California at the Edge of a Cliff: The Failure to Invest in Public Higher Education is Crushing the Economy and Crippling Our Kids’ Future

Prepared for the
California Faculty Association

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Currently Tom is editor and publisher of Postsecondary Education OPPORTUNITY, a monthly research letter devoted to analysis and reporting on the demographics, sociology, history, politics and economics of educational opportunity after high school. He provides consulting services on higher educational opportunity policy to state and national organizations, and makes presentations on opportunity throughout the country. He has received numerous awards in recognition of his work including the Tri-State Consortium of Opportunity Programs in Higher Education Award from the Tri-State Consortium of Opportunity Programs of New York, New Jersey and Pennsylvania in 2007 and also in 2007 the TRIO Award from the Tri-State Consortium in Minnesota.

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California is on course to wreck its own economy. This is one of the undeniable conclusions of higher education expert Tom Mortenson’s evaluation of the impact of disinvestment in our public higher education system.

He argues that the California economy has matured to the stage at which higher education is a key determinant of success both for individuals and for the state as a whole. Yet, in every key trend, California is on “a now well-established slide toward mediocrity.”

Now is the time for we as a state to reverse course and make better higher education policy choices. Or else.

And the nation should be watching. California’s fate has long been a signpost for the rest of the country.

California Faculty Association
January 2009
Executive Summary

California’s economic, social and political future is inextricably bound to the Human Capital Economy that has driven economic development in the United States since 1973 and the world since 2000. Economic prosperity and success for individuals, families, cities, states and countries are now being driven by the productivity of college educated workers and the industries that employ them. High school graduates lack the skills and training required for productive contribution to prosperity. There is no turning back, no denying, no delaying and no hiding from these relentless and pervasive economic forces.

California’s economy is changing in directions that are consistent with changes in the national Human Capital Economy. The share of the California’s Gross State Product (GSP) generated by private sector service providing industries has grown from 55.4% of the total in 1963 to 72.3% by 2006. During this period the share of GSP generated by goods producing industries has declined from 30.8% of the total in 1963 to 16.7% in 2006, and the share of GSP generated by government has declined from 13.8% to 11.0%. These changes are paralleled by changes in employment by industry in California. Between 1990 and 2007 the shares of total California employment increased in professional and business services (+2.8%), education and health services (+2.1%) and leisure and hospitality (+1.4%). The shares of California’s total employment declined in manufacturing (-6.1%) and agriculture (-1.2%) between 1990 and 2007.

California’s success in the Human Capital Economy will depend on the higher educational attainment of its workforce and the supportive business environment the state provides for the growth industries of the Human Capital Economy. Meeting these challenges will be especially difficult for California because of quite extraordinary demographic changes: the new populations of future college students and adult workers that are moving through the K-12 education pipeline are increasingly minority and low income populations that higher education has never served well.

Currently California’s workforce is fairly well college educated. In 2007 30.9% of those 25 and over held at least a bachelor’s degree. This ranked California 14th among the states. But in 1989 California had ranked 8th among the 50 states, and as recently as 1981 California had ranked 1st among the 15 largest states. Other states have made greater gains in building a college educated workforce and have moved past California. California is slipping toward educational and economic mediocrity among states on this critical measure of state competitiveness, prosperity and success in the Human Capital Economy.

Beyond this point the California picture has deteriorated substantially in recent decades.

- California ranks 49th in the share of its population age 25 and over that is at least a high school graduate. Between 1977 and 1983 California had ranked 1st among the 15 largest states on this measure.
- In 2004 30.4% of California 19 years olds were enrolled in college. This was down from 43.4% in 1996. In 2004 California ranked 46th among the states in the share of its 19 year olds that were enrolled in college, down from 17th in 1996.
• The college continuation rate for California high school graduates has slipped from 66.4% in 1996 to 43.7% by 2004. The state’s rank among the states declined from 5th in 1996 to 47th by 2004.

• The college participation rate for 18 to 24 year old students from low income families was 21.2% in 2006, down from 30.0% in 1997. The state’s rank declined from 23rd in 1997 to 31st by 2006. These low income students are now a majority of the state’s K-12 student enrollment population headed toward higher education and, eventually, California’s workforce.

California’s state tax fund investment effort in higher education has likely contributed to this deteriorating picture.

• In 1980 California appropriated $12.86 from state tax funds for the operations of higher education for every $1000 of state personal income. This ranked California’s investment effort 11th among the states. By FY2008 this had dropped $7.71 per $1000 of state personal income, a decline of 40.0%. California ranked 21st among the states by 2008.

• The state’s need-based grant system, while large, pales by comparison to the federal Pell Grant program efforts to assist financially needy California students from low and lower-middle income backgrounds. In 2006 state need based grant dollars were 50.9% of federal Pell Grant dollars provided to needy California undergraduate students, and California ranked 10th among the states on this measure. But California only provided state need-based grants to 34.3% of those Californians who received federal Pell Grants. By this measure California ranked 22nd among the states.

Ultimately California will have to decide whether to accept its now well-established slide toward mediocrity or to reverse course in pursuit of a more economically prosperous, socially harmonious, politically vital and healthier future. The higher education policy choices to be made about how much to invest and in what form to make those investments will follow from this first choice about California’s future.
Introduction: Preparing California for the Human Capital Economy

Around 1973 the United States entered the Human Capital Economy. For the first time in our nation’s history a person’s willingness to work hard and to live by society’s rules was no longer sufficient to be able to live the American experience. Now anyone who wanted to live a middle class American lifestyle also had to get a higher education. The skill levels required to be a productive and valuable worker in the Human Capital Economy can no longer be acquired in high school. Now one must go to college and get no less than an associate degree and preferably at least a bachelor’s degree. Those who made this commitment to become higher educated and succeeded at it have prospered since 1973 while those who didn’t haven’t.

