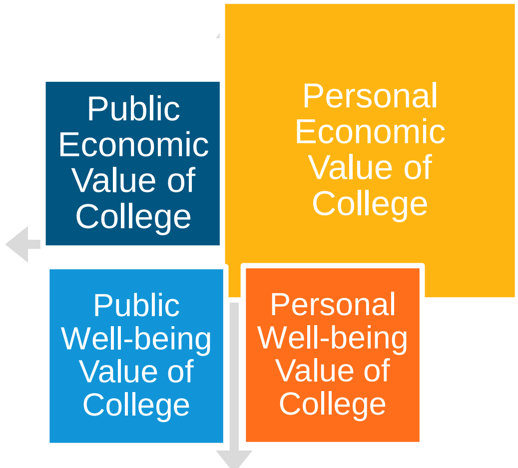
Personal Economic Value of a UC Degree



The **personal economic quadrant** (top right) encompasses outcomes related to the personal (or individual) financial good. A typical example of personal economic value is an individual's post-graduation earnings. The value of an individual earnings might be assessed through *relative measures*, such as comparing ones previous economic standing before college to economic standing after graduation, otherwise known as economic mobility or the expected financial gain post-graduation based on tuition invested, also known as a return on investment or rate of return.

Alternatively, *absolute measures* of earnings may be evaluated through buying power, that's the ability of college degree earners to acquire goods and services of personal importance, examples may be the ability to buy a home or to secure non-salaried compensation through employment like health insurance or retirement benefits.

The following brief examines the *relative* and *absolute* measures of personal economic value of a college degree for UC graduates, and investigates, where possible, differences in outcomes for alumni based on institution type, race, gender and where they started socioeconomically on the economic ladder.

Individual Earnings

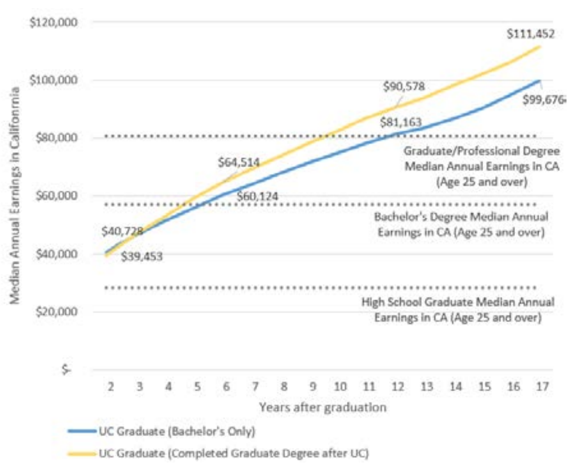
UC graduates earn competitive salaries relative to other Californians and their earning potential increases over time. UC graduates earn about $40K at two years after graduation, $81K by eleven years after graduation and $104K by seventeen years after graduation.

UC Personal Economic Value Highlights:

- UC alumni earn more than other Californians with bachelor's degrees by six years after graduation.
- Lifetime earnings for UC alumni are greater than other college degree earners in California.
- The average rate of return for UC alumni is between 2.2% and 10.6% at five years after graduation.
- On average, a UC graduate breaks even on their educational investment between 4 to 6 years after graduation.
- UC graduates are more likely to receive health care and retirement benefits from their employers than non-graduates.
- In 2015, UC graduates from the entering cohort of 2002 had a homeownership rate of 27%, almost twice that of similarly aged individuals nationally (14%).
- By sixteen years after graduation 53% of UC graduates own homes.

UC graduates earn more than other Californians (age 25 and older) who completed a high school diploma within two years after graduation, more than those who completed a bachelor's degree by six years after graduation and more than other Californians who completed a graduate degree by eleven years after graduation. Figure 1 shows UC graduates earn competitive salaries regardless of whether or not they go on to complete a graduate degree, compared to the median earning of other Californians (aged 25 and older) by education level.

Figure 1. 2016 Median annual earnings of UC graduates by educational attainment, 1999-2014 graduating cohorts

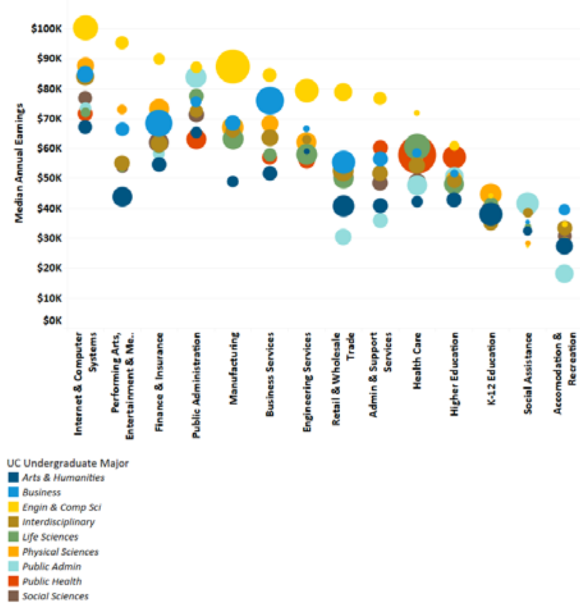


Source: CA Economic Development Department, U.S. Census Bureau, 2016 American Community Survey 5-Year Estimates. CA Median Income (25 and older)

The typical earnings a UC graduate might expect to earn varies by major and industry of work. Figure 2 shows earnings at five years after graduation based on undergraduate major and industry of work. Engineering and computer science majors tend to earn more than other UC alumni, especially Arts & Humanities majors. However, industry of work also affects earnings. UC Alumni working in the Internet & Computer systems industries, tend to earn more regardless of undergraduate major.

