Pasadena City College

Executive Summary

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The Economic Value of Career and Technical Education at Pasadena City College



Reflects FY 2024-25

Lightcast



PASADENA CITY COLLEGE'S (PCC) Career and Technical Education[1] (CTE) provides courses that integrate technical training and academics to help students develop the knowledge and skills needed for transitioning to career training, post-secondary education, and the workforce. PCC plays a key role in helping CTE students increase their employability and achieve their individual potential. The college CTE draws students to the region, generating new dollars and opportunities for the Pasadena Area Community College District (PACCD).[2] The college's CTE provides students with the training and skills they need to have fulfilling and prosperous careers. Furthermore, PCC is a place for CTE students to meet new people, increase their self-confidence, and promote their overall health and well-being.

PCC's CTE influences both the lives of its students and the regional economy. The college's CTE supports a variety of industries in the PACCD, serves businesses in the region, and benefits society as a whole in California from an expanded economy and improved quality of life. Additionally, the benefits created by PCC's CTE extend to the state and local government through increased tax revenues and public sector savings.

This study measures the economic impacts created by PCC's CTE on the business community and the benefits the college's CTE generates in return for the investments made by its key stakeholder groups—students, taxpayers, and society. The following two analyses are presented:

Economic impact analysis

Investment analysis

All results reflect employee, student, and financial data, provided by the college, for fiscal year (FY) 2024-25.[3] Impacts on the PACCD economy are reported under the economic impact analysis and are measured in terms of added income. The returns on investment to students, taxpayers, and society in California are reported under the investment analysis.



The Pasadena Area Community College District (PACCD), California

PCC's CTE influences both the **lives of its students** and the **regional economy**.

1 Career and Technical Education (CTE) is defined at the course level and includes any courses with a CTE Taxonomy of Program code or courses coded A-C (Apprenticeship, Advanced Occupational, and Clearly Occupational).

2 The PACCD is comprised of the following 16 ZIP codes in Los Angeles County: 91001, 91006 ,91007, 91731, 91011, 91103, 91105, 91101, 91104, 91106, 91107, 91770, 91108, 91024, 91030, and 91780.

3 Where data were unavailable, Lightcast worked with PCC to calculate reasonable estimates.

Economic impact analysis

PCC's CTE promotes economic growth in the PACCD through its direct expenditures and the resulting expenditures of students and businesses in the region. The college serves as an employer and buyer of goods and services for its day-to-day CTE operations. The college's CTE activities attract students from outside the PACCD, whose expenditures benefit regional vendors. In addition, PCC's CTE is an important source of higher education to the PACCD residents and a supplier of trained workers to regional industries, enhancing overall productivity in the regional workforce.

Operations spending impact

PCC's CTE adds economic value to the PACCD as an employer of regional residents and a large-scale buyer of goods and services. In FY 2024-25, the college employed 693 full-time and part-time CTE faculty and staff, 27% of whom lived in the PACCD. Total CTE payroll at PCC was $100.7 million, much of which was spent in the region on groceries, mortgage and rent payments, dining out, and other household expenses. In addition, the college's CTE spent $87.9 million on expenses related to facilities, supplies, and professional services.[4]

PCC's CTE operations spending added **$108.5 million** in income to the region during the analysis year. This figure represents the college's CTE payroll, the multiplier effects generated by the in-region spending towards CTE, and a downward adjustment to account for funding received from regional sources. The $108.5 million in added income is equivalent to supporting **708 jobs** in the region.

Student spending impact

Around 76% of CTE students attending PCC originated from outside the region in FY 2024-25, and some of these students relocated to the PACCD to attend PCC. These students may not have come to the region if the college's CTE did not exist. In addition, some in-region CTE students, referred to as retained students, would have left the PACCD if not for the existence of PCC's CTE. While attending the college, these relocated and retained CTE students spent money on groceries, accommodation, transportation, and other household expenses. This spending generated **$9.3 million** in added income for the regional economy in FY 2024-25, which supported **110 jobs** in the PACCD.

Impacts created by PCC's CTE in FY 2024-25

Operations spending impact
$108.5 million

+

Student spending impact
$9.3 million

+

Alumni impact
$294.3 million

Total economic impact
$412.1 million

OR

Jobs supported
3,676

4 Due to data limitations, the number of faculty and staff and revenue and expenditure data were estimated using a proportion based on CTE credits.

