



The Economic Value of Northern Colorado's Public Colleges and Universities

EXECUTIVE SUMMARY



NORTHERN Colorado's Public Colleges and Universities* (NoCoPCU) create value in many ways. The institutions are major employers in the region, and play a key role in helping students increase their employability and achieve their individual potential. The institutions facilitate new research and company developments and also draw visitors and students to the region, generating new dollars and opportunities for Larimer and Weld Counties. The institutions provide students with the education, training, and skills they need to have fulfilling and prosperous careers. Furthermore, the institutions are places for students to meet new people, increase their self-confidence, and promote their overall health and well-being.

The value of NoCoPCU influences both the lives of students and the regional economy. The institutions support a variety of industries in Larimer and Weld Counties, serve regional businesses, and benefit society as a whole in Colorado from an expanded economy and improved quality of life. The benefits created by NoCoPCU even extend to the state and local government through increased tax revenues and public sector savings.

This study measures the economic impacts created by NoCoPCU on the business community and the benefits the institutions generate in return for the investments made by their 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 institutions, for fiscal year (FY) 2017-18. Impacts on the Larimer and Weld 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 Colorado are reported under the investment analysis.

* Northern Colorado's Public Colleges and Universities include Aims Community College, Colorado State University, Front Range Community College's Larimer Campus, and the University of Northern Colorado.

*The value of NoCoPCU influences both the **lives of students** and the **regional economy**.*



Economic impact analysis

IMPACTS CREATED BY
NOCOPCU IN FY 2017-18

NoCoPCU promotes economic growth in Larimer and Weld Counties through the institutions' direct expenditures and the resulting expenditures of visitors, students, and regional businesses. The institutions serve as employers and buyers of goods and services for their day-to-day, research, and construction operations. Numerous start-up and spin-off companies have formed as a result of programs and knowledge at NoCoPCU. The institutions' reputation and activities attract visitors and students from outside Larimer and Weld Counties, whose expenditures benefit regional vendors. In addition, the institutions are primary sources of higher education to Larimer and Weld residents and suppliers of trained workers to regional industries, enhancing overall productivity in the regional workforce.

Operations Spending Impact



The institutions add economic value to Larimer and Weld Counties as employers of regional residents and large-scale buyers of goods and services. In FY 2017-18, the institutions employed 9,508 full-time and part-time faculty and staff (not including research employees), 84% of whom lived in Larimer and Weld Counties. Total payroll and benefits amounted to \$1.1 billion (excluding payroll from research employees), much of which was spent in the region for groceries, mortgage and rent payments, dining out, and other household expenses. In addition, the institutions spent \$262.7 million on day-to-day expenses related to facilities, supplies, and professional services (excluding research expenditures).

NoCoPCU's day-to-day operations spending added \$1.1 billion in income to the region during the analysis year. This figure represents the institutions' payroll, the multiplier effects generated by the in-region spending of the institutions and their employees, and a downward adjustment to account for funding that the institutions received from regional sources. The \$1.1 billion in added income is equivalent to supporting 11,262 jobs in the region.

Research Spending Impact



Research activities impact the economy by employing people and requiring the purchase of equipment and other supplies and services. In FY 2017-18, NoCoPCU spent \$146.5 million on payroll to support research activities. This, along with \$233.5 million in other research spending, created a net total of \$299 million in added income for the regional economy. This added income is equivalent to supporting 3,931 jobs.



\$1.1 billion
Operations Spending Impact



\$299 million
Research Spending Impact



\$126 million
Construction Spending Impact



\$227.9 million
Start-up & Spin-off Company Impact



\$3.2 million
Visitor Spending Impact



\$147.9 million
Student Spending Impact



\$2 billion
Alumni Impact



\$3.9 billion
TOTAL IMPACT

- OR -

50,668
JOBS SUPPORTED

Construction Spending Impact



NoCoPCU commissioned contractors to build or renovate facilities in FY 2017-18. The quick infusion of income and jobs that occurred in the regional economy as a result of this construction spending is considered short-term due to the one-time nature of such projects. Nonetheless, the institutions' construction spending had a substantial impact on the regional economy in FY 2017-18, equal to \$126 million in added income and equivalent to supporting 1,882 jobs.

Start-up and Spin-off Company Impact



The institutions create exceptional environments that foster innovation and entrepreneurship, evidenced by the number of start-up and spin-off companies related to NoCoPCU that have been created in the region. Start-up companies, created specifically to license and commercialize institutions' technology or knowledge, have strong and clearly defined links to NoCoPCU. Spin-off companies, created and fostered through institutions' programs or faculty and alumni, have clear but weaker links to NoCoPCU.