Furthermore, alumni working in K-12 education tend to earn less, regardless of undergraduate major.

Figure 2. 2016 Median annual earnings of UC graduates by industry of work for selected majors, five years after graduation, 2000-2011 graduating cohorts



Note: Size of bubble corresponds to percentage of major working within industry.

Lifetime Earnings

UC graduates' high early-career wages translate into high lifetime earnings for alumni in the labor market. Preliminary analysis linking 1970s graduates of two UC campuses to their end-of-career (in their late-50s) earnings in California show median earnings of $97K (Berkeley) and $82K (Santa Cruz), in 2018 dollars.

These wages substantially exceed the nationwide median earnings of $75K among college graduates in the same age cohort, as measured by the 2017 American Community Survey. Median wages for alumni of high-earning majors like physics and computer science are even higher, around $150K at these

Personal Economic Value of a UC Degree

two campuses, which is considerably higher than the median of $100K nationwide or $120K among computer science majors in California.

Nevertheless, at these two campuses even students who earn degrees in less-remunerative fields like Art and Music have median salaries around $70,000, exceeding the median $55,000 earnings among Fine Arts majors nationwide. These data suggest substantial economic benefits of a UC degree over a lifetime, across the spectrum of majors. Note: As data from the other 7 UC campuses becomes available this analysis will be updated.

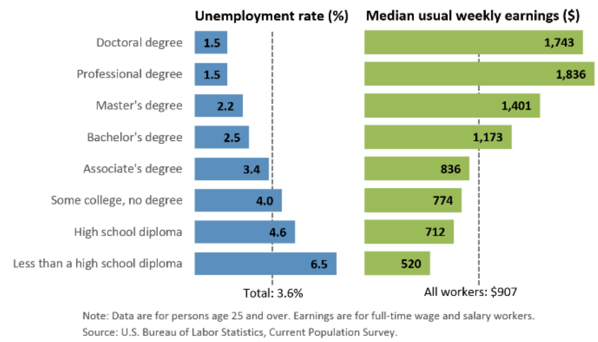
Earnings by Race and Gender

In addition to undergraduate major and industry of work, demographics may also affect individual earning potential. An analysis of differences in earnings by race and gender shows UC female, Latinx and African-American graduates tend to earn less than their male, white and Asian counterparts, even when working in similar industries or graduating with similar majors. These findings are consistent with other studies[1] of college graduates that find evidence of gender and racial pay gaps prevalent in the US workforce.

Economic Mobility

Simply considering individual earnings post-graduation does not account for prior economic standing. Instead, the personal economic value of a college degree might be best showcased by its ability to facilitate economic mobility. Data from the Bureau of Labor statistics consistently show that increased education attainment typically leads to higher earnings and lower levels of unemployment (see figure 3).

Figure 3. Unemployment rates and earning by educational attainment, 2017



However, simply correlating education level with earnings does not address if individuals attending college are more likely to come from well-off families and therefore earn high salaries after graduation because of other factors, such as different social networks.

Instead, it may be more telling to assess whether or not students from low and middle income backgrounds are able to earn high salaries after college.

UC provides access to students of low, middle, and upper income backgrounds. UC enrolls a higher share of lowest income students (1st quintile - bottom 20 percent) than other four year universities and comparable shares of middle and high income students (see figure 4).

UC students from all income quintiles succeed in achieving incomes that surpass their parents, with over 90 percent of the lowest income students, and 50 to 70 percent of middle income students doing so.

[1] Women Can't Win. Georgetown University Center on Education and the Workforce, 2018. The Simple Truth about the Gender Pay Gap. American Association of University Women, 2017.

