

OZARKS TECHNICAL COMMUNITY COLLEGE

Analysis of the Return on Investment and Economic Impact of Education

THE ECONOMIC VALUE OF
OZARKS TECHNICAL COMMUNITY COLLEGE

August 2017

EXECUTIVE SUMMARY



 Emsi

Executive summary

Ozarks Technical Community College (OTC) creates value in many ways. The college plays a key role in helping students increase their employability and achieve their individual potential. It provides students with the skills they need to have fulfilling and prosperous careers. Further, it supplies an environment for students to meet new people, increase their self-confidence, and promote their overall health and well-being.

The value of OTC influences both the lives of students and the regional economy. The college serves a range of industries in the OTC Service Area, supports local businesses, and benefits society as a whole in Missouri from an expanded economy and improved quality of life. The benefits created by OTC 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 OTC on the business community and the benefits that the college generates in return for the investments made by its key stakeholder groups—students, state and local taxpayers, and society. The region the college serves is defined as the OTC Service Area and consists

of Polk, Dallas, Laclede, Pulaski, Greene, Webster, Wright, Christian, Douglas, Stone, Taney, and Ozark counties. 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 regional business community are reported under the economic impact analysis. Results are measured in terms of added income. The returns 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

OTC promotes economic growth in the OTC Service Area in a variety of ways. The college is an employer and buyer of goods and services, and the living expenses of students benefit local businesses. In addition, OTC is a primary source of education to the OTC Service Area residents and a supplier of trained workers to regional industries.

OPERATIONS SPENDING IMPACT

OTC is an important employer in the OTC Service Area. In FY 2015-16, the college employed 2,021 full-time and part-time faculty and staff. Of these, 92% lived in the OTC Service Area. Total payroll at OTC was \$47 million, much of which was spent in the region for groceries, rent, dining out, clothing, and other household expenses.

OTC is itself a large-scale buyer of goods and services. In FY 2015-16, the college spent \$35.5 million to cover its expenses for facilities, professional services, and supplies.

OTC added \$63 million in income to the region during the analysis year as a result of its day-to-day operations. This figure represents the college's payroll, the multiplier effects generated by the spending of the college and its employees, and a downward adjustment to account for funding that the college received from state and local sources. The \$63 million in added income is equivalent to supporting 2,383 jobs.

CONSTRUCTION SPENDING IMPACT

OTC 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 regional 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 regional economy in FY 2015-16, equal to \$1.9 million in added income for the OTC Service Area, which is equivalent to supporting 46 jobs.

STUDENT SPENDING IMPACT

Around 16% of students attending OTC originated from outside the region in FY 2015-16, and some of these students relocated to the OTC Service Area to attend OTC. These students would not have come to the region if the college did not

TABLE 1: Impacts created by OTC in FY 2015-16

ADDED INCOME	JOBS
\$63 million	2,383
Operations spending impact	
\$1.9 million	46
Construction spending impact	
\$17.1 million	367
Student spending impact	
\$152 million	2,782
Alumni impact	
\$234 million	5,579
Total impact	

exist. In addition, a number of in-region students would have left the area for other education opportunities if not for the existence of OTC. While attending the college, these relocated and retained students spent \$29.7 million to purchase groceries, rent accommodation, pay for transportation, and so on. A significant portion of these expenditures occurred in the region, generating \$17.1 million in added income in the regional economy during the analysis year, which is equivalent to supporting 367 jobs.

ALUMNI IMPACT

The education and training OTC provides for regional residents results in the greatest impact. Since the college was established, students have studied at OTC and entered the regional workforce with new skills. Today, thousands of former students are employed in the OTC Service Area.

During the analysis year, past and present students of OTC generated \$152 million in added income for the region. 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 \$152 million in added income is equivalent to supporting 2,782 jobs.

TOTAL IMPACT

The overall impact of OTC on the local business community during the analysis year amounted to \$234 million in added income, equal to the sum of the operations spending impact, the construction spending impact, the student spending impact, and the alumni impact. The \$234 million in added income was equal to approximately 1.0% of the GRP of the OTC Service Area. By comparison, this contribution that the college provides on its own is nearly as large as the entire Arts, Entertainment, & Recreation industry.

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 \$234 million impact supports 5,579 jobs.

A portion of the total \$234 million is broken out into an industry-by-industry impact ordered by added income. Table 2 outlines the top industries impacted by OTC. Because industries have different jobs-to-sales ratios, the associated jobs supported by the OTC impact differ by industry. Nonetheless, these are impacts that would not have been generated without the college's presence.