In FY 2017-18, NoCoPCU start-up and spin-off companies added \$227.9 million in income to the Larimer and Weld economy, which is equivalent to supporting 901 jobs. Of this added income, \$204.2 million was due to the start-up companies, with the remainder due to spin-off companies.

Visitor Spending Impact



Thousands of visitors from outside the region were attracted to the institutions during the analysis year to attend commencement, sports events, and other activities. While in the region, visitors spent money for lodging, food, transportation, and other personal expenses. The off-campus expenditures of the institutions' out-of-region visitors generated a net impact of \$3.2 million in added income for the regional economy in FY 2017-18. This \$3.2 million in added income is equivalent to supporting 74 jobs.

Student Spending impact



Around 35% of credit students attending NoCoPCU originated from outside the region in FY 2017-18, and some of these students relocated to Larimer and Weld Counties to attend the institutions. These students may not have come to the region if the institutions did not exist. In addition, some in-region students, referred to as retained students, would have left Larimer and Weld Counties if not for the existence of NoCoPCU. While attending the institutions, these relocated and retained students spent money on groceries, accommodation, transportation, and other household



expenses. This spending generated \$147.9 million in added income for the regional economy in FY 2017-18, which supported 3,532 jobs in Larimer and Weld Counties.

Alumni Impact



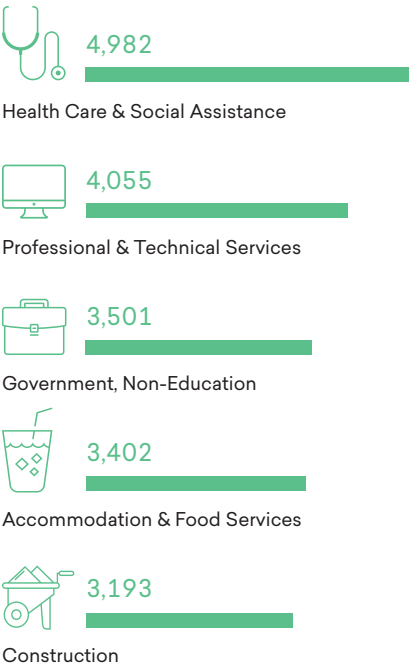
The education and training the institutions provide for regional residents has the greatest impact. Since the institutions were established, students have studied at the institutions and entered the regional workforce with greater knowledge and new skills. Today, hundreds of thousands of former NoCoPCU students are employed in Larimer and Weld Counties. As a result of their NoCoPCU educations, the students receive higher earnings and increase the productivity of the businesses that employ them. In FY 2017-18, NoCoPCU alumni generated \$2 billion in added income for the regional economy, which is equivalent to supporting 28,868 jobs.

Total Impact

NoCoPCU added \$3.9 billion in income to the Larimer and Weld economy during the analysis year, equal to the sum of operations, research, and construction spending impacts, the start-up and spin-off company impact, the visitor and student spending impacts, and the alumni impact. For context, the \$3.9 billion impact was equal to approximately 11.9% of the total gross regional product (GRP) of Larimer and Weld Counties. This contribution that the institutions provided on their own was more than twice as large as the entire Retail Trade industry in the region.

NoCoPCU's total impact can also be expressed in terms of jobs supported. The \$3.9 billion impact supported 50,668 regional jobs, using the jobs-to-sales ratios specific to each industry in the region. This means that one out of every eight jobs in Larimer and Weld Counties is supported by the activities of the institutions and their students. In addition, the \$3.9 billion, or 50,668 supported jobs, stemmed from different industry sectors. Among non-education industry sectors, NoCoPCU spending and alumni in the Health Care & Social Assistance industry sector supported 4,982 jobs in FY 2017-18. These are impacts that would not have been generated without the institutions' presence in Larimer and Weld Counties.

NOCOPCU IMPACTS BY INDUSTRY (JOBS SUPPORTED)



One out of every eight jobs in Larimer and Weld Counties is supported by the activities of the institutions and their students.



Investment Analysis

An investment analysis evaluates the costs associated with a proposed venture against its expected benefits. If the benefits outweigh the costs, then the investment is financially worthwhile. The analysis presented here considers NoCoPCU as an investment from the perspectives of students, taxpayers, and society in Colorado.