Around 2000 the world became flat (paraphrasing Thomas Friedman’s famous book title1). This means that the Human Capital Economy of the United States went global. The economic processes that have so relentlessly and brutally redistributed income and human welfare according to education since 1973 in the U.S. are now operating across national borders. Other countries have looked at what the U.S. accomplished through higher education and they have started doing what we did—only better. They have rapidly expanded college participation and degree attainment. Six of these countries have already moved past the U.S. in college-educating their young adults who are their future workforces. Eighteen more countries are poised to pass the U.S. during the next 11 years. Other countries are also making progress2. And just as we have seen the income and employment advantages conferred by a higher educated workforce in the U.S. we should now expect far greater competition from the college-educated workforces of other countries for that same income and employment.

This paper examines California’s preparation to be competitive and successful in the new global Human Capital Economy. California is no longer competing only with other states for jobs and prosperity. It is now competing with the best and the brightest in the rest of the world. California’s success in this global competition depends primarily on the productivity of its workforce and the mix of growing, prosperous and competitive industries, and both its workforce and its industries depend on higher education to produce the skilled workers to be productive, innovative and competitive.

Our analysis of California’s preparation for the Human Capital Economy is not encouraging and some measures are outright frightening. For example:

- California’s per capita personal income has shrunk from 142.3% of the U.S. average in 1929 to 107.7% of the U.S. average by 20073.
- The share of California’s population age 25 and over that was at least a high school graduate ranked 1st among the 15 largest states from 1977 to 1983. By 2006 California had slipped to 49th among all states4.

California at the Edge of a Cliff
* The college continuation rate for California high school graduates has slipped from 66.4% in 1996 to 43.7% by 2004. The state's rank among the states declined from 5th in 1996 to 47th by 2004.\(^3\)

* The college participation rate for 18 to 24 year old students from low income families was 21.2% in 2006, down from 30.0% in 1997. The state's rank declined from 15th in 1997 to 31st by 2006. These low income students are now a majority of the state's K-12 student enrollment population headed toward higher education.\(^3\)

* Between 1980 and 2008 California's state tax fund investment effort in higher education had declined by 40%, one of the largest higher education funding cutbacks of any state during this period\(^3\).
On some measures California’s workforce is very poorly educated and on most measures of educational participation and attainment California is sliding backward. California has a great climate, beautiful beaches and awesome mountains. But without a workforce equipped to compete in the world’s economy the jobs, income and prosperity that work produces are likely to shift to other states and countries.

California Appropriations of State Tax Funds for Higher Education per $1000 of Personal Income
FY1961 to FY2008

Sources: Illinois State University and Bureau of Economic Analysis
I. The Human Capital Economy

Economies of states and nations evolve through stages. In the primary stage economies are based on exploitation of natural resources, such as mining, forestry, commercial fisheries and basic agriculture. At the secondary stage economic activity is based on capital investments such as manufacturing and capitalized agriculture. At the tertiary stage economic activity is based on human capital—the productivity of educated minds and healthy bodies of workers. While economies include all three stages, in economic evolution each stage dominates for a while, then is replaced by the next stage of development. The industrial democracies of the world are now competing in this third stage, which is based on the productivity of the trained and skilled human mind.

A. Production of Goods and Services

Since World War II the economy of the United States has been transformed from goods production to service providing. This shift is measured in two broad ways: shares of employment and shares of Gross Domestic Product.

Employment. The share of all U.S. employment in goods producing industries has declined by 21.0 percentage points between 1939 and 2006 (from 37.6% to 16.6%). The share of jobs in service providing industries has increased by 21.0 percentage points (from 62.4% in 1939 to 83.4% by 2006). This shift has moved persistently since World War II and shows no signs of abating.

The job share losses in goods producing industries have occurred mainly in agriculture, manufacturing and natural resources/mining. This is work traditionally done by men. The job share gains have occurred in service providing industries such as education and health, professional and business services, leisure and hospitality, financial activities and other services. This work used to be dominated by men, but now is increasingly performed by women.

We only have California data available since 1990, but these national trends are evident here too. Between 1990 and 2007 the share of California’s employment:

- Increased by 5.6% in private sector service providing industries, from 62.2% to 67.8% of the state total,
- Decreased by 5.4% in goods producing industries, from 21.1% to 15.7%, and
- Decreased by 0.1% in government (public sector service providing industry), from 16.6% to 16.5%.

Gross Domestic Product. Between 1950 and 2007 the durable and non-durable goods share of U.S. Gross Domestic Product (GDP) declined by 15.6 percentage points (from 43.9% to 28.3%). During the same period the services component of GDP rose by 20.6 percentage points (from 21.5% to 42.1%).

This transition from goods production to service provision has been devastating to those who are unprepared for it, particularly for males without college educations. At the same time this transition has opened new worlds of employment opportunities for those who have earned college degrees, particularly for females. This is the economic process of creative destruction.
The California gross state product data span 1963 through 2006, and tell a similar story. The share of the state's GSP generated by broad industrial classifications:

- Increased by 16.9% in private sector service providing industries, from 54.4% to 72.3%,
- Decreased by 14.1% in goods producing industries, from 30.8% to 16.7%, and
- Decreased by 2.8% in government, from 13.8% to 11.0%.

California Employment by Broad Industrial Classification 1990 to 2007

Source: Bureau of Labor Statistics
While California clearly has some industrial advantages over other states (information, professional and technical services, administrative and waste services, arts/entertainment/recreation) the state's economy ebbs and flows with larger national and international economic processes. State public policy making is generally guided by these broader trends and cycles.