TABLE 2: Top industries impacted by OTC

TOTAL INCOME (MILLIONS)	JOBS
\$45.0	882
Health Care & Social Assistance	
\$20.1	225
Management of Companies & Enterprises	
\$16.2	418
Professional & Technical Services	
\$15.1	413
Accommodation & Food Services	
\$14.9	213
Manufacturing	
\$122.7	3,428
All other industries	
\$234.0	5,579
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 OTC as an investment from the perspectives of students, taxpayers, and society. The backdrop for the analysis is the entire Missouri economy.

STUDENT PERSPECTIVE

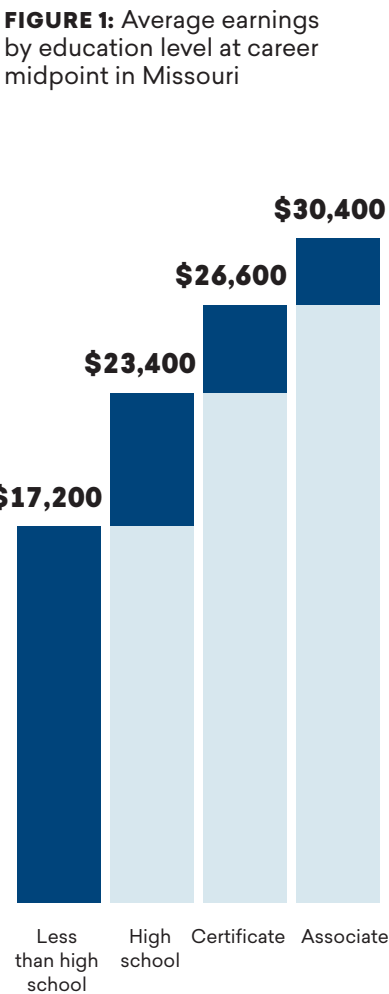
In FY 2015-16, OTC served 18,589 credit students and 1,579 non-credit students. In order to attend college, students paid for tuition, fees, books, and supplies. They also took out loans and incurred interest on those loans. Additionally, students gave up money that they would have otherwise earned had they been working instead of attending college. The total investment made by OTC’s students in FY 2015-16 amounted to \$67.9 million.

In return for their investment, OTC’s students will receive a stream of higher future earnings that will continue to grow through their working lives. As shown in Figure 2, 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 OTC will see an increase in earnings of \$3,200 each year compared to someone with a high school diploma or equivalent working in Missouri. Over a working lifetime, this increase in earnings amounts to an undiscounted value of approximately \$322,000 in higher earnings.

The present value of the higher future earnings that OTC’s students will receive over their working careers is \$357 million. Dividing this value by the \$74.2 million in student costs yields a benefit-cost ratio of 5.3. In other words, for every \$1 students invest in OTC in the form of out-of-pocket expenses and forgone time and money, they receive a cumulative of \$5.30 in higher future earnings. The average annual rate of return for students is 18.5%. This is an impressive return, especially when compared to the 10-year average 7.2% return to the U.S. stock market (Figure 2).

LOCAL TAXPAYER PERSPECTIVE

OTC generates more in local tax revenue than it takes. These benefits to local taxpayers consist primarily of taxes that the local government will collect from the added revenue created in the region. As OTC students earn more, they will



Source: Emsi complete employment data.

make higher tax payments. We use regional earnings to calculate students' higher earnings, and thus, increased tax revenue. 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 local government will have collected a present value of \$36.6 million in added taxes.

Benefits to local taxpayers consist of the savings generated by the improved lifestyles of students that settle in the region 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. All of these benefits will generate a present value of \$10.2 million in savings to local taxpayers.

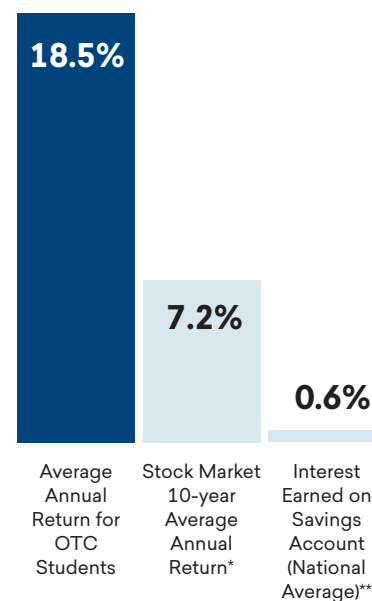
Total benefits to local taxpayers equal \$46.9 million, equal to the sum of the added taxes and public sector savings. Comparing this to the local taxpayer costs of \$10.1 million—equal to the funding that OTC received from the local government during the analysis year—yields a benefit-cost ratio of 4.7. This means that for every \$1 of local funding invested in OTC, local taxpayers receive a cumulative value of \$4.70 over the course of the students' working lives. The average annual rate of return is 13.4%, a solid investment that compares favorably with other long-term investments.