Personal Economic Value of a UC Degree

Figure 4. Parental income distribution of entry cohorts

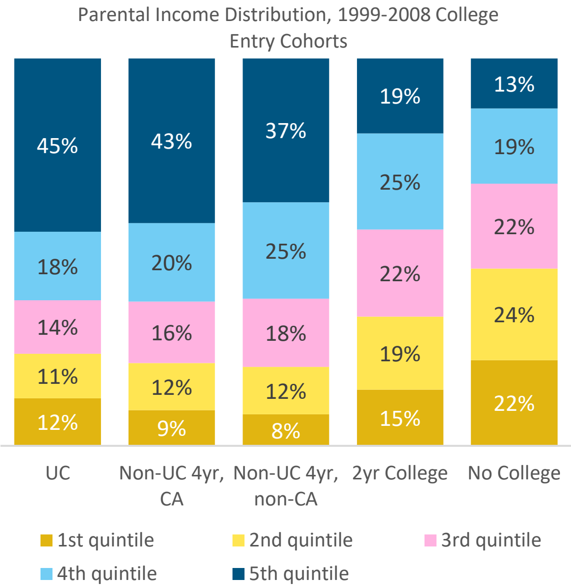
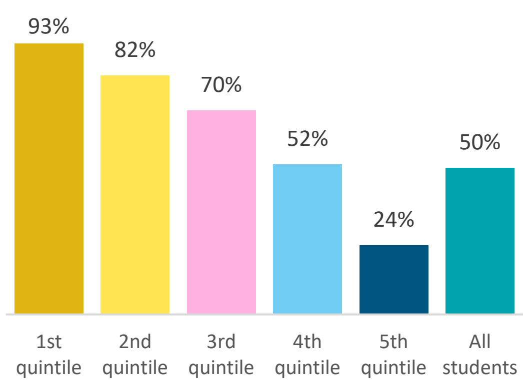
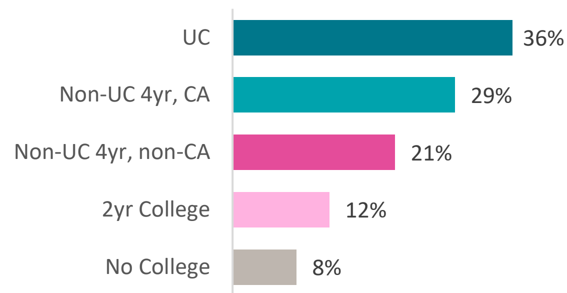


Figure 5. Percentage of UC alumni (who graduated or not) who earn more than their parents, by parental income, 1999-2008 college entry cohorts



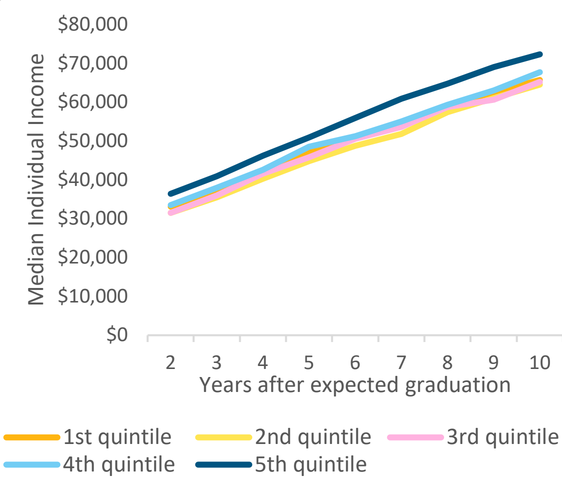
In addition, 36 percent of UC's lowest income students achieve even greater leaps in economic mobility - the percent of UC Alumni from the bottom 20 percent of income who move into the top 20 percent of income as adults is higher than other 4-year universities in California and the nation (see figure 6).

Figure 6. Percentage of lowest income alumni (who graduated or not) moving to the top income quintile by institution type, 1999-2005 college entry cohorts



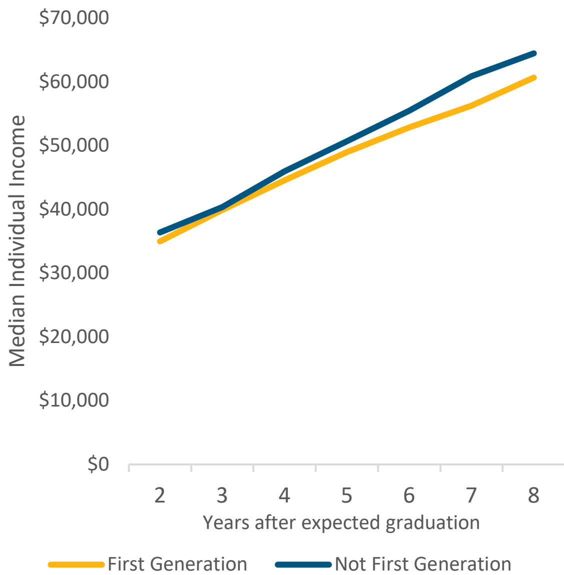
UC low-income and first-generation students have similar post-UC earnings compared to their counterparts (see figures 7 and 8). UC is an equalizer for students who come from the bottom 20 percent of income – that is, they go on to earn as much as students who came from middle-income families (3rd and 4th quintile). Usually, those earnings double within 10 years of graduation.

Figure 7. Median earnings of UC alumni (who graduated or not) by parental income quintile and years after graduation



UC first generation students that complete a degree typically earn about $50,000, at five years after graduation, which is about the same as a UC graduate who had a parent that graduated from college. However, by 8 years after graduation, earnings start to diverge, this may be due to the lower likelihood of first-generation students to attend graduate school.

Figure 8. Median earnings of UC graduates by parental education and years after graduation



In addition to this analysis, The New York Times has also published a series of articles[2] leveraging data produced by The Equality of Opportunity Project – a study that sought to determine which colleges contributed most toward helping their students climb the income ladder. The researchers defined economic mobility as graduates moving over time from a lower rung in the income distribution to a higher one. For children born in 1980, if their family was earning $25,300 or less, that would put them in the bottom one-fifth of the income distribution. At age 34, if the child was earning $57,700 or more, they would be in the top 20% of their peer’s income distribution, indicating upwards mobility.