Changes in Shares of California's Employment by Industry
1990 to 2007

Source: Bureau of Labor Statistics
B. The Market Value of Labor

This shift in what the American economy produces has had profound effects on the skill levels required of workers. Goods producing jobs include agriculture, manufacturing, mining, and other activities that needed big, strong men willing to work under dirty, uncomfortable and often dangerous conditions. As these jobs have shrunk both absolutely and relatively, so too have employment opportunities for those with high school educations or less.
In the Human Capital Economy income and the living standards that income supports have been increasingly determined by the educational attainment of the workforce. No longer is income determined only by hard work and living by the rules of society. Now income is also determined by education. Those who are higher educated are prospering, while others who are not higher educated are in prolonged and very serious economic decline, especially males. Higher education attainment has been redistributing income and human welfare since 1973 and because higher education is so skewed toward students from affluent families it is contributing to growing income inequality.

Changes in Shares of California's Gross State Product by Industry
1997 to 2006

Source: Bureau of Economic Analysis
This finding that education drives incomes holds for individuals (males, females, all races and ethnicities), families and households, cities, states and the country.

**Individuals.** There are somewhat different stories for men and women in the development of the Human Capital Economy since 1973:

- For men age 25 and over real median incomes for all males declined by 4.9% between 1973 and 2005 ($38,846 to $36,930). But by levels of educational attainment median incomes of male high school dropouts declined by 36.7% (from $34,176 to $21,620) and for high school graduates real median incomes declined by 27.5% (from $42,936 to $31,122). For males with bachelor’s degrees real median incomes declined by 3.4% (from $55,252 to $53,395). For males with advanced degrees real median incomes increased by 16.7% (from $63,529 to $74,153).

- For women age 25 and over real median incomes for all females increased by 65.9% (from $12,954 to $21,488). But for females who were high school dropouts real median incomes increased by 2.3% (from $11,241 to $11,501) and high school diploma recipient’s real incomes increased by 9.6% (from $15,737 to $17,242). For females with bachelor’s degrees real median incomes increased by 37.0% (from $24,631 to $33,739). For females with advanced degrees real median incomes increased by 38.5% (from $35,421 to $49,070).

A conventional demand/supply interpretation of these data is that the labor market is over-supplied with inadequately educated workers, and it is undersupplied with workers at the highest levels of educational and training. The more immediate message is that the gains made by women have come through increased educational attainment. Men are stuck about where they were at the beginning of the Human Capital Economy due to lack of progress in higher educational attainment.

**Families.** Most children grow up in families. So we study family incomes (and hence living standards) by educational attainment by head of household—the person in whose name the housing unit is owned or leased.

- For all families real median family income increased by 21.5% between 1973 and 2006 (from $49,600 to $60,275).

- For families headed by persons who started but did not complete high school real median family incomes declined by 24.6% (from $42,580 to $32,090).

- For families headed by persons with a high school diploma only, real median family incomes declined by 8.6% (from $52,275 to $47,784).

- For families headed by persons with a bachelor’s degree real median family income increased by 23.2% (from $73,109 to $90,056).

- For families headed by persons with advanced degrees, real median family incomes increased by 23.0% plus (from $81,330 to $100,000+).

**Cities.** We study the relationships between income and educational attainment in cities and in states differently than we do for individuals and families because there is no single educational attainment level for a city or state, but rather a range. Our conclusion from these studies was that cities with a larger share of college educated adults tended to have higher income and wages.

- *Per capita income.* In 1999 the bivariate correlation between city per capita personal income and the share of those age 25 and over with at least 4 years of college was +.789.

- *Average annual pay.* In 2000 the bivariate correlation between city average annual pay and the share of the population age 25 and over with at least 4 years of college was +.767.
States. The powerful relationships between educational attainment and income that hold for individuals, families and households, and cities also hold for states. Moreover these relationships have been strengthening in the 1990s and 2000s.

- **Per capita income.** In 2006 the bivariate correlation between state per capita personal income and the share of the state’s population age 25 and over with 4 years or more of college was +.820. This had increased from +.699 in 1989. Not only was state per capita personal income largely explained by the proportion of adults with 4 years or more of college but this relationship has steadily and substantially strengthened between 1989 and 2006.\(^7\)

- **Median household income.** In 2005 the bivariate correlation between state median household income and the share of state populations age 25 and over with 4 years or more of college was +.712. This had increased from +.660 in 1991 (and +.566 in 1995). In this decade in particular median household income has been increasingly dependent on a college degree.\(^7\)

Globalization. While the Human Capital Economy began in the United States around 1973, it became global around 2000 when the world became flat (according to Tom Friedman). Other countries have observed the relationship of higher education to economic growth in the U.S. and have been very aggressively expanding higher education in their countries while the U.S. has allowed educational progress to stagnate. Data from the Organization for Economic Development and Cooperation reported annually in Education at a Glance\(^2\) have shown that:

- In 2003 the U.S. ranked 2nd (to Norway) among to 30 industrial democracies of the world in the proportion of their 25 to 34 year old populations with at least a bachelor’s degree from higher education.
- In 2004 the U.S. dropped to 5th among these countries, and
- In the 2005 report the U.S. dropped to 7th among these countries.

If the trends in place for more than the last decade remain unaltered the U.S. will rank 22nd by 2019 among these 30 countries. Eventually most of the remaining OECD countries (except Greece) will surpass the U.S. too.

C. The Income Tax Revenue Value of Education

Governments tax the incomes, expenditures and wealth of people, and those who have more usually pay more in taxes. People with more education earn more income and typically pay more in taxes. Here we look at the federal income taxes paid by taxpayers with different levels of educational attainment between 1970 and 2005.

The educational attainment of federal income tax payers has increased sharply between 1970 and 2005. The share with any college education has increased from 25.4% in 1970 to 55.8% by 2005. During the same period the share of taxpayers with 4 years or more of college increased from 13.6% in 1970 to 29.0% by 2005.

The share of all income earned by these groups has increased even faster. Between 1970 and 2005 the share of all income earned by taxpayers with any college education increased from 35.6% to 70.4%. The share of all income earned by taxpayers with 4 years or more of college increased from 21.8% in 1970 to 44.6% by 2005.

