



Analysis of the Economic Impact and Return on Investment of Education

THE ECONOMIC VALUE OF IOWA'S COMMUNITY COLLEGES

February 2017



EXECUTIVE SUMMARY

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Iowa'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 a fulfilling and prosperous career that will help support Iowa's economy. 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 Iowa's Community Colleges influences both the lives of students and also the state economy. The colleges serve a range of industries in Iowa, support local businesses, and benefit society as a whole in Iowa from an expanded economy and improved quality of life. The benefits created by Iowa's Community 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 Iowa's Community Colleges on the business community and the benefits that the colleges generate in return for the investments made by their key stakeholder groups—students, taxpayers, and society. The

colleges serve the entirety of Iowa. The following two analyses are presented:

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

All results reflect student and financial data for Fiscal Year (FY) 2014-15. 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

Iowa's Community Colleges promote economic growth in Iowa 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, Iowa's Community Colleges are primary sources of education to Iowa residents and suppliers of trained workers to Iowa industries.

When exploring each of these economic impacts, we consider the following hypothetical question:

How would economic activity change in Iowa if Iowa's Community Colleges and their alumni did not exist in FY 2014-15?

Each of the economic impacts should be interpreted according to this hypothetical question. Another way to think about the question is to realize that we measure net impacts, not gross impacts.

OPERATIONS SPENDING IMPACT

Iowa's Community Colleges are important employers in Iowa. In FY 2014-15, the colleges employed 11,432 full-time and part-time faculty and staff. Of these, 91% lived in Iowa. Total payroll at Iowa's Community Colleges was \$512.3 million, much of which was spent in the state for groceries, rent, dining out, clothing, and other household expenses.

Iowa's Community Colleges are themselves large-scale buyers of goods and services. In FY 2014-15 the colleges spent \$395.4 million on expenses for facilities, professional services, and supplies.

Iowa's Community Colleges added \$504.3 million 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 \$504.3 million in added income is equivalent to supporting 11,905 jobs.* In other words, 11,905 jobs would not exist in Iowa without Iowa's Community Colleges.

IMPACT OF STUDENT SPENDING

Around 4% of students attending Iowa's Community Colleges originated from outside the state in FY 2014-15, and some of these students relocated to Iowa

TABLE 1: Impacts created by Iowa's Community Colleges in FY 2014-15

ADDED INCOME	JOBS
Community College operations spending impact	
\$504.3 million	11,905
Student spending impact	
\$228.5 million	7,360
Alumni impact	
\$4.6 billion	87,905
Total impact	
\$5.4 billion	107,170

* Each industry affected by the impacts has an individual sales-to-jobs ratio that is used to calculate the number of jobs.



to attend Iowa's Community Colleges. These students would not have come to the state if the colleges did not exist. In addition, a number of in-state students would have left the area for other educational opportunities if not for the existence of Iowa's Community Colleges. While attending the colleges, these imported and retained students spent \$452.3 million to purchase groceries, rent accommodation, pay for transportation, and so on. A significant portion of these expenditures occurred in the state, generating \$228.5 million in added income in the state economy during the analysis year, which is equivalent to supporting 7,360 jobs.

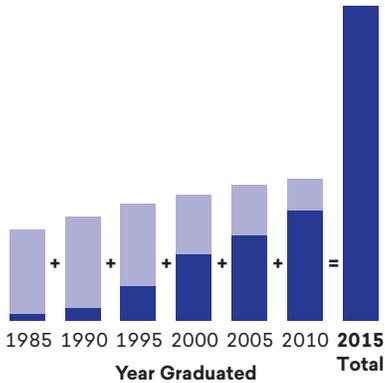
ALUMNI IMPACT

The education and training Iowa's Community Colleges provide for state residents results in the greatest impact. During the analysis year, a large number of former students were active in the state's workforce. Figure 1 illustrates how the total number of active former students is calculated. We begin by looking at the total number of students who received an education 30 years ago. We take that number and subtract the former students who have left the workforce due to retirement, death, migration, or unemployment. This tells us how many of the students who left the colleges that year are still active today. This process is repeated for each subsequent year. When the head counts for each year are added together, the total number of alumni active in the state workforce is found.

During the analysis year, past and present students of Iowa's Community Colleges generated \$4.6 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 \$4.6 billion in added income is equivalent to supporting 87,905 jobs, which are specific to the industries the former students are likely to be working in and the respective multiplier effects.

FIGURE 1: Iowa's Community Colleges' alumni working in-state today*

- Retired, out-migrated since graduation
- Still employed in-state today since graduation



* For illustration only. Bars do not indicate actual graduates.