Alumni impact

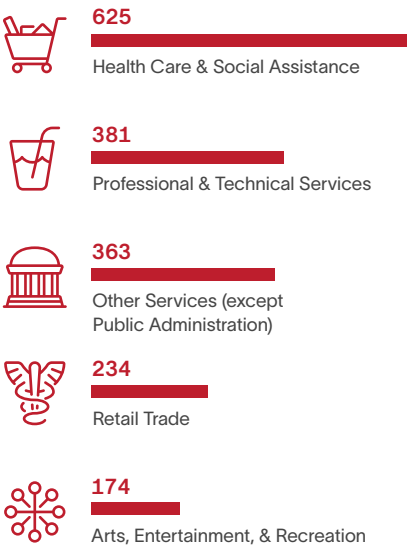
The education and training PCC's CTE provides for regional residents has the greatest impact. Since the establishment, students have studied at PCC's CTE and entered the regional workforce with greater knowledge and new skills. Today, many of PCC's former CTE students are employed in the PACCD. As a result of their education from PCC's CTE, the students receive higher earnings and increase the productivity of the businesses that employ them. In FY 2024-25, PCC's CTE alumni generated **$294.3 million** in added income for the regional economy, which is equivalent to supporting **2,857 jobs**.

Total impact

PCC's CTE added **$412.1 million** in income to the PACCD economy during the analysis year, equal to the sum of the operations spending impact, the student spending impact, and the alumni impact. For context, the $412.1 million impact was equal to approximately **1.0%** of the total gross regional product (GRP) of the PACCD. This contribution that the college provided on its own is as large as one-third of the entire Arts, Entertainment, & Recreation industry in the region.

PCC's CTE total impact can also be expressed in terms of jobs supported. The $412.1 million impact supported **3,676 regional jobs**, using the jobs-to-sales ratios specific to each industry in the region. This means that one out of every 91 jobs in the PACCD is supported by the activities of PCC's CTE and its students. In addition, the $412.1 million, or 3,676 supported jobs, stemmed from different industry sectors. For instance, among non-education industry sectors, the spending of PCC's CTE and its students and the activities of its alumni in the Health Care & Social Assistance industry sector supported 625 jobs in FY 2024-25. If the college's CTE did not exist, these impacts would not have been generated in the PACCD.

PCC's CTE impact by industry (jobs supported)



One out of every 91 jobs in the PACCD is supported by the activities of PCC's CTE and its students.

Investment analysis

An investment analysis evaluates the costs associated with a proposed venture against its expected benefits. The analysis presented here evaluates PCC's CTE as an investment from the perspectives of students, taxpayers, and society in California. As with the economic impact analysis, this analysis considers only FY 2024-25 activities.

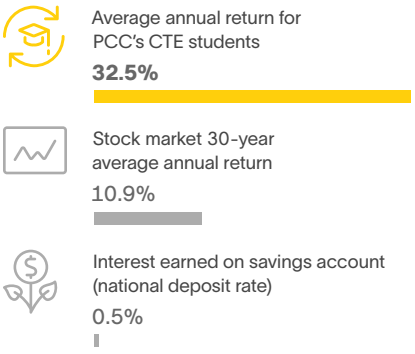
Student perspective

In FY 2024-25, PCC served 13,758 CTE students. CTE students paid for tuition, fees, books, and supplies. They also took out loans and will incur interest on those loans. Additionally, students gave up money they would have otherwise earned had they been working instead of attending college. The total investment made by PCC's CTE students in FY 2024-25 amounted to a present value of $50.0 million, equal to $17.6 million in out-of-pocket expenses (including future principal and interest on student loans) and $32.3 million in forgone time and money.

In return for their investment, PCC's CTE students will receive a stream of higher future earnings that will continue to grow throughout their working lives. For example, the average CTE associate degree graduate from PCC in FY 2024-25 will see annual earnings that are $13,600 higher than a person with a high school diploma or equivalent working in California.[5] Over a working lifetime, the benefits of an associate degree over a high school diploma will amount to an undiscounted value of $557,600 in higher earnings per graduate. The present value of the cumulative higher future earnings that PCC's FY 2024-25 CTE students will receive over their working careers is $594.4 million.