And the share of all federal income taxes paid increased the fastest. Between 1970 and 2004 the share of all federal income taxes paid by taxpayers with any college education increased from 41.6% to 76.6%. The share of all federal income taxes paid by taxpayers with 4 years or more of college increased from 26.7% in 1970 to 52.5% by 2004.
These data may be expressed another way to tell this powerful story. By 2004:

- Taxpayers with 1 to 3 years of high school were 8.7% of all taxpayers. They earned 4.4% of the income, and they paid 2.6% of federal income taxes.
- Taxpayers with a high school diploma only were 30.3% of all taxpayers, they earned 23.3% of all income and they paid 19.5% of federal income taxes.
- Taxpayers with 1 to 3 years of college were 26.4% of all taxpayers, earned 25.7% of all income and paid 24.1% of all federal income taxes.
- Taxpayers with 4 years of college were 18.4% of all taxpayers, earned 25.4% of all income and paid 27.4% of all federal income taxes.
- Taxpayers with 5 years or more of college were 10.3% of all taxpayers, earned 18.6% of all income and paid 25.2% of all federal income taxes.7

The complementary story to these data is the cost to society of the least educated. For men these are usually police/judicial/prisons costs. For women these are most often welfare costs. Instead of contributing to social welfare, the least educated consume disproportionate shares of society’s scarce tax resources.

**D. Correlates of Educational Attainment**

**Individuals.** Higher education provides a wide array of important benefits to those who receive it.

- People with more education are more likely to be in the labor force, to have jobs, and less likely to be unemployed than people with less education.
- People with more education have higher incomes than do people with less education. People with less education are more likely to live in poverty than are people with more education.
- People with more education are more likely to have health insurance, pension plans, their own retirement accounts, own their own homes, have interest earning assets, own their own businesses, and own rental property than are people with less education.
- People with more education are less likely to smoke tobacco, more likely to work in locations that prohibit smoking, and less likely to use illicit drugs than people with less education.
- When they are older people with more education are more likely to be screened for colorectal cancer and prostate cancer, get pap smears and mammograms, use dietary supplements, see dentists and doctors more frequently, and see a doctor in his office.
- People with less education are more likely to use clinics or health centers, and hospital emergency rooms or outpatient services.
- People with more education are less likely to experience feelings of sadness, hopelessness, worthlessness, and to feel everything is an effort than are people with less education. People with more education report being happier than do people with less education.
- People with more education are less likely to experience disease and conditions of coronary, hypertension, stroke, diabetes, ulcers, kidney disease, liver disease, arthritis diagnosis, chronic joint symptoms, migraines and severe headaches, pains, in the neck, lower back and jaw or face than people with less education.
- Mothers with more education are more likely to breast-feed their babies and have lower infant mortality rates than mothers with less education.
• People with more education have greater muscular strength and endurance than do people with less education. They get more vigorous leisure time activity than do people with less education.

• People with more education are better able to walk a quarter of a mile, climb up to 10 steps without resting, stand for 2 hours, sit for 2 hours, stoop, bend or kneel, reach over head, grasp or handle small objects, lift or carry 10 pounds, and push or pull large objects than people with less education.

• People with more education are more likely to have a healthy body mass index and are less likely to be obese than people with less education.

• People ages 25 to 64 years with more education die at lower rates than do people with less education. This finding holds for both males and females.

• Death rates from cancer are lower among better educated adults, and higher among less well educated adults.

And there are hundreds more of these private correlates of educational attainment. The only private welfare measures where better educated adults are at a disadvantage compared to those who are less well educated are self-reported stress levels, frequency of sexual intercourse and tax burden.

States. The benefits of higher education that accrue to people with higher educations also accrue to the states in which they are located. The share of adults with a bachelor’s degree in a state is positively correlated with:

- Median household income (+.826)
- Per capita personal income (+.758)
- Employed/population ratio (+.484)\(^9\)

The share of adults with a bachelor’s degree in a state is negatively correlated with:

- Poverty rate (-.612)
- Unemployment rate (-.202)\(^9\)

In each of the above metrics the correlations (either positive or negative) with the share of adults with a bachelor’s degree strengthened between 1991 and the most recent year of available data (2004, 2005 or 2006).

Some of these state metrics are more highly correlated with the proportion of adults with at least a high school diploma:

- Employed/population ratio: (+.735)
- Median household income (+.516)
- Per capita personal income (+.336)\(^9\)

Those state metrics that are negatively correlated with the proportion of adults with at least a high school diploma are:

- Poverty rate (-.741)
- Unemployment rate (-.308)\(^9\)

These data indicate that the high school diploma is most important to the reduction of low-end state economic welfare measures such as the employed/population ratio, poverty and unemployment. The college degree is most important to high-end state economic welfare measures such as median household income and per capita personal income.
There are many other state metrics of state well being beyond these key economic measures that are correlated with educational attainment. A few of these additional correlations with the share of adults with at least a bachelor's degree include:

- State average credit score: +.390
- Home ownership: +.328
- Traffic fatality rate: -.641
- Public school teacher's salaries: +.541
- Doctors per 100,000 population: +.643
- Federal aid to state/local governments: +.282
- Energy consumption: -.397
- Infant mortality rate: -.4449

### E. Family Income Inequality

**Gini Coefficients.** In recent decades family income has grown steadily more unequally distributed in the United States. This is a result of the growing income gap between the educated and uneducated in the workforce.

Income inequality is measured in various ways, one of which is called the Gini Coefficient. This is a ratio ranging from zero to one, where a Gini Coefficient of zero means that every person in a population has exactly the same income, and a Gini of one means that one person has all of the income and no one else has any income. In the United States the Gini Coefficient for family incomes is calculated from the decennial census by the Census Bureau.\(^\text{10}\) For the U.S. Gini Coefficients have been:

- 1969: .361
- 1979: not reported
- 1989: .414
- 1999: .434

This means that family income has grown more unequally distributed in the United States between 1969 and 1999.