Student perspective



In FY 2017-18, NoCoPCU served 74,026 credit and 4,927 non-credit students. In order to attend the institutions, the 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 NoCoPCU students in FY 2017-18 amounted to a present value of \$1.1 billion, equal to \$641.5 million in out-of-pocket expenses (including future principal and interest on student loans) and \$495.8 million in forgone time and money.

In return for their investment, NoCoPCU students will receive a stream of higher future earnings that will continue to grow throughout their working lives. For example, the average NoCoPCU bachelor's degree graduate from FY 2017-18 will see an increase in earnings of \$22,100 each year compared to a person with a high school diploma or equivalent working in Colorado. Over a working lifetime, the benefits of the bachelor's degree over a high school diploma will amount to an undiscounted value of \$950.3 thousand in higher earnings per graduate. The present value of the cumulative higher future earnings that NoCoPCU's FY 2017-18 students will receive over their working careers is \$3.6 billion.

STUDENTS SEE A HIGH
RATE OF RETURN FOR THEIR
INVESTMENT IN NOCOPCU



12.3%

Average annual return for
NoCoPCU students



9.9%

Stock market 30-year
average annual return

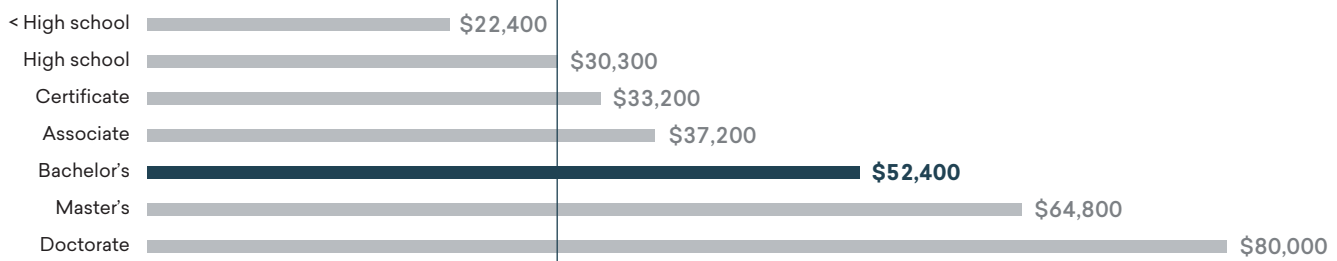


0.8%

Interest earned on savings account
(National Rate Cap)

Source: Forbes' S&P 500, 1989-2018. FDIC.gov, 6-2019.

The average bachelor's degree graduate from NoCoPCU will see an increase in earnings of **\$22,100** each year compared to a person with a high school diploma or equivalent working in Colorado.



Source: Emsi employment data.

The students' benefit-cost ratio is 3.2. In other words, for every dollar students invest in an education at NoCoPCU, in the form of out-of-pocket expenses and forgone time and money, they will receive a cumulative value of \$3.20 in higher future earnings. Annually, the students' investment in NoCoPCU has an average annual internal rate of return of 12.3%, which is impressive compared to the U.S. stock market's 30-year average rate of return of 9.9%.

Taxpayer perspective



NoCoPCU generates more in tax revenue than the institutions take. 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 NoCoPCU 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 2017-18 students' working lives, the state and local government will have collected a present value of \$1 billion in added taxes.

Benefits to taxpayers will also consist of savings generated by the improved lifestyles of NoCoPCU students and the corresponding reduced government services. Education is statistically correlated with a variety of lifestyle changes. Students' NoCoPCU education will generate savings in three main categories: 1) healthcare, 2) crime, and 3) income assistance. Improved health will lower students' demand for national health care services. In addition, students will less likely to interact with the criminal justice system, resulting in a reduced demand for law enforcement and victim costs. NoCoPCU students will be more employable, so their reduced demand for income assistance such as welfare and unemployment benefits will benefit taxpayers. For a list of study references, contact one of the institutions for a copy of the main report. Altogether, the present value of the benefits associated with a NoCoPCU education will generate \$236.1 million in savings to state and local taxpayers.