The CTE students' benefit-cost ratio is 11.9. In other words, for every dollar CTE students invest in PCC in the form of out-of-pocket expenses and forgone time and money, they will receive a cumulative value of $11.90 in higher future earnings. Annually, the CTE students' investment in PCC has an average annual internal rate of return of

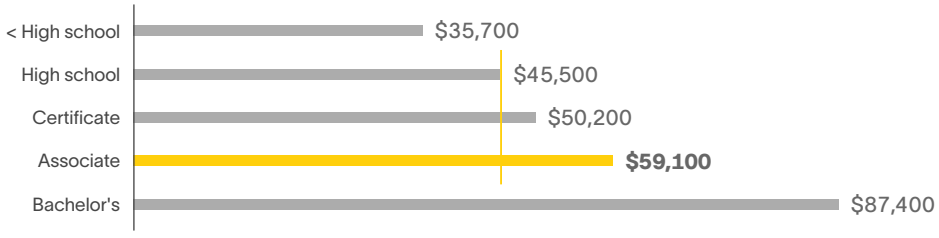
CTE students see a high rate of return for their investment in PCC



Source: Forbes' S&P 500, 1994-2025; FDIC.gov, January 2024

Average earnings by education level at career midpoint

The average CTE associate degree graduate from PCC will see an increase in earnings of **$13,600** each year compared to a person with a high school diploma or equivalent working in California.



Source: Lightcast employment data

5 Note earnings at all award levels are weighted by the demographic profile of PCC's CTE students.

32.5%, which is impressive compared to the U.S. stock market's 30-year average rate of return of 10.9%.

Taxpayer perspective

PCC's CTE generates more in tax revenue than it receives. These benefits to taxpayers consist primarily of taxes that the state and local government will collect from the added revenue created in the state. As PCC's CTE students will earn more, they will make higher tax payments throughout their working lives. Students' employers will also make higher tax payments as they increase their output and purchases of goods and services. By the end of the FY 2024-25 CTE students' working lives, the state and local government will have collected a present value of $238.1 million in added taxes.

Benefits to taxpayers will also consist of savings generated by the improved lifestyles of PCC's CTE students and the corresponding reduced government services. Education is statistically correlated with a variety of lifestyle changes. The education that PCC's CTE students receive will generate savings in three main categories: 1) health care, 2) justice system, and 3) income assistance. Improved health will lower students' demand for national health care services. In addition, costs related to the justice system will decrease. PCC's CTE students will be more employable, so their reduced demand for income assistance such as welfare and unemployment benefits will benefit taxpayers. Altogether, the present value of the benefits associated with an education from PCC's CTE will generate $32.6 million in savings to state and local taxpayers.

For every dollar of public money invested in PCC's CTE, taxpayers will receive a cumulative value of **$1.80** over the course of the students' working lives.

Total taxpayer benefits amount to $270.7 million, the present value sum of the added tax revenue and public sector savings. Taxpayer costs are $147.8 million, equal to the amount of state and local government funding PCC's CTE received in FY 2024-25.[6] These benefits and costs yield a benefit-cost ratio of 1.8. This means that for every dollar of public money invested in PCC's CTE in FY 2024-25, taxpayers will receive a cumulative present value of $1.80 over the course of the students' working lives. The average annual internal rate of return for taxpayers is 4.1%, which compares favorably to other long-term investments in the public sector.



Social perspective

Society as a whole in California benefits from the presence of PCC's CTE in two major ways. Primarily, society benefits from an increased economic base in the state. This is attributed to the added income from CTE students' increased lifetime earnings (added student income) and increased business output (added business income), which raise economic prosperity in California.

Benefits to society also consist of the savings generated by the improved lifestyles of PCC's CTE students. As discussed in the previous section, education is statistically

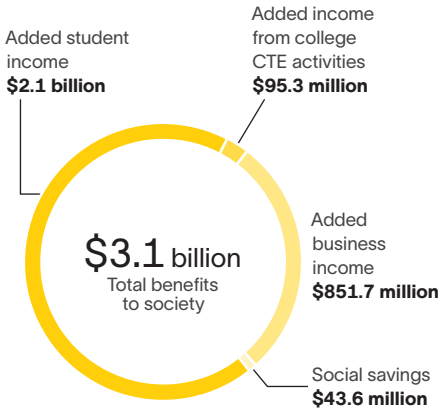
6 Due to data limitations, costs were estimated using a proportion based on CTE credits.

correlated with a variety of lifestyle changes that generate social savings. Note that these costs are avoided by the consumers but are distinct from the costs avoided by the taxpayers outlined above. Health care savings include avoided medical costs associated with smoking, obesity, substance abuse, and depression. Justice system savings include avoided costs to the government and society due to less judicial activity. Income assistance savings include reduced welfare and unemployment claims.