In California family income also grew increasingly unequally distributed between 1969 and 1999. In fact California’s Gini Coefficient was less than that of the U.S. in 1969, but by 1999 it was higher. In 1999 California’s family income inequality was third only to that of Washington, DC, and New York. (In 1969 California had ranked 24th in family income inequality.) The Gini Coefficients for California family income calculated by the Census Bureau have been:

- 1969: .357
- 1979: .372
- 1989: .422
- 1999: .458

Family income inequality increased faster in California (+.101) than it did in the U.S. (+.073) between 1969 and 1999.
Family Income Inequality in California and the United States
1969, 1979, 1989 and 1999

Source: Census Bureau
Consequences. There are social characteristics and pathologies across the states associated with high and growing family income inequality like that of California. The following state metrics are positively correlated with state Gini Coefficients for family income in 1999:

- Births to unmarried women (+.72)
- Low birth weight babies (+.69)
- Poverty rate (+.61)
- Average annual pay (+.54)
- Unemployment rate (+.47)
- Metropolitan population share (+.47)
- Infant mortality (+.47)
- Property crime rate (+.45)
- Children without health insurance (+.40)
- Persons without health insurance (+.38)
- Adult college graduates (+.29)
- Per capita personal income (+.27)
- Births to teenage mothers (+.16)

The following state metrics were negatively correlated with state Gini Coefficients in 1999:

- Public high school graduation rate (-.64)
- White population share (-.63)
- Home ownership (-.60)
- Adult high school graduates (-.58)
- Employed/population ratio (-.57)
- Low income student college participation rate (-.28)
- Median household income (-.24)
- Voting rates for citizens (-.14)
- Users of illicit drugs (-.03)

F. California’s Demography

California’s dynamic demography is well known and has been widely reported. This changing demographic structure has profound implications for higher education and the state’s economy. The following table is taken from the recent report projecting high school graduates by state prepared by the Western Interstate Commission for Higher Education.

The white plus Asian (higher income) share of the total number of high school graduates compared to the black plus Hispanic plus Indian (lower income) shares that were 65/35 in 1992 became 55/45 by 2005. By 2022 this ratio will be 43/57.
This growth in the low income share of future college students in California is also foretold by the share of K-12 student enrollments approved for subsidized school lunches under the National School Lunch Program. Eligibility for subsidized school lunches is limited to children from families with incomes below 185% of poverty. For California this share has grown from 35.2% in 1989 to 51.5% by 2007. California is now a majority low family income school children state, one of only 13 states with a majority of K-12 student enrollment approved for subsidized school lunches. The success in higher education of this rapidly growing low income share of California’s future workforce will largely determine California’s future position, competitiveness and prosperity in the global Human Capital Economy.\(^\text{11}\)


<table>
<thead>
<tr>
<th>Public Graduates by Race/Ethnicity</th>
<th>2004-05 (Actual)</th>
<th>2005-06 through 2021-22 (Projected)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTAL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>American Indian/Alaska Native</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asian/ Pacific Islander</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black Non-Hispanic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hispanic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>White Non-Hispanic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public Total</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-Public Total</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public &amp; Non-Public Total</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1991-92</td>
<td>244,594</td>
<td>2021-22</td>
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<tr>
<td>1992-93</td>
<td>249,320</td>
<td></td>
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<tr>
<td>1993-94</td>
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<td>1998-99</td>
<td>298,428</td>
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<td>2000-01</td>
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<td>2001-02</td>
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<tr>
<td>2002-03</td>
<td>338,091</td>
<td></td>
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<tr>
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<td>340,669</td>
<td></td>
</tr>
<tr>
<td>2004-05</td>
<td>350,452</td>
<td></td>
</tr>
<tr>
<td>2005-06</td>
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<td>2006-07</td>
<td>367,824</td>
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<td>2007-08</td>
<td>377,272</td>
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<td>2020-21</td>
<td>364,354</td>
<td></td>
</tr>
<tr>
<td>2021-22</td>
<td>362,658</td>
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</tr>
</tbody>
</table>
National School Lunch Approval Rate
for California School Children
1989 to 2007

Source: Dept. of Agriculture
II. The Education of California’s Workforce

The vast majority of California’s working age adults are not sufficiently educated to participate productively and thereby earn good wages in the Human Capital Economy.

A. Educational Attainment

Among working age Californians age 25 years and over 80.7 percent were at least high school graduates (or had GEDs) in 2007. This rate ranked California 49th among the states. In 1989 78.6 percent of Californians 25 and over were at least high school graduates and California ranked 23rd among the states on this measure. From 1977 through 1983 California ranked 1st among the 15 largest states in the share of its adult population that was at least a high school graduate.

Among these same Californians age 25 and over 30.9 percent had a bachelor’s degree or more in 2007. This ranked the state 14th among the states. In 1989 26.4 percent of adult Californians had a bachelor’s degree or more and the state ranked 8th.

In both cases the shares of Californians with at least a high school diploma and at least a bachelor’s degree increased between 1989 and 2006, but in both cases California’s ranking among the states declined. While California is making some modest progress in the education of its working age population, other states are making greater progress and these states are moving well past California in educational attainment. California is coasting while other states (and countries) are climbing.

The appropriate interpretation of these data combines both the production of high school diplomas and college degrees by California education institutions with interstate migration data on high school and college graduates from the Census Bureau. College graduates in particular are highly geographically mobile and are attracted to strong job markets and repelled by weak job markets. College graduates do, after all, have to repay their student loans.

B. College Participation

The educational systems of California produce nearly all of the educational attainment of the state’s adult workforce. We monitor the state’s education systems by tracking students through the education pipeline beginning at the end of compulsory school enrollment at age 16 through high school graduation, college continuation and college graduation.

