



# Analysis of the Economic Impact and Return on Investment of Education

THE ECONOMIC VALUE OF OREGON'S COMMUNITY COLLEGES

July 2017

A photograph of three people in a greenhouse. On the left, a man in a light green shirt holds up a clear plastic jar containing a plant. In the center, a man with a beard in a white t-shirt looks on. On the right, a woman with red hair and glasses in a plaid shirt looks towards the man with the jar. The foreground is filled with rows of similar jars, each containing a small plant. The background shows the metal structure of the greenhouse and hanging pots of plants.

## EXECUTIVE SUMMARY

## Executive summary

Oregon's Community Colleges create value in many ways. The colleges play a key role in helping students increase their employability and achieve their individual potential. They provide students with the skills they need to have fulfilling and prosperous careers. Further, they supply an environment for students to meet new people, increase their self-confidence, and promote their overall health and well-being.

The value of Oregon's Community Colleges influences both the lives of students and also the state economy. The colleges serve a range of industries in Oregon, support local businesses, and benefit society as a whole in Oregon from an expanded economy and improved quality of life. The benefits created by the colleges even extend to the state and local government through increased tax revenues and public sector savings.

The purpose of this study is to investigate the economic impacts created by the colleges on the business community and the benefits that the colleges generate in return for the investments made by its key stakeholder groups—stu-

dents, taxpayers, and society. The colleges serve the state of Oregon. The following two analyses are presented:

- **Economic impact analysis**
- **Investment analysis**

All results reflect student and financial data for Fiscal Year (FY) 2015-16. Impacts on the state business community are reported under the economic impact analysis. Results are measured in terms of added income. The return on investment to students, taxpayers, and society are reported under the investment analysis. Both analyses are described more fully in the following sections.



# Economic impact analysis

The colleges promote economic growth in Oregon in a variety of ways. The colleges are employers and buyers of goods and services, and the living expenses of students benefit local businesses. In addition, the colleges are primary sources of education to Oregon residents and suppliers of trained workers to Oregon industries.

## OPERATIONS SPENDING IMPACT

The colleges are important employers in Oregon. In FY 2015-16, the colleges employed 12,067 full-time and part-time faculty and staff. Of these, 93% lived in Oregon. Total payroll at the colleges was \$817 million, much of which was spent in the state for groceries, rent, dining out, clothing, and other household expenses.

The colleges are themselves large-scale buyers of goods and services. In FY 2015-16 the colleges spent \$320.4 million to cover their expenses for facilities, professional services, and supplies.

The colleges added \$1 billion in income to the state during the analysis year as a result of their day-to-day operations. This figure represents the colleges' payroll, the multiplier effects generated by the spending of the colleges and their employees, and a downward adjustment to account for funding that the colleges received from state and local sources. The 1 billion in added income is equivalent to supporting 14,898 jobs.

## CONSTRUCTION SPENDING IMPACT

The colleges commissioned contractors to build or renovate a number of facilities during the analysis year. The quick infusion of earnings and jobs that occurred in the state economy as a result of this construction spending is only considered short-term due to the one-time nature of construction projects.

Nonetheless, the construction spending had a substantial impact on the state economy in FY 2015-16, equal to \$33.3 million in added income for Oregon, which is equivalent to supporting 411 jobs.

## IMPACT OF STUDENT SPENDING

Around 5% of students attending the colleges originated from outside the state in FY 2015-16, and some of these students relocated to Oregon to attend. These students would not have come to the state if the colleges did not exist.

**TABLE 1:** Impacts created by Oregon's Community Colleges in FY 2015-16

ADDED INCOME	JOBS
<b>\$1 billion</b>	<b>14,898</b>
Operations spending impact	
<b>\$33.3 million</b>	<b>411</b>
Construction spending impact	
<b>\$367.8 million</b>	<b>9,089</b>
Student spending impact	
<b>\$8.5 billion</b>	<b>118,492</b>
Alumni impact	
<b>\$9.9 billion</b>	<b>142,890</b>
Total impact	

In addition, a number of in-state students would have left the area for other education opportunities if not for the existence of the colleges. While attending the colleges, these relocated and retained students spent \$374 million to purchase groceries, rent accommodation, pay for transportation, and so on. A significant portion of these expenditures occurred in the state, generating \$367.8 million in added income in the state economy during the analysis year, which is equivalent to supporting 9,089 jobs.