The researchers defined three key indicators for each university or college:
• Access: The percentage of students at an institution from the bottom 20 percent
• Success Rate: Out of students from the bottom 20 percent as teenagers, the share who ended up in the top 20 percent as adults
• Mobility Rate: The percentage of all students at an institution who started in the bottom 20 percent and ended up in the top 20 percent (i.e., access × success rate)

The study ranked colleges and universities with the highest upward mobility rates (i.e., from the bottom 20 percent to the top 20 percent). Table 1 shows where UC campuses ranked compared to 2200 other colleges.

Table 1. Rank of UC campuses in college Mobility Report Cards, by mobility rate

Rank		Mobility Rate =	Bottom 20% Access x	Bottom 20% to Top 20% Success Rate
12	Irvine	6.8%	12.2%	55.3%
19	Riverside	6.0%	14.7%	41.0%
24	Los Angeles	5.6%	10.2%	54.6%
39	Berkeley	4.9%	8.8%	55.2%
41	San Diego	4.8%	8.8%	55.1%
53	Davis	4.4%	8.6%	51.8%
151	Santa Barbara	3.1%	6.2%	49.5%
205	Santa Cruz	2.8%	7.4%	37.6%

While UC campuses do not make the top ten in mobility rates, most campuses rank in the top 50 and have mobility rates approaching or

2 “Some College Have More Students From the Top 1 Percent Than the Bottom 60. Find Yours.” New York Times, January 18; “America’s Great Working Class Colleges,” January 18; and “California Today” New York Times, January 19.

exceeding five percent and success rates that exceed 50 percent.

In conclusion, UC alumni have higher earnings compared to other similarly educated Californians and experience economic mobility regardless of socioeconomic status of their parents - with higher rates of moving from the bottom to top income quintile after college alumni of other four-year institutions. Still there are associated costs with attending UC, the next section discusses the rate of return for UC alumni, based on the expected cost associated with obtaining a UC degree.

Rate of Return

In 2018-19, the average tuition and fees price at public four-year institutions was 3.5 times what it was in 1988-89[3]. The rising cost of a college degree has pushed many students and their families to think about the financial rate of return for their investment in higher education. The following analysis estimates the financial rate of return is for a four-year college degree from the University of California along with how long it takes for UC graduates to break-even on their investment.

The financial rate of return (or simply, "rate of return") is a commonly used financial metric to estimate the profit of an investment over a specified time period. A higher rate of return indicates greater profits from the investment.

The financial break-even point is another metric to assess personal economic return. The financial break-even point is defined as the time at which profits received equals the costs of the investment. A lower break-even value indicates less time for investor (i.e. student) to pay off the costs associated with the investment (i.e. cost of attending college).

To evaluate rate of return economists use a conceptual framework comprised of two parts; costs and benefits. Within the UC educational context, the cost side might include California resident tuition and fees, books and supplies, and the wages foregone by attending college instead of immediately starting a job after high school. The benefits side would include student financial aid, campus earnings during college years and expected student earnings after graduation (see table 2).

Table 2. Costs and benefits used in rate of return analysis

Timeline	Cost	Benefits
During college years	• Tuition • Books • Wages forgone as a high school graduate	• Financial aid • On-campus earnings
After graduation		• Alumni earnings

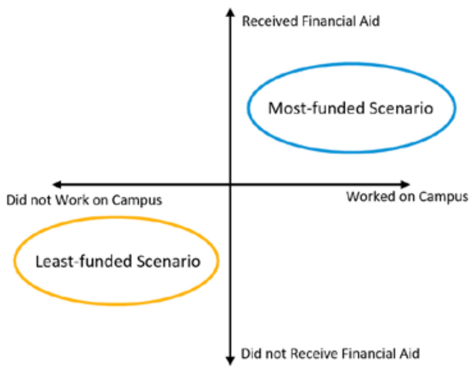
Estimates from this study represent outcomes for a typical UC four-year graduate, which accounts for the majority of UC alumni. Delays in graduation may affect both the rate of return and the break-even point.

Additional factors can influence the rate of return or break-even estimates, such as academic major and financial status of the student. Major along with two financial status scenarios are considered in this analysis. The "most-funded" scenario is defined as students

[3] Trends in College Pricing, 2018.The College Board.

receiving financial aid as well as on-campus employment earnings. Conversely, the "least-funded" scenario assumes no student financial aid and no on-campus employment.