Total taxpayer benefits amount to \$1.2 billion, the present value sum of the added taxes and public sector savings. Taxpayer costs are \$307.2 million, equal to the amount of state and local government funding NoCoPCU received in FY 2017-18. These benefits and costs yield a benefit-cost ratio of 4.0. This means that for every dollar of public money invested in NoCoPCU in FY 2017-18, taxpayers will

*For every dollar of public money invested in NoCoPCU, taxpayers will receive a cumulative value of **\$4.00** over the course of the students' working lives.*



STUDENT PERSPECTIVE

\$3.6 billion
Present value benefits

\$1.1 billion
Present value costs

\$2.5 billion
Net present value

Benefit-cost Ratio	Rate of Return
3.2	12.3%



TAXPAYER PERSPECTIVE

\$1.2 billion
Present value benefits

\$307.2 million
Present value costs

\$934.5 million
Net present value

Benefit-cost Ratio	Rate of Return
4.0	14.1%



SOCIAL PERSPECTIVE

\$13.1 billion
Present value benefits

\$2.5 billion
Present value costs

\$10.6 billion
Net present value

Benefit-cost Ratio	Rate of Return
5.2	n/a*

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

receive a cumulative value of \$4.00 over the course of the students' working lives. The average annual internal rate of return for taxpayers is 14.1%, which compares favorably to other long-term investments in the public and private sectors.

Social perspective



Society as a whole in Colorado benefits from the presence of NoCoPCU in two major ways. Primarily, society benefits from an increased economic base in the state. This is attributed to higher student earnings and increased business output, which raise economic prosperity in Colorado.

Benefits to society also consist of the savings generated by the improved lifestyles of NoCoPCU students. As discussed in the previous section, education is statistically 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. Healthcare savings include avoided medical costs associated with smoking, alcohol dependence, obesity, drug abuse, and depression. Savings related to crime include reduced security expenditures and insurance administration, lower victim costs, and reduced expenditures by the criminal justice system. Income assistance savings include reduced welfare and unemployment claims. For a list of study references, contact one of the institutions for a copy of the main report.

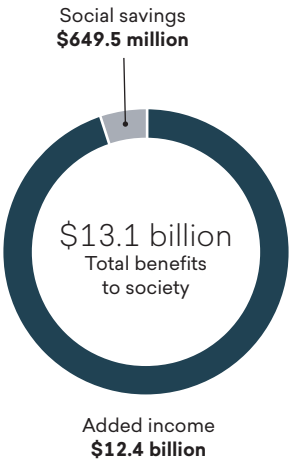
Altogether, the social benefits from NoCoPCU equal a present value of \$13.1 billion. These benefits include \$12.4 billion in added income through students' increased lifetime earnings and increased business output, as well as \$649.5 million in social savings related to health, crime, and income assistance in Colorado. People in Colorado invested a present value total of \$2.5 billion in NoCoPCU in FY 2017-18. The cost includes all the institutions' expenditures and student costs.

The benefit-cost ratio for society is 5.2, equal to the \$13.1 billion in benefits divided by the \$2.5 billion in costs. In other words, for every dollar invested in NoCoPCU, people in Colorado will receive a cumulative value of \$5.20 in benefits. The benefits of this investment will occur for as long as NoCoPCU's FY 2017-18 students remain employed in the state workforce.

Summary of investment analysis results

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

SOCIAL BENEFITS IN COLORADO FROM NOCOPCU



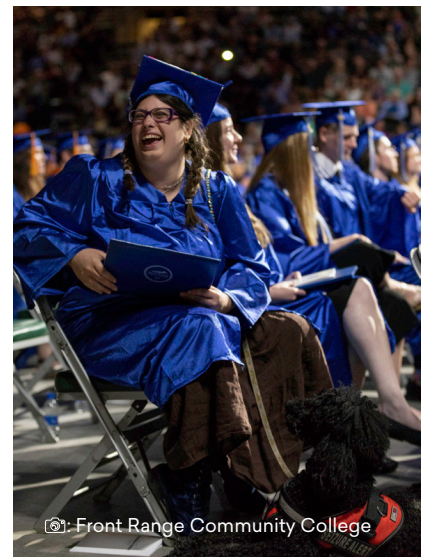
Conclusion

The results of this study demonstrate that NoCoPCU creates value from multiple perspectives. The institutions benefit regional businesses by increasing consumer spending in the region and supplying a steady flow of qualified, trained workers to the workforce. They enrich the lives of students by raising their lifetime earnings and helping them achieve their individual potential. The institutions benefit state and local taxpayers through increased tax receipts and a reduced demand for government-supported social services. Finally, the institutions benefit society as a whole in Colorado 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 2017-18 academic and financial reports from the institutions, industry and employment data from the U.S. Bureau of Labor Statistics and U.S. Census Bureau, outputs of Emsi'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. For a full description of the data and approach used in the study, please contact one of the institutions for a copy of the main report.

The results of this study demonstrate that NoCoPCU creates value from multiple perspectives.



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