



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

THE ECONOMIC VALUE OF UNION COUNTY COLLEGE

June 2018

A photograph of a modern brick building with large glass windows, likely a Union County College building. The scene is set outdoors with trees and a street lamp in the foreground. A red wavy graphic element is at the top of the page.

EXECUTIVE SUMMARY

 Emsi

Executive summary

Union County College (Union) 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.

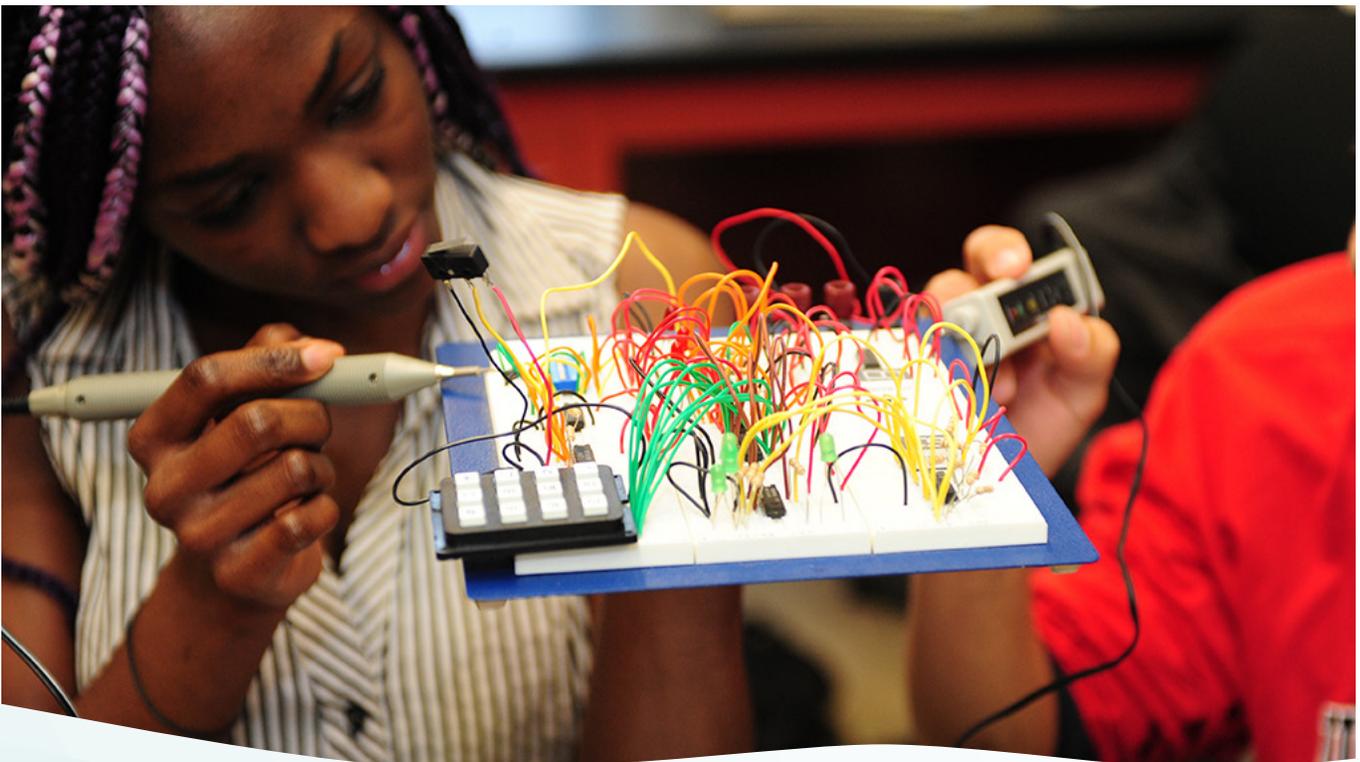
The value of Union influences both the lives of students and the Union County economy. The college serves a range of industries in the county, supports local businesses, and benefits society as a whole in New Jersey from an expanded economy and improved quality of life. The benefits created by Union even extend to the state and local government through increased tax revenues and public sector savings.

This study investigates the economic impacts created by Union on the business community and the benefits that the college 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 student and financial data for fiscal year (FY) 2016-17. Impacts on the county 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

Union promotes economic growth in Union County 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, Union is a primary source of education to Union County residents and a supplier of trained workers to county industries.

OPERATIONS SPENDING IMPACT

Union is an important employer in Union County. In FY 2016-17, the college employed 1,129 full-time and part-time faculty and staff. Of these, 53% lived in Union County. Total payroll at Union was \$52.8 million, much of which was spent in the county for groceries, rent, dining out, clothing, and other household expenses.

Union is itself a large-scale buyer of goods and services. In FY 2016-17, the college spent \$35.9 million to cover its expenses for facilities, professional services, and supplies.

Union added \$62 million in net income to the county 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 \$62 million in added net income is equivalent to supporting 1,303 jobs.

CONSTRUCTION SPENDING IMPACT

Union commissioned contractors to build or renovate a number of facilities during the analysis year. The quick infusion of income and jobs that occurred in the county 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 county economy in FY 2016-17, equal to \$10.6 million in added net income for Union County, which is equivalent to supporting 120 jobs.