Figure 9. Financial Scenarios

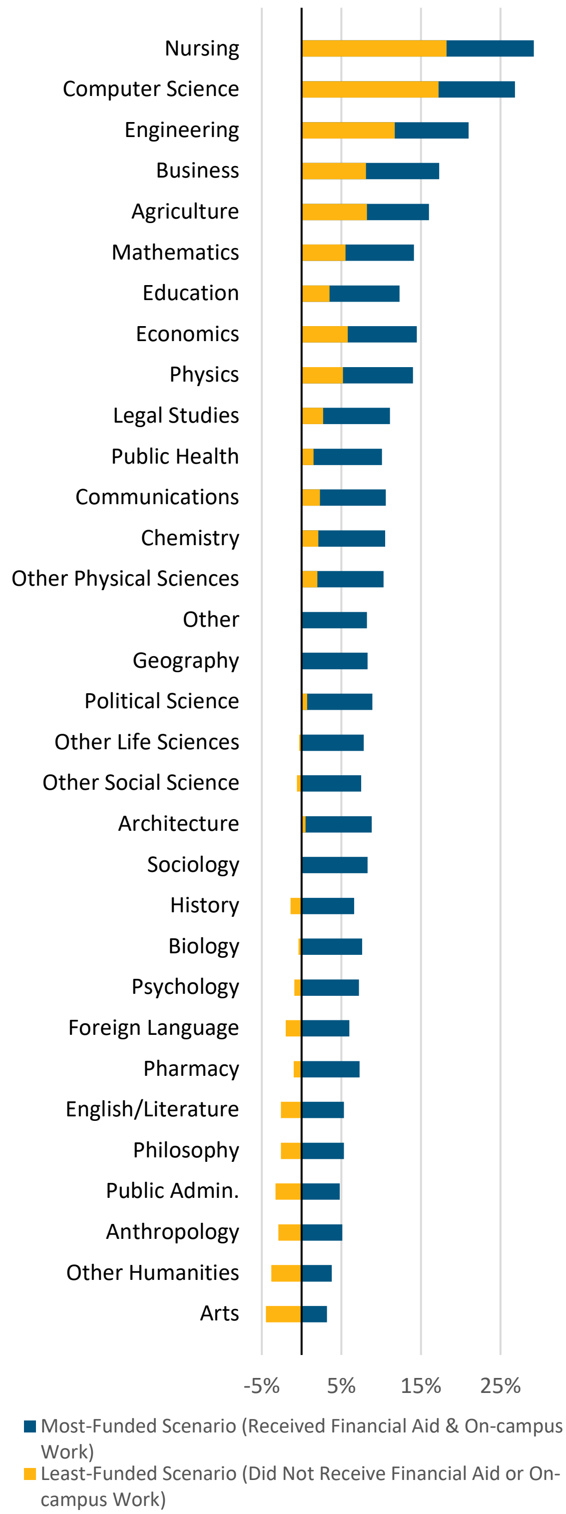


Therefore, an estimate for an average rate of return would be somewhere between the most-funded and least-funded scenarios.

Findings show that under the most-funded scenario, the five-year rate of return after graduation for UC graduates is between 2.2 percent and 10.6 percent. The return is highly associated with academic majors/disciplines (Figure 10). Engineering, Computer Science and Nursing have a higher rate of return at five years after graduation. On the other hand, Arts, Anthropology, and Philosophy are among the list of academic majors with lowest returns.

Conversely students who graduate from UC under the least funded scenario may have slightly negative returns by five years after graduation, depending on major. These returns become positive by ten years after graduation.

Figure 10. The average five-year rate of return by major (2005, 2008 and 2010 graduating cohorts)