College participation rates for California are measured in two ways: (a) for all by age 19, and (b) for low income 18 to 24 year olds. Both California rates are well below the national average, and both have declined substantially since 1996.
College participation by age 19. In 2004 30.4 percent of California’s 19 year olds were enrolled in college someplace in the United States. California ranked 46th among the states on this measure. (The release of some key 2006 data required for this analysis has been delayed by the National Center for Education Statistics.) In 1996 California’s 19 year old college participation rate was 43.4 percent and the state had ranked 17th among the states.3

This college participation rate is the product of: the public high school graduation rate, and the college continuation rate for both public and private California high school graduates.

- In 2004 the California public high school graduation rate was 69.7 percent, which ranked 31st among the states. Out of 492,930 9th graders in 2000, 343,480 received regular high school diplomas in 2004. California has been improving its ranking, but not its rate, over the last two decades.3

- In 2004 the California college continuation rate for public and private high school graduates was 43.7 percent, which ranked 47th among the states. Out of 375,426 public and private high school graduates 164,013 were enrolled in a public or private 2-year or 4-year college someplace in the U.S. This college continuation rate was down from 66.4 percent in 1996.3

College participation by 18 to 24 for students from low income families. In 2006 California’s low income college participation rate was 21.2 percent. Out of 1,257,136 low income 4th to 9th graders in 1996-97, 266,424 were enrolled in college (with Pell Grants) someplace in the U.S. by 2005-06. California ranked 31st among the states in 2005-06. This was down from 27.2 percent in 1997-98 when California ranked 23rd among the states.3 This is especially important to California because this low income population is now a majority of it’s K-12 enrollments and will eventually become a majority of the state’s workforce.

C. Interstate Student Migration

A useful measure of how attractive and accessible a state’s higher educational opportunities are is interstate migration of college freshmen. Migration is students speaking with their feet and their money. They move toward relatively attractive higher education institutions and away from relatively unattractive institutions.

Recent high school graduates. While these numbers are quite small compared to most states, nevertheless they tell an interesting story:

- In 1986 California imported more freshmen from other states (10,555) than it exported (6,431) to other states. Net interstate migration was +4,124 freshmen.

- By 2006 California exported more freshmen to other states (20,282) than it imported from other states (17,898). Net interstate migration was –2,384 freshmen.3

Many states and regions of the United States view higher education as a valuable state industry. When planned and operated as such public and private higher education institutions can bring substantial valuable resources from other states and countries into a state’s economy. Prime examples include New England and Pennsylvania.

Other states do not provide attractive higher educational opportunities for their state’s citizens and thus many students leave to attend college elsewhere. They take large sums of money with them to be spent on higher education in other state economies. Prime examples include New Jersey and Illinois.
Pell Grant recipients. Between FY1979 and FY1983 California higher education was a net importer of students from low income families with Pell Grants. Since FY1984, however, California has been a net exporter of low income students, and by a large and rapidly growing margin. By FY2006 31,115 more low income students were leaving California to attend college than coming to the state to enroll. The numbers were –4,124 for public institutions, -5,468 for private non-profit institutions, and –21,523 for private for-profit institutions (although these data for the proprietary institutions are suspect). They took with them their federal Pell Grants and spent them and other resources at higher educational institutions in other states and economies.
College Participation Rates by State for Students from Low Income Families FY2006

U.S. = 23.8%
California Interstate Migration of Freshmen
Who Were Recent High School Graduates
1986 to 2006

Migration:
- Out of
- Into
- Net

Year

Freshmen (n)
0 5000 10000 15000 20000 25000

Source: National Center for Education Statistics (IPEDS)
California Net Interstate Migration of Public Institution Pell Grant Recipients 1979 to 2006

Source: U.S. Dept of Education/0PE
California Net Interstate Migration of Private Non-Profit Institution Pell Grant Recipients 1979 to 2006

Source: U.S. Dept of Education/OPE
D. Gender

California, like other states, has greatly expanded higher educational attainment mainly for females since about 1970. The California education pipeline has done a notably poor job of preparing its young men for the jobs that will be there during their adult working lives in the Human Capital Economy. The state pays steeply for this neglect of male education, particularly during a period of declining male employment opportunities in goods producing industries, with its extraordinary funding for prisons and disrupted families.

Bachelor's Degrees Awarded to Men and Women by California Colleges and Universities 1970 to 2006

Source: National Center for Education Statistics
**Associate’s degree.** Between 1971 and 2006 the number of associate’s degrees awarded to men by California colleges decreased by 1,569 (from 36,534 to 34,965). During this same period the number of associate’s degree awarded to women increased by 33,182 (from 24,590 to 57,772). In 1971 59.8% of associate’s degrees went to men, and by 2006 this had dropped to 37.7% of the total. The share earned by women increased from 40.2% in 1971 to 62.3% by 2006.3

**Bachelor’s degree.** Between 1970 and 2006 the number of bachelor’s degrees awarded to men by California colleges and universities increased by 23,889 (from 39,656 to 63,545). During the same period the number of bachelor’s degrees awarded to women increased by 59,296 (from 28,180 to 87,476). The share of bachelor’s degrees awarded to men declined from 58.5% in 1970 to 42.1% in 2006. The share of bachelor’s degrees awarded to women increased from 41.5% in 1970 to 57.9% in 2006.3

**Master’s degree.** Between 1970 and 2006 the number of master’s degrees awarded to men increased by 9,969 (from 13,538 to 23,507) by California higher education institutions. During the same period the number of master’s degrees awarded to women increased by 26,594 (from 5,928 to 32,522). The share of master’s degrees awarded to men declined from 69.5% in 1970 to 42.0% by 2006. The share of master’s degrees awarded to women increased from 30.5% in 1970 to 58.0% in 2006.3

**First professional degree.** Between 1970 and 2006 the number of first professional degrees awarded to men by California institutions increased by 1,388 (from 2,918 to 4,306). During the same period the number of first professional degrees awarded to women increased by 4,180 (from 235 to 4,415). The share awarded to men declined from 92.5% to 49.4%. The share awarded to women increased from 7.5% to 50.6%.3

**Doctorate degree.** Between 1970 and 2006 the number of doctorate degrees awarded to men increased by 811 (from 2,726 to 3,537). During the same period the number of doctorate degrees awarded to women increased by 2,689 (from 449 to 3,138). The share of doctorate degrees awarded to men declined from 85.9% to 53.0% between 1970 and 2006. The share of doctorate degrees awarded to women increased from 14.1 to 47.0% during this period.3

**E. Educational Retention**

College graduates are highly mobile in search of employment. They move at about the same rate as less well educated workers. But when they move they are more likely to move across state lines (and even across the country), while less well educated workers are more likely to change addresses in the same county where they were living before they moved.