TOTAL IMPACT

The overall impact of Iowa’s Community Colleges on the local business community during the analysis year amounted to \$5.4 billion in added income, equal to the sum of the operations spending impact, the student spending impact, and the alumni impact. The \$5.4 billion in added income was equal to approximately 3.3% of the GSP of Iowa. By comparison, this contribution that the colleges provide on their own is slightly larger than the entire Professional and Technical Services 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 \$5.4 billion impact supports 107,170 jobs, roughly 6% of all jobs in Iowa. These jobs would not exist if not for Iowa’s Community Colleges.

A portion of the total \$5.4 billion is broken out into an industry-by-industry impact ordered by added income. Table 2 outlines the top industries impacted by Iowa’s Community Colleges. Because industries have different jobs-to-sales ratios, the associated jobs supported by Iowa’s Community Colleges impacts differ by industry. Nonetheless, these are impacts that would not have been generated without the colleges’ presence.

TABLE 2: Top industries impacted by Iowa’s Community Colleges

TOTAL INCOME (MILLIONS)	JOBS*
Health Care & Social Assistance	
\$785.7	23,428
Manufacturing	
\$658.5	6,326
Government, Non-Education	
\$386.1	5,426
Finance & Insurance	
\$238.0	1,590
Construction	
\$229.2	3,195
All other industries	
\$3,084.7	67,206
Total impact	
\$5,382.3	107,170

* Each industry has an individual sales-to-jobs ratio that is used to calculate the number of jobs.



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 Iowa's Community Colleges as an investment from the perspectives of students, taxpayers, and society. The backdrop for the analysis is the entire Iowa economy.

STUDENT PERSPECTIVE

In FY 2014-15, Iowa's Community Colleges served an unduplicated 138,642 credit students and 232,480 non-credit students. In order to attend college, students paid for tuition, fees, books, and supplies. They also gave up money that they would have otherwise earned had they been working instead of attending college. The total investment made by Iowa's Community Colleges' students in FY 2014-15 amounted to \$923 million, equal to \$289.6 million in out-of-pocket expenses plus \$633.4 million in forgone time and money.

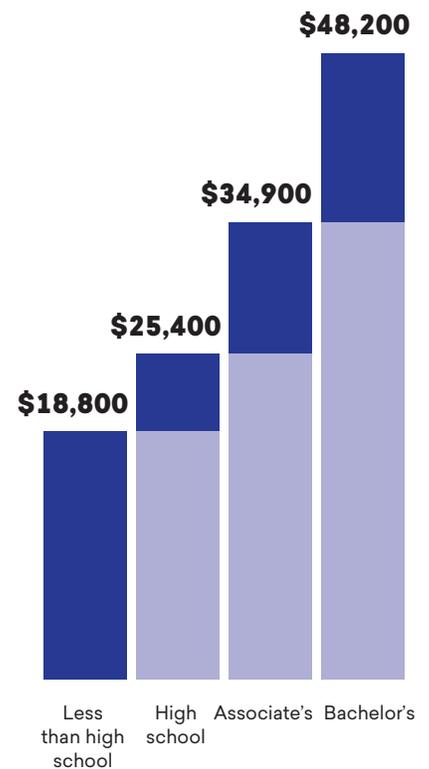
In return for their investment, students at Iowa's Community Colleges will receive a stream of higher future earnings that will continue to grow through their working lives. As shown in Figure 2, average earnings levels increase as people achieve higher levels of education. For example, the average associate degree completer from Iowa's Community Colleges will see an increase in earnings of \$9,500 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 \$418,000 in higher earnings.

The present value of the higher future earnings that students from Iowa's Community Colleges will receive over their working careers is \$6 billion. Dividing this value by the \$923 million in student costs yields a benefit-cost ratio of 6.5. In other words, for every \$1 students invest in Iowa's Community Colleges in the form of out-of-pocket expenses and forgone time and money, they receive a cumulative of \$6.50 in higher future earnings. The average annual rate of return for students is 25.3%. This is an impressive return, especially when compared to the 10-year average 7.2% return to the U.S. stock market (Figure 3).

TAXPAYER PERSPECTIVE

Iowa's Community Colleges generate more in tax revenue than they take. These benefits to taxpayers consist primarily of taxes that the state and local

FIGURE 2: Expected earnings by education level in Iowa at the start of career for a student from Iowa's Community Colleges



Source: Complete employment data from Emsi and outcomes data from Iowa Department of Education & Iowa Workforce Development.

government will collect from the added revenue created in the state. As students from Iowa's Community Colleges 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 2014-15 students' working careers, the state and local government will have collected a present value of \$1.3 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 Iowa Department of Education for a copy of the main report. All of these benefits will generate a present value of \$104.8 million in savings to state and local taxpayers.