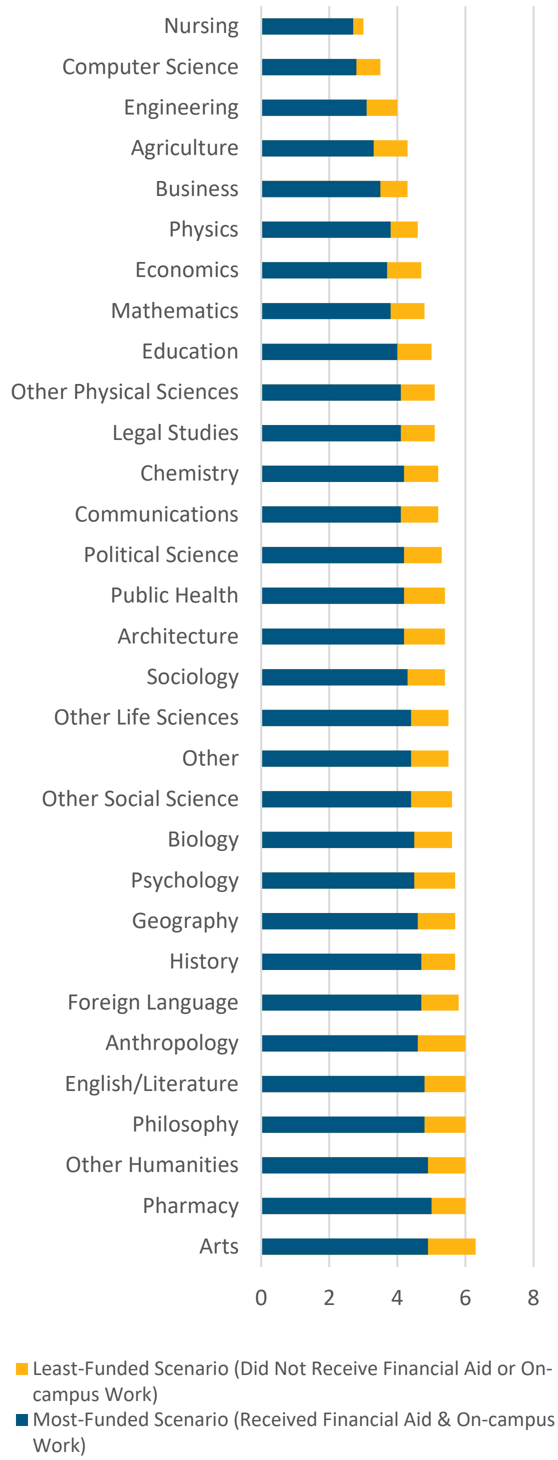
Personal Economic Value of a UC Degree

Regardless of the academic major, UC graduates break-even on their educational investment between four to six years after graduation. Figure 11 shows alumni with the most-funded scenario reached the financial break-even point sooner as compared to UC alumni under the least-funded scenario.

Analyzing the costs of and returns on a college education in financial terms is complicated, the above analyses simplifies the costs and returns associated with a college degree using averages. Other factors that can affect rate of return and breakeven point estimates for UC alumni are student debt and the economy. Two of these variables, such as student debt payments after graduation, could be included in the next iteration of the study.

Nevertheless, this initial analysis gives a general estimate of the expected the rate of return and breakeven points for student entering the University of California system.

Figure 11. Financial beak-even point on a UC degree by academic major (2005, 2008 and 2010 graduating cohorts)



Non-Salary Compensation & Purchasing Power

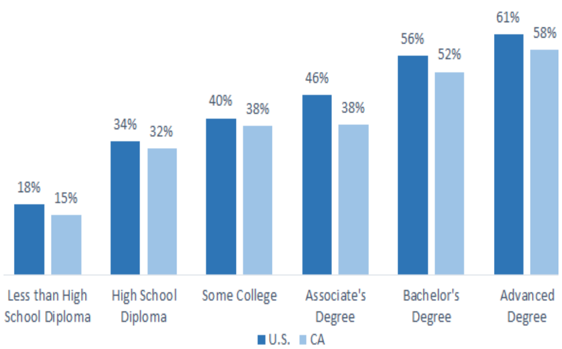
In addition to individual earnings, employed individuals have access to additional financial benefits such as employer subsidized healthcare and retirement contributions. The next section summarizes the non-salary compensation UC alumni receive alongside national comparisons.

Non-Salary Compensation

Non-salary compensation in the form of benefits such as health insurance, tuition reimbursement, sick leave, and/or retirement benefits can represent a significant share of total work compensation. These benefits can also provide valuable context to earnings in assessing the quality of employment outcomes.

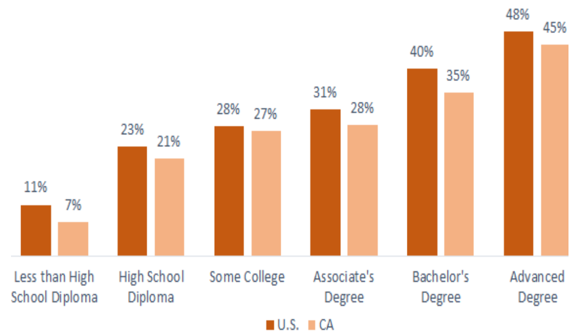
National data suggest as education level increases so does the likelihood of receiving employer supported health insurance and retirement. (see figures 12 and 13).

Figure 12. Health Insurance through employment by educational attainment: US vs. California, 2015



Source: 2016 Social and Economic Supplement of the Current Population Survey, ages 25-39, not enrolled in college in 2015. Responses to if the respondent was a policyholder for group health insurance that was related to current or past employment during the previous calendar year.

Figure 13. Retirement plan through employment, by educational attainment: US vs. California, 2015



Source: 2016 Social and Economic Supplement of the Current Population Survey, ages 25-39, not enrolled in college and worked in 2015. Responses to working during the preceding calendar year whether the respondent's union or employer for his or her longest job during the preceding calendar year had a pension or other retirement plan (not including Social Security) for any of the employees, and, if so, whether the respondent was included in the plan.

For UC graduates, the likelihood of receiving such non-salary compensation is higher or at least comparable to other bachelor degree holders in the U.S. and California (see Figure 14). After about sixteen years of graduation, 56 percent of UC graduates had health insurance and retirement contributions from their employers (compared to 52% and 35% of California Bachelor's degree holders, respectively).

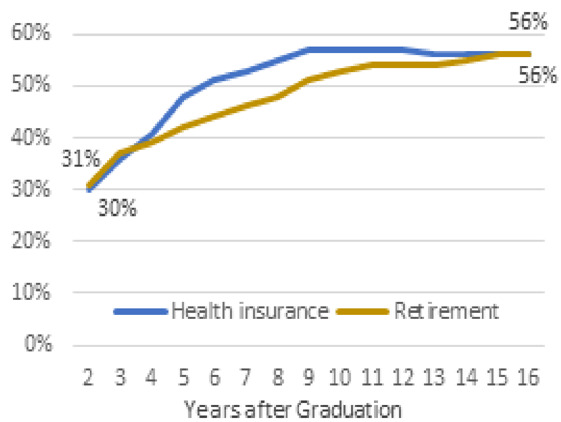
Note: More recent graduates are less likely to receive health insurance and retirement benefits from employer, only about 30 and 31 percent respectively for two years after graduation.