Altogether, the social benefits of PCC's CTE equal a present value of $3.1 billion. These benefits include $2.1 billion in added student income, $851.7 million in added business income, $95.3 million in added income from college CTE activities, as well as $43.6 million in social savings related to health, the justice system, and income assistance in California. People in California invested a present value total of $231.2 million in PCC's CTE in FY 2024-25. The cost includes all the college's CTE expenditures and student costs.

The benefit-cost ratio for society is 13.4, equal to the $3.1 billion in benefits divided by the $231.2 million in costs. In other words, for every dollar invested in PCC's CTE, people in California will receive a cumulative value of $13.40 in benefits. The benefits of this investment will occur for as long as PCC's FY 2024-25 CTE students remain employed in the state workforce.

Social benefits in California from PCC's CTE



Source: Lightcast impact model

Summary of investment analysis results

The results of the analysis demonstrate that PCC's CTE is a strong investment for all three major stakeholder groups—students, taxpayers, and society. As shown, CTE students receive a great return for their investments in an education from PCC. At the same time, taxpayers' investment in PCC's CTE returns more to government budgets than it costs and creates a wide range of social benefits throughout California.

Summary of investment analysis results

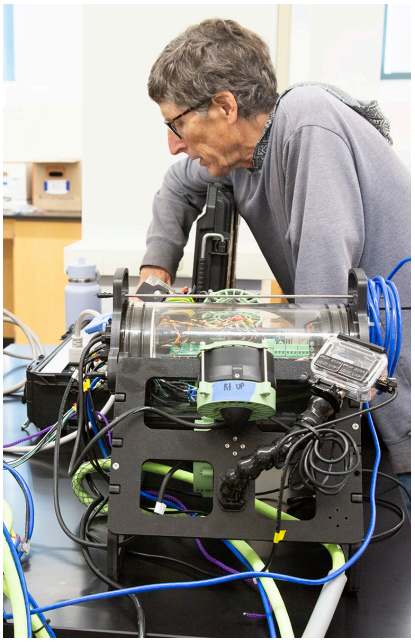
Student perspective		Taxpayer perspective		Social perspective	
Present value benefits	$594.4 million	Present value benefits	$270.7 million	Present value benefits	$3.1 billion
Present value costs	$50.0 million	Present value costs	$147.8 million	Present value costs	$0.2 billion
Net present value	$544.5 million	Net present value	$122.9 million	Net present value	$2.9 billion
Benefit-cost ratio	11.9	Benefit-cost ratio	1.8	Benefit-cost ratio	13.4
Rate of return	32.5%	Rate of return	4.1%	Rate of return	n/a*

* The rate of return is not reported for the social perspective because the beneficiaries are not necessarily the same as the original investors.

Conclusion

*The results of this study demonstrate that PCC's CTE creates value from **multiple perspectives**.*

The college's CTE benefits businesses in the region by increasing consumer spending in the region and supplying a steady flow of qualified, trained workers to the workforce. PCC's CTE enriches the lives of students by raising their lifetime earnings and helping them achieve their individual potential. The college's CTE benefits state and local taxpayers through increased tax receipts and a reduced demand for government-supported social services. Finally, PCC's CTE benefits society as a whole in California by creating a more prosperous economy and generating a variety of savings through the improved lifestyles of students.



About the study

Data and assumptions used in the study are based on several sources, including the FY 2024-25 academic and financial reports from PCC, industry and employment data from the U.S. Bureau of Labor Statistics and U.S. Census Bureau, outputs of Lightcast's Multi-Regional Social Accounting Matrix model, and a variety of studies and surveys relating education to social behavior. The study applies a conservative methodology and follows standard practice using only the most recognized indicators of economic impact and investment effectiveness.

Lightcast

Lightcast provides colleges and universities with labor market data that help create better outcomes for students, businesses, and communities. Our data, which cover more than 99% of the U.S. workforce, are compiled from a wide variety of government sources, job postings, and online profiles and résumés. Hundreds of institutions use Lightcast to align programs with regional needs, drive enrollment, connect students with in-demand careers, track their alumni's employment outcomes, and demonstrate their institution's economic impact on their region. Visit lightcast.io/solutions/education to learn more or connect with us.