**ALUMNI IMPACT**

The education and training the colleges provide for state residents results in the greatest impact. Since the colleges were established, students have studied at the institutions and entered the state workforce with new skills. Today, hundreds of thousands of former students are employed in Oregon.

During the analysis year, past and present students of the colleges generated \$8.5 billion in added income for the state. This figure represents the higher earnings that students earned during the year, the increased output of the businesses that employed the students, and the multiplier effects that occurred as students and their employers spent money at other businesses. This \$8.5 billion in added income is equivalent to supporting 118,492 jobs.

**TOTAL IMPACT**

The overall impact of the colleges on the local business community during the analysis year amounted to \$9.9 billion in added income, equal to the sum of the operations and construction spending impact, the student spending impact, and the alumni impact. The \$9.9 billion in added income was equal to approximately 4.7% of the GSP of Oregon. By comparison, this contribution that the colleges provide on their own is roughly as large as the entire Construction industry in the state.

The total impact is also expressed in terms of the jobs supported by the added income; they are calculated by jobs-to-sales ratios specific to each industry. Overall, the \$9.9 billion impact supports 142,890 jobs.

A portion of the total \$9.9 billion is broken out into an industry-by-industry impact ordered by added income. Table 2 outlines the top industries impacted by the colleges. Because industries have different jobs-to-sales ratios, the associated jobs supported by the colleges impact differ by industry. Nonetheless, these are impacts that would not have been generated without the colleges’ presence.

**TABLE 2:** Top industries impacted by Oregon’s Community Colleges

TOTAL INCOME (MILLIONS)	JOB
<b>\$1,122.0</b>	<b>20,735</b>
Health Care & Social Assistance	
<b>\$1,076.5</b>	<b>7,581</b>
Manufacturing	
<b>\$873.4</b>	<b>9,551</b>
Government, Non-Education	
<b>\$544.2</b>	<b>8,258</b>
Professional & Technical Services	
<b>\$428.7</b>	<b>11,982</b>
Accommodation & Food Services	
<b>\$5,884.5</b>	<b>84,784</b>
All other industries	
<b>\$9,929.2</b>	<b>142,890</b>
Total impact	



# Investment analysis

Investment analysis is the process of evaluating total costs and measuring these against total benefits to determine whether or not a proposed venture will be profitable. If benefits outweigh costs, then the investment is worthwhile. If costs outweigh benefits, then the investment will lose money and is considered unprofitable. This study considers Oregon's Community Colleges as an investment from the perspectives of students, taxpayers, and society. The backdrop for the analysis is the entire Oregon economy.

## STUDENT PERSPECTIVE

In FY 2015-16, the colleges served 172,918 credit students and 123,583 non-credit students. In order to attend college, students paid for tuition, fees, books, and supplies. Additionally, students gave up money that they would have otherwise earned had they been working instead of attending college. The total investment made by the colleges' students in FY 2015-16 amounted to \$1.3 billion, equal to \$354.6 million in out-of-pocket expenses plus \$903.8 million in forgone time and money.

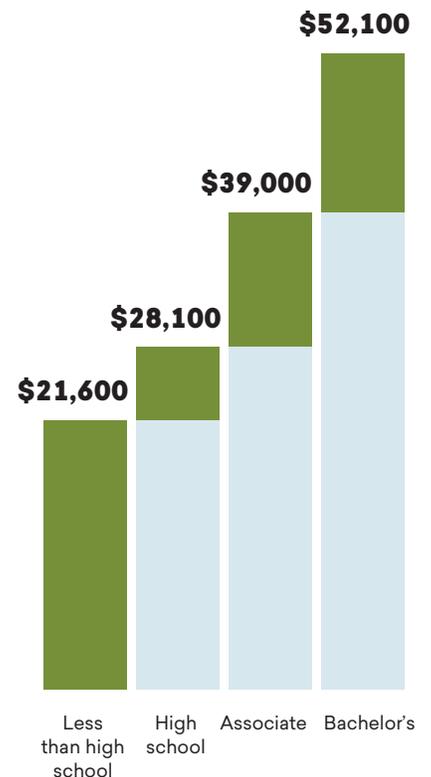
In return for their investment, the colleges' students will receive a stream of higher future earnings that will continue to grow through their working lives. As shown in Figure 1, mean earnings levels at the midpoint of the average-aged worker's career increase as people achieve higher levels of education. For example, the average associate degree completer from a community college in Oregon will see an increase in earnings of \$10,900 each year compared to someone with a high school diploma or equivalent. Over a working lifetime, this increase in earnings amounts to an undiscounted value of approximately \$425,100 in higher earnings.