UC graduates have a greater opportunity to assume health care and retirement benefits than UC non-graduates. Figure 15 compares the percentage of UC graduates[4] who had health insurance and retirement contributions from their employer in 2015 with UC non-graduates

[4] This data includes entering cohorts. An average of 5 years to graduate to estimate the years after graduation.

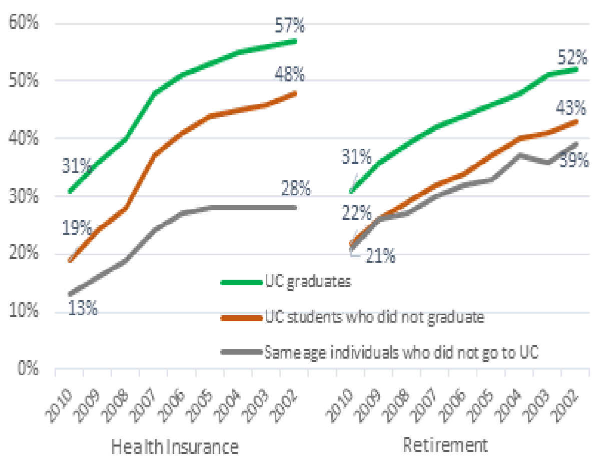
and that of the same birth cohorts in the United States.

Figure 14. Percentage of UC graduates with employer supported non-salary compensation by years after graduation, 2015



Source: CLIMB data

Figure 15. Percentage of alumni with employer supported health insurance and retirement contributions, 2015, by years after graduation, 2002- 2010 college entry cohorts



UC alumni who complete degrees are more likely to receive health and retirement benefits from their employer than UC non-graduates. The percentage of UC bachelors recipients receiving non-salary compensations is around 8-12 percentage points higher than that of those without a UC bachelor's degree. Compared to people of the same age in the U.S., those who attended UC are more likely to receive both types of non-salary compensation, especially health insurance.

In financial terms, UC graduates may expect $2600 in additional non-salary compensation for health insurance per year, the typical employer health insurance contribution for college graduates in California.

UC Pell and first-generation graduates are slightly more likely to have health insurance contributions from their employers than non-Pell and non-first-generation alumni who did not earn a degree from UC. By eight years after graduation, about 50 percent of Pell and first-generation graduates received retirement benefits from work, which is also higher than the California rate of 35% for bachelor's degree holders.

In conclusion, UC alumni are likely to receive non-salary compensation benefits through health insurance contributions and maybe more likely to receive retirement benefits through their employers than other California bachelor's degree holders. The financial impact of these additional compensations contribute to an even greater personal economic value of the UC degree, than earnings alone.

Buying Power

In generations past the idea of achieving the American Dream equates to pulling up ones bootstraps and rising from low income circumstances into a middle class existence. An established presence in the middle class, historically meant having enough purchasing power to own a home and car.

Personal Economic Value of a UC Degree

The next section discusses national trends in home ownership and uses evidence from UC alumni IRS tax returns to determine if UC alumni are achieving this version of the American Dream.

Homeownership

Homeownership bestows significant benefits, both personal and public. Personal benefits include growth in financial equity and personal wealth; greater predictability in housing costs than renting; tax benefits from mortgage interest and property tax deductions; and residential stability. In addition, there are public economic benefits of homeownership which include contributions to the local tax base, civic engagement, and increased educational attainment for children of homeowners.

Data indicate that both nationally and in California, adults aged 25 to 40 who have a college degree own homes at greater rates than individuals in that age range who do not have a college degree (see table 3). Moreover, Californians are less likely to own homes than the greater U.S. Population.

Table 3. Homeownership rates by educational attainment

	Homeownership Rate	
Education level	California	U.S.
No Bachelor's Degree	37%	48%
Bachelor's Degree or higher	46%	60%
Overall	40%	52%

Source: Current Population Survey, 2015.

To assess if UC alumni are able to purchase homes, a proxy for homeownership (claimed mortgage interest deduction on federal taxes) from a new data source[5] was utilized. Data from this analysis shows that UC graduates are almost twice as likely to own homes as all similarly aged individuals nationally. For example, UC graduates from the entering cohort of 2002 had a homeownership rate of 27% in 2015 (eight years after expected graduation) compared to a rate of 14% for all similarly aged individuals nationally.

Data also show that homeownership rates rise with degree completion and time after college graduation. UC graduates are more likely to be homeowners than UC non-graduates (see figure 16). In 2015, 19% of UC graduates owned homes at eight years after graduation and by sixteen years after graduation 53% of UC graduates owned homes (see figure 17).

