor's degrees to meet future workforce demands. The state must also encourage and support those who obtain their first two years of higher education in community colleges and go on to obtain a bachelor's degree at a four-year school.



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