The present value of the higher future earnings that the colleges' students will receive over their working careers is \$5 billion. Dividing this value by the \$1.3 billion in student costs yields a benefit-cost ratio of 4.0. In other words, for every \$1 students invest in the colleges in the form of out-of-pocket expenses and forgone time and money, they receive a cumulative of \$4.00 in higher future earnings. The average annual rate of return for students is 14.5%. This is an impressive return, especially when compared to the 10-year average 7.2% return to the US stock market (Figure 2).

## TAXPAYER PERSPECTIVE

The colleges generate more in tax revenue than they take. These benefits to taxpayers consist primarily of taxes that the state and local government will collect

**FIGURE 1:** Average earnings by education level at career midpoint in Oregon



Source: Emsi complete employment data.

from the added revenue created in the state. As the colleges' students earn more, they will make higher tax payments. Employers will also make higher tax payments as they increase their output and purchase more supplies and services. By the end of the FY 2015-16 students' working careers, the state and local government will have collected a present value of \$1.9 billion in added taxes.

Benefits to taxpayers consist of the savings generated by the improved lifestyles of students and the proportionally reduced government expenditures. Education is statistically correlated with a variety of lifestyle changes that generate taxpayer savings across three main categories: 1) health, 2) crime, and 3) unemployment. Improved health habits lower the students' demand for national health care services. Students are also less likely to commit crimes, so the demand for law enforcement and criminal justice services is reduced (study references are available in the main report). Students are also more employable, so the demand for welfare and unemployment benefits, such as earnings assistance and welfare benefits, is reduced. For a list of study references to these statistical benefits, please contact the colleges for a copy of the main report. All of these benefits will generate a present value of \$154 million in savings to state and local taxpayers.

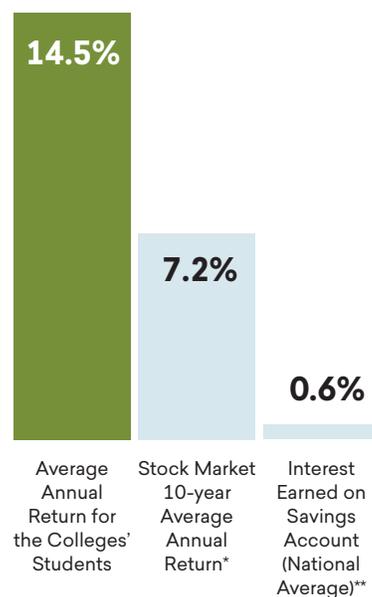
Total benefits to taxpayers equal \$2 billion, equal to the sum of the added taxes and public sector savings. Comparing this to the taxpayer costs of \$621.5 million—equal to the funding that the colleges received from the state and local government during the analysis year—yields a benefit-cost ratio of 3.3. This means that for every \$1 of public money invested in the institutions, taxpayers receive a cumulative value of \$3.30 over the course of the students' working lives. The average annual rate of return is 8.4%, a solid investment that compares favorably with other long-term investments in both the private and public sectors (Figure 2).

## SOCIAL PERSPECTIVE

Society as a whole within Oregon benefits from the presence of the colleges in two major ways. The first and largest benefit that society receives is an increased state economic base. As discussed in the previous section, the higher student earnings and increased business output occurs across the state. This raises prosperity in Oregon and expands the economic base for society as a whole.

Benefits to society also consist of the savings generated by the improved lifestyles of students. Similar to the taxpayer section above, education is statistically correlated with a variety of lifestyle changes that generate social savings. Note that these costs are avoided by the consumers, and are distinct from the costs avoided by taxpayers outlined above. Health savings include avoided medical costs associated with smoking, alcoholism, obesity, drug abuse, and mental disorders. Crime savings include reduced security expenditures and insurance administration, lower victim costs, and reduced criminal justice system expenditures. Unemployment savings include the reduced employer contributions towards unemployment claims. For a list of study references to these statistical benefits, please contact the colleges for a copy of the main report.