In 1989 California had 4,632,000 people age 25 and over with a bachelor’s degree. By 2006 this number had reached 6,768,000. Between 1989 and 2006 the number of Californians with at least a bachelor’s degree had increased by 2,136,000.

Between 1989 and 2006 California’s college and universities produced 2,131,889 bachelor’s degrees. The difference between this production and the increase in the stock of people age 25 years and over with at least a bachelor’s degree is net migration of about 4,000 bachelor’s degree recipients. This indicates that over this period of years California has gained very slightly from net interstate migration of college graduates.12

Because of fluctuations in the California economy over the last 18 years, this migration number has ebbed and flowed. California can monitor its competitive climate for college graduates by tracking annually the production of college degrees by its colleges and universities, and comparing that to annual changes in its stock of college educated adults as reported by the Census Bureau. Doing so provides immediate feedback on how well California’s Human Capital economy is performing relative to those of other states.
III. California’s Higher Education Investment

California makes investments in higher education primarily through state and local tax fund appropriations for higher education, and through the tuition and fees paid by students and their families. Additionally, the state of California has made key investments in need-based student financial aid. Each of these components of state investment is described below.

California has substantially reduced its annual investment effort in higher education and some public sector institutional tuition and fees have increased to offset this loss in state support. The costs of California higher education are being shifted from taxpayers to students and their families—a growing share of which are low income and cannot afford to pay these higher charges. Despite the state’s fairly large financial aid system to help students pay these higher costs there remains billions of dollars of unmet financial need for the state’s growing low and lower-middle income populations.

A. State Tax Fund Investment Effort

For FY2008 California appropriated about $11.1 billion for the operations of higher education in California. On a state personal income tax base of $1.4 trillion, this produces a state tax fund investment effort of $7.71 per $1000 of state personal income. California ranked 21st among the states in state tax investment effort in higher education. As recently as FY1980 California ranked 11th among the states on this measure, and in FY1994 the state ranked 40th on this same measure.

The FY2008 state investment in higher education is 40.0% below the peak of $12.86 per $1000 of state personal income reached in FY1980. If California had maintained its FY1980 investment effort in FY2008 then instead of appropriating $11.1 billion it would have appropriated $14.2 billion for the operations of higher education, or about $3.2 billion more than it did.3

In addition to state tax fund appropriations, California provides an additional $3.9 billion per year in support of community colleges.13

B. Tuition and Fee Rates

California’s undergraduate tuition and fee rates vary widely, absolutely and relatively compared to rates charged undergraduate students enrolled in public institutions in other states.

At the state’s flagship university campus—UC Berkeley—the tuition and fee charge was $8,385 for FY2008. By comparison the national average undergraduate tuition and fee charge for undergraduates at flagship universities was
The federal Pell Grant program provided grants to 584,559 needy California undergraduate students in FY2006. The State of California provided need-based grants to 200,586 students, or 34.3% of those assisted by the federal Pell Grant program. California ranked 22nd among the states on this measure. Again taxpayers from across the country provided need-based grants to nearly three times as many needy California undergraduates as did the state of California.  

D. Unmet Financial Need of Students

The 2004 National Postsecondary Student Aid Study (NPSAS2004) gathered sufficient data on California undergraduate students such that fair estimates of the adequacy of financial aid to meet the needs of California undergraduate students could be made. Three resource adequacy measures were developed with the available data: (a) unmet financial need, (b) student work-loan burden, and (c) net price to family.

Unmet financial need. Unmet financial need is the difference between costs of attendance and the family and financial aid resources available to students to pay those college attendance costs. In FY2004 2,693,430 California undergraduate students faced a total unmet financial need of $4,640,170,598—or an average of $1,723 each. Of this total $1.9 billion was faced by dependent students and $2.7 billion by independent students. Among dependent students about 85% of the unmet need was faced by students from families with incomes below $40,000. Among independent students about 71% of unmet need was faced by students with incomes below $15,000 per year.
**Student work/loan burden.** Student work/loan burden is the sum of unmet financial need, educational loans and earnings from employment while enrolled in college. In FY2004 2,693,430 California undergraduates faced $7,575,305,725 of student work/loan burden or an average of $2813. Of this total about $3.1 billion was faced by dependent undergraduates and $4.5 billion was faced by independent undergraduate students. About 74% of the student work/loan burden faced by dependent students was faced by those from families with incomes below $40,000. About 93% of the student work/loan burden faced by independent undergraduates was faced by those with incomes below $30,000.15

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**California Need-Based Grant Coverage of Federal Pell Grant Recipients and Dollars 1979 to 2006**

Source: NASSGAP and US Dept of Education
Net price to family. The net price to the family of higher education is cost of attendance less all grants, scholarships, waivers and any other non-repayable student financial aid. For California undergraduates this totaled $20,734,351,595 in FY2004, or an average of $7,698 per student. Dependent students shared $10.8 billion of the total, and independent undergraduates shared $10.0 billion of the total.\textsuperscript{15}

In California as elsewhere the students from the lowest income families face the largest financial barriers to college enrollment. These students are now a majority of the California K-12 student population headed for higher education and eventually the California workforce.