STATE AND LOCAL TAXPAYER PERSPECTIVE

OTC generates more in tax revenue than it takes. 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 OTC 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 \$161.1 million 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 college

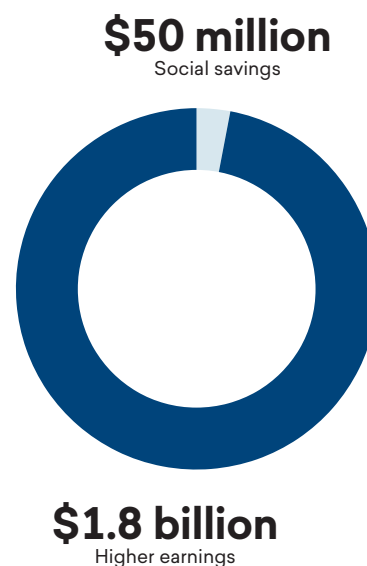
FIGURE 3: Student rate of return



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

** FDIC.gov 12-2016.

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



for a copy of the main report. All of these benefits will generate a present value of \$11.2 million in savings to state and local taxpayers.

Total benefits to taxpayers equal \$172.4 million, equal to the sum of the added taxes and public sector savings. Comparing this to the taxpayer costs of \$26.6 million—equal to the funding that OTC received from the state and local government during the analysis year—yields a benefit-cost ratio of 6.5. This means that for every \$1 of public money invested in OTC, taxpayers receive a cumulative value of \$6.50 over the course of the students' working lives. The average annual rate of return is 15.8%, a solid investment that compares favorably with other long-term investments in both the private and public sectors.

SOCIAL PERSPECTIVE

Society as a whole within Missouri benefits from the presence of OTC 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 Missouri 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 college for a copy of the main report.

Figure 3 shows the present value of the higher earnings and social savings that will occur in Missouri over the working lifetime of the FY 2015-16 student population at OTC. Higher earnings amounts to a present value of \$1.8 billion due to the increased lifetime earnings of students and associated increases in business output. Social savings amount to \$50 million, the sum of health, crime, and unemployment savings in Missouri. Altogether, total benefits to society equal \$1.8 billion (in present value terms).

Society invested \$145.4 million in OTC educations during the analysis year. This includes all expenditures by OTC, all student expenditures, and all student opportunity costs. For every dollar of this investment, society as a whole in Missouri will receive a cumulative value of \$12.50 in benefits, equal to the \$1.8 billion in benefits divided by the \$145.4 million in costs. These benefits will occur for as long as OTC's 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 OTC's major stakeholder groups—students, local taxpayers, state and local 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 college 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	LOCAL TAXPAYER PERSPECTIVE	STATE & LOCAL TAXPAYER PERSPECTIVE	SOCIAL PERSPECTIVE
Present value benefits (thousands)	\$357,044	\$46,858	\$172,362	\$1,823,523
Costs (thousands)	\$67,852	\$10,056	\$26,573	\$145,390
Net present value (thousands)	\$289,191	\$36,802	\$145,789	\$1,678,133
Benefit-cost ratio	5.3	4.7	6.5	12.5
Rate of return	18.5%	13.4%	15.8%	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 OTC creates value from multiple perspectives. The college benefits local businesses by increasing consumer spending in the region and supplying a steady flow of qualified, trained workers into the workforce. It enriches the lives of students by raising their lifetime earnings and helping them achieve their individual potential. It benefits state and local taxpayers through increased tax receipts across the state and a reduced demand for government-supported social services. Finally, it benefits society as a whole in Missouri 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 college, 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 investment effectiveness and economic impact. For a full description of the data and approach used in the study, please contact the college for a copy of the main report.



Economic Modeling Specialists International, 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 1,200 economic impact studies for educational institutions in four countries. Visit www.economicmodeling.com for more information about Emsi's products and services.