Figure 16. UC homeownership rates by completions status, 2015

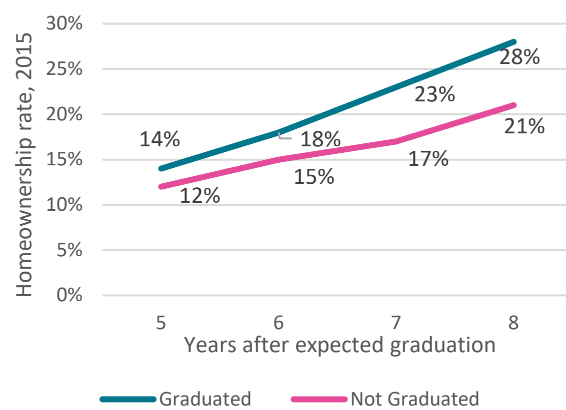
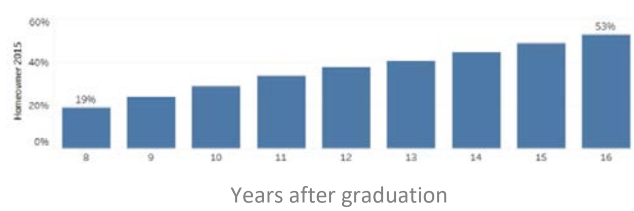


Figure 17. UC alumni homeownership rates by years after graduation, 2000-2008 graduating cohorts



[5] Collegiate Leaders in Increasing Mobility (CLIMB) Initiative of the Equality of Opportunity Project.

Personal Economic Value of a UC Degree

Homeownership rates also vary by race and ethnicity.

Figure 18. UC homeownership rates by race/ethnicity, 2015

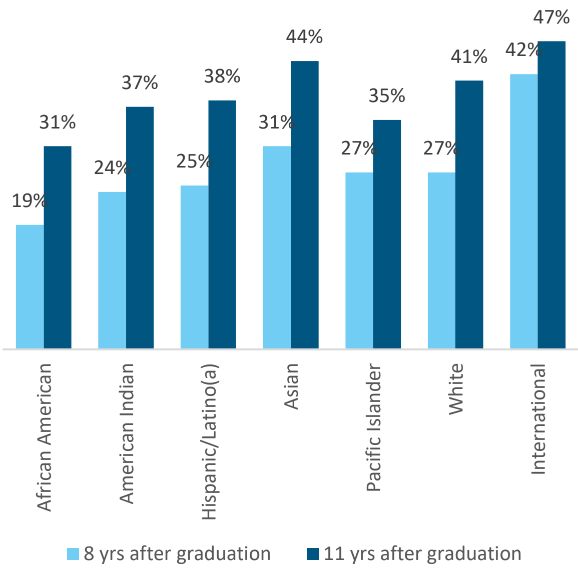
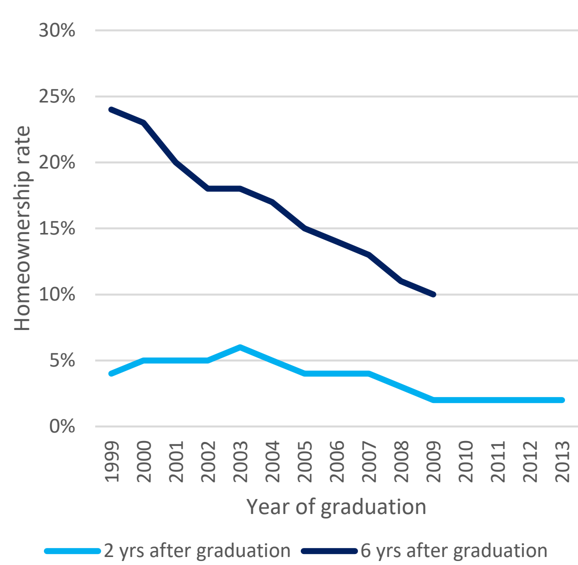


Figure 19. UC Homeownership rates at two and six years after graduation, 1999-2013 graduating cohorts



For example at eleven years after graduation from UC, 31% of UC African American graduates, 38% of UC Hispanics/Latinx graduates, 41% of UC White graduates, and 44% of UC Asian American graduates own homes (see figure 18).

Finally, it is of note that homeownership rates declined between the years of 2005 and 2017 both in the U.S.[6] and amongst UC graduates. For example, 24% of 1999 UC graduates owned a home in 2005 (at six years after graduating), while only 10% of 2009 UC graduates owned a home in 2015 (see figure 19).

Conclusion

In conclusion, UC bachelor's degree recipients can expect personal economic benefits. UC graduates earn competitive salaries compared to other California college degree earners. UC graduates are likely to achieve economic mobility, regardless of parental income. Furthermore, most UC graduates are likely to receive a positive rate of return on their investment in their education within 4 to 6 years after graduation.

UC graduates are also just as likely as other college degree earners to receive non-salary compensation like health insurance and may be more likely to receive retirement plan options through their employers. While homeownership rates are on the decline nationally, UC graduates are more likely than non-graduates to purchase a home.

The personal economic benefits of earning college degree and more specifically a UC degree are generally positive and show evidence attending UC is a good investment.

[6] Quarterly Residential Vacancies and Homeownership First Quarter 2019. U.S. Census Bureau