Total benefits to taxpayers equal \$1.4 billion, equal to the sum of the added taxes and public sector savings. Comparing this to the taxpayer costs of \$396.9 million—equal to the funding that Iowa's Community Colleges received from the state and local government during the analysis year—yields a benefit-cost ratio of 3.5. This means that for every \$1 of public money invested in Iowa's Community Colleges, taxpayers receive a cumulative value of \$3.50 over the course of the students' working lives. The average annual rate of return is 10.4%, a solid investment that compares favorably with other long-term investments in both the private and public sectors (Figure 3).

SOCIAL PERSPECTIVE

Society as a whole within Iowa benefits from the presence of Iowa's Community 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 Iowa 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

FIGURE 3: Student rate of return

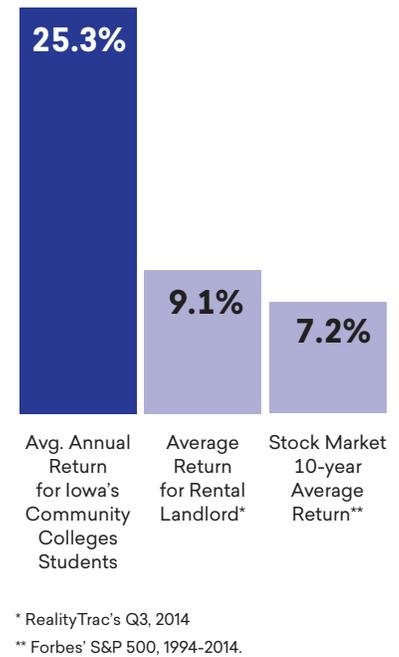
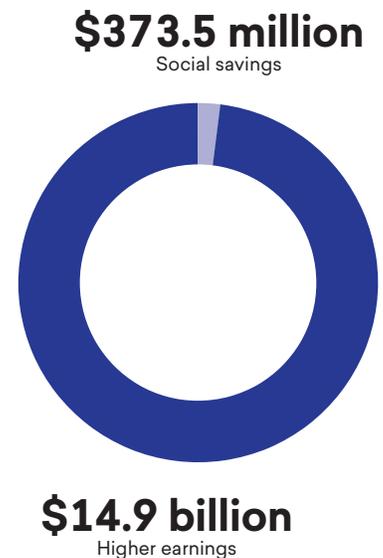


FIGURE 4: Present value of higher earnings and social savings in Iowa



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 Iowa Department of Education for a copy of the main report.

Figure 4 shows the present value of the higher earnings and social savings that will occur in Iowa over the working lifetime of the FY 2014-15 student population at Iowa’s Community Colleges. Higher earnings amount to a present value of \$14.9 billion due to the increased lifetime earnings of students and associated increases in business output. Social savings amount to \$373.5 million, the sum of health, crime, and unemployment savings in Iowa. Altogether, total benefits to society equal \$15.2 billion (in present value terms).

Society invested \$1.6 billion in education from Iowa’s Community Colleges during the analysis year. This includes all expenditures by Iowa’s Community Colleges, all student expenditures, and all student opportunity costs. For every dollar of this investment, society as a whole in Iowa will receive a cumulative value of \$9.30 in benefits, equal to the \$15.2 billion in benefits divided by the \$1.6 billion in costs. These benefits will occur for as long as Iowa’s Community Colleges’ FY 2014-15 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 Iowa’s Community 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. Of these, the returns to society are the most comprehensive as they cover those to students, taxpayers, and private citizens in Iowa.

TABLE 3: Summary of investment analysis results

	STUDENT PERSPECTIVE	TAXPAYER PERSPECTIVE	SOCIAL PERSPECTIVE
Present value benefits (thousands)	\$6,021,910	\$1,381,636	\$15,233,227
Costs (thousands)	\$923,021	\$396,858	\$1,640,071
Net present value (thousands)	\$5,098,888	\$984,778	\$13,593,156
Benefit-cost ratio	6.5	3.5	9.3
Rate of return*	25.3%	10.4%	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.

Conclusion

The results of this study demonstrate that Iowa's Community 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 Iowa 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 2014-15 academic and financial reports from the colleges, student earnings and employment outcomes data from Iowa Department of Education and Iowa Workforce Development, 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 Iowa Department of Education for a copy of the technical report.



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