**FIGURE 2:** Student rate of return



\* Forbes' S&P 500, 1994-2014.

\*\* FDIC.gov 12-2016.

**FIGURE 3:** Present value of higher earnings and social savings in Oregon

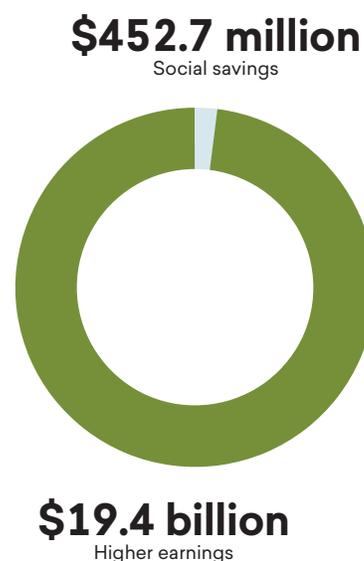


Figure 3 shows the present value of the higher earnings and social savings that will occur in Oregon over the working lifetime of the FY 2015-16 student population at the colleges. Higher earnings amounts to a present value of \$19.4 billion due to the increased lifetime earnings of students and associated increases in business output. Social savings amount to \$452.7 million, the sum of health, crime, and unemployment savings in Oregon. Altogether, total benefits to society equal \$19.8 billion (in present value terms).

Society invested \$2.4 billion in education provided by the colleges during the analysis year. This includes all expenditures by the institutions, all student expenditures, and all student opportunity costs. For every dollar of this investment, society as a whole in Oregon will receive a cumulative value of \$8.40 in benefits, equal to the \$19.8 billion in benefits divided by the \$2.4 billion in costs. These benefits will occur for as long as the colleges' FY 2015-16 students remain employed in the state workforce.

**SUMMARY OF INVESTMENT ANALYSIS RESULTS**

Table 3 presents the results of the investment analysis for all three of the colleges' major stakeholder groups—students, taxpayers, and society. As shown, students receive great value for their educational investment. At the same time, the investment made by state and local taxpayers to the colleges creates a wide range of benefits to society and returns more to government budgets than it costs.

**TABLE 3:** Summary of investment analysis results

	STUDENT PERSPECTIVE	TAXPAYER PERSPECTIVE	SOCIAL PERSPECTIVE
Present value benefits (thousands)	<b>\$5,006,610</b>	<b>\$2,029,895</b>	<b>\$19,821,205</b>
Costs (thousands)	<b>\$1,258,341</b>	<b>\$621,520</b>	<b>\$2,353,778</b>
<b>Net present value (thousands)</b>	<b>\$3,748,269</b>	<b>\$1,408,375</b>	<b>\$17,467,426</b>
Benefit-cost ratio	<b>4.0</b>	<b>3.3</b>	<b>8.4</b>
Rate of return	<b>14.5%</b>	<b>8.4%</b>	<b>N/A*</b>

\* 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.



# Conclusion

The results of this study demonstrate that the colleges create value from multiple perspectives. The colleges benefit local businesses by increasing consumer spending in the state and supplying a steady flow of qualified, trained workers into the workforce. They enrich the lives of students by raising their lifetime earnings and helping them achieve their individual potential. They benefit state and local taxpayers through increased tax receipts across the state and a reduced demand for government-supported social services. Finally, they benefit society as a whole in Oregon 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 2015-16 academic and financial reports from the colleges, industry and employment data from the U.S. Bureau of Labor Statistics and U.S. Census Bureau, outputs of Emsi's 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 investment effectiveness and economic impact. For a full description of the data and approach used in the study, please contact the colleges for a copy of the technical report.



Emsi, a CareerBuilder company, is a leading provider of economic impact studies and labor market data to educational institutions, workforce planners, and regional developers in the U.S. and internationally. Since 2000, Emsi has completed over 1,700 economic impact studies for educational institutions in four countries. Visit [www.economicmodeling.com](http://www.economicmodeling.com) for more information about Emsi's products and services.