IV. Key Conclusions

California's future is inextricably tied into the Human Capital Economy. The state's economic prosperity, social harmony and political vitality are all dependent on how well educated its adult workforce is now and will be in the future. Exactly the same can be said of every state in the U.S. and also every nation with which the U.S. and California compete in the global Human Capital Economy. States and nations are engaged in a Human Capital arms race whether they know it and are doing something about it or not.

Building prosperous, harmonious and vital state and national futures requires: (a) higher educating native populations and retaining them when they graduate, (b) attracting college graduates educated elsewhere, and (c) supporting the development and success of industries that are growing with college-educated workforces. This is a simple but powerful formula and one used successfully by states and nations everywhere.

California still has some modest advantages over other states and countries in the Human Capital Economy, although these advantages have deteriorated over time. California certainly has formidable challenges that will hold it back from a future several notches short of its potential. To prepare California for the Human Capital Economy the following is suggested for consideration.

Get Real

There is a simply staggering and growing gulf between demographic reality and higher education policy in California.

- On the demographic side the share of California's K-12 students approved for subsidized school lunches has increased from 35.2% in 1989 to 51.5% by 2007, and this share will increase much further and probably rapidly and indefinitely in future years. These students will have zero resources to pay for higher education when they reach college age. But they also represent a growing share of California’s future workforce that must be higher educated for the most valuable work to be done in the Human Capital Economy.
• On the policy side California has reduced its higher education investment effort by 40 percent since FY1980. This means that public colleges and universities have raised tuitions to offset losses in state support. The state has been shifting the costs of operating its universities from state taxpayers to students and their families since 1980. These students from low family income backgrounds face huge financial barriers to California's universities and the state's financial aid efforts fall very far short of meeting student needs.

A growing share of the students that must be higher educated will have no resources of their own to pay any costs of college at all (they will have expected family contributions of zero in financial aid terms) while California has been shifting the costs of university education to such low income students. The evidence that this is not working is unequivocal. College participation rates in California have been dropping since 1996, both for all 19 year olds and for students from low income families. Moreover, California has shifted from being a net importer of undergraduate students to being a net exporter. That indicates young Californians themselves are starting to see the state's problems and adjusting their higher education plans by leaving the state.

Hello? Has California thought this through?

Well, yes, maybe, sort of--California has, but inadequately. California has tried to keep tuition rates low in its state universities and community colleges. California has also made a substantial state investment in need-based grant aid to help financially needy students pay for their higher educations. But this effort is about half of what federal taxpayers provide to help needy undergraduate California students, and only about a third as many are helped by state programs as are helped by the federal Pell Grant program. The data suggests that California cares less about its own low and lower-middle income college students than do taxpayers from the rest of the country.

To say that California's college affordability problem has been effectively addressed by low tuitions and substantial need-based grant programs is contradicted by the California results from the 2004 National Postsecondary Student Aid Study. For dependent undergraduate students from families with incomes below $40,000 per year unmet financial need was about $1.6 billion in 2004. For independent undergraduate students with incomes below $15,000 per year unmet financial need was about $1.9 billion in 2004.

Targeting state investment on needy students through needs-based grant assistance is the economically efficient way to reach students with demonstrated financial need. But in practice this does not work very well. The financial aid system is almost hopelessly complicated even for those who have devoted their professional lives to making it serve students. It is an even more formidable barrier to students from low income families whose parents cannot fathom its myriad forms, terms, due dates, and whose high schools are not always helpful in getting their graduates into college. There remains a strong affordability argument for low tuition.

But institutions need revenues to operate, and those revenues for public institutions either come from the state or from the students they enroll. No sugar daddy bails out public colleges and universities from their financial predicaments. And without adequate funding public universities compromise on class size, competitive faculty compensation, library holdings, laboratory equipment and the myriad of other resources required to higher educate students.

There is no easy answer to the resource requirements for preparing Californians for the Human Capital Economy. Digging deep is one uncomfortable answer. Not digging deep is an alternative with profound long-term consequences which are already evident in California. The answers lie in choices about what kind of future California wants. What does California want to be? If California chooses growth and prosperity then it cannot be achieved without preparing for it, and preparation requires substantial, persistent and focused state investment.
The data cited in this analysis have been compiled by the author from public sources over the last 40 years. The primary federal data sources include the National Center for Education Statistics (NCES), Census Bureau, Bureau of Labor Statistics (BLS), Bureau of Economic Analysis (BEA), Department of Education/Office of Postsecondary Education (ED/OPE) and the Department of Agriculture/Food and Nutrition Service. Other national, regional and state data sources include the Western Interstate Commission for Higher Education (WICHE), the State of Washington Higher Education Coordinating Board, the National Association of State Student Grant and Aid Programs (NASSGAP) and the Grapevine Project at Illinois State University. International data is from the Organization for Economic Cooperation and Development (OECD). The data on private and social benefits of higher education have been compiled from hundreds of separate sources.

Nearly all of the California data have been compiled by the author in 17 Excel spreadsheets in an Excel workbook titled California Higher Education Opportunity Data Book. This workbook is available from the author via e-mail request to tom@postsecondary.org.


2 OECD Indicators: Education at a Glance, 1991 to 2005. (2007) Oskaloosa, IA: Postsecondary Education OPPORTUNITY. (Excel spreadsheet) See also: http://www.oecd.org/document/30/0,3343,en_2649_39263238_39251550_1_1_1_1,00.html


4 http://www.bls.gov/

5 http://www.bea.gov/


7 Analyses by the author.

8 Private Correlates of Educational Attainment. (2007). Oskaloosa, IA: Postsecondary Education OPPORTUNITY. (Excel spreadsheet)


13 http://www.grapevineilstu.edu/


15 California Unmet Financial Need, Student Work/Loan Burden and Net Price to Family for Dependent and Independent Undergraduate Students by Institutional Type/Control and Parental/Family Income, 2004. (2005). Oskaloosa, IA: Postsecondary Education OPPORTUNITY. (Excel spreadsheet)