STUDENT SPENDING IMPACT

An estimated 1,402 in-county students would have left the area for other educational opportunities if not for the existence of Union. While attending the college, these students, called retained students, spent \$12.9 million to purchase groceries, rent accommodation, pay for transportation, and so on. A significant portion of these

TABLE 1: Impacts created by Union in FY 2016-17

ADDED INCOME	JOBS
\$62 million	1,303
Operations spending impact	
\$10.6 million	120
Construction spending impact	
\$6.6 million	82
Student spending impact	
\$319.9 million	4,180
Alumni impact	
\$399 million	5,685
Total impact	

expenditures occurred in the county, generating \$6.6 million in added income in the county economy during the analysis year, which is equivalent to supporting 82 jobs.

ALUMNI IMPACT

The education and training Union provides for county residents results in the greatest impact. Since the college was established, students have studied at Union and entered the county workforce with new skills. Today, tens of thousands of former students are employed in Union County. The students' higher earnings, the increased business output of those that employed the students, and the multiplier effects that occurred as students and their employers spent money at county businesses added a gross value of \$752.7 million in income to the county's economy during the analysis year.

When counterfactual scenarios are considered, Union's alumni impact amounted to \$319.9 million in added net income for Union County in FY 2016-17. This figure represents a downward adjustment to account for the alumni's alternative education options and the hiring of a similarly educated workforce from outside the county. This \$319.9 million in added net income is equivalent to supporting 4,180 jobs.

TOTAL IMPACT

The overall impact of Union on the local business community during the analysis year amounted to \$399 million in added income, equal to the sum of the operations spending impact, the student spending impact, and the alumni impact (Table 1). The \$399 million in added income was equal to approximately 1.0% of the gross regional product of Union County. By comparison, this contribution that the college provides on its own is one-third the size of the county's entire Real Estate & Rental & Leasing 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 \$399 million impact supports 5,685 jobs. For perspective, this means that one out of every 55 jobs in Union County is supported by the activities of Union and its students.

A portion of the total \$399 million is broken out into an industry-by-industry impact ordered by added income. Table 2 outlines the top industries impacted by Union. Because industries have different jobs-to-sales ratios, the associated jobs supported by Union differ by impact. Nonetheless, these are impacts that would not have been generated without the college's presence.

TABLE 2: Top industries impacted by Union

TOTAL INCOME (MILLIONS)	JOB
\$68.5	960
Health Care & Social Assistance	
\$33.3	231
Professional & Technical Services	
\$31.7	76
Manufacturing	
\$28.2	263
Government, Non-Education	
\$18.4	203
Construction	
\$218.8	3,953
All other industries	
\$399.0	5,685
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 Union as an investment from the perspectives of students, taxpayers, and society. The backdrop for the analysis is the entire New Jersey economy.

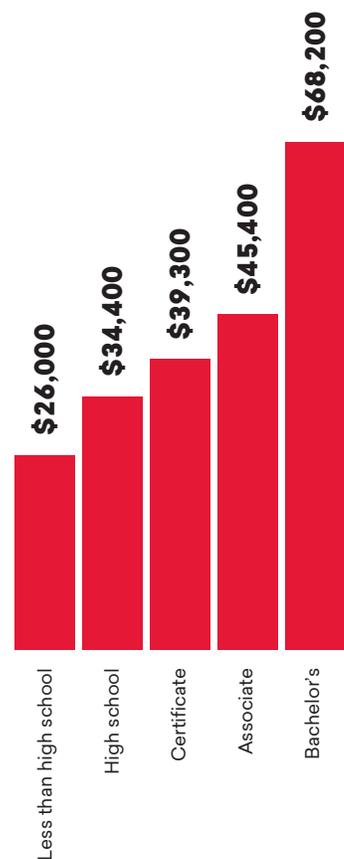
STUDENT PERSPECTIVE

In FY 2016-17, Union served 13,902 credit students and 4,616 non-credit students. In order to attend college, 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 that they would have otherwise earned had they been working instead of attending college. The total investment made by Union's students for FY 2016-17 amounted to a present value of \$98.3 million, equal to \$36.1 million in out-of-pocket expenses (including future principal and interest paid on student loans) plus \$62.2 million in forgone time and money.

In return for their investment, Union's 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 Union will see an increase in earnings of \$11,000 each year compared to someone with a high school diploma or equivalent working in New Jersey. Over a working lifetime, this increase in earnings amounts to an undiscounted value of approximately \$484,000 in higher earnings.

The present value of the higher future earnings that Union's students will receive over their working careers is \$503.5 million. Dividing this value by the \$98.3 million in present value student costs yields a benefit-cost ratio of 5.1. In other words, for every dollar students invest in Union in the form of out-of-pocket expenses and forgone time and money, they receive a cumulative of \$5.10 in higher future earnings. The average annual rate of return for students is 15.6%. This is an impressive return, especially when compared to the 30-year average 10.1% return to the U.S. stock market (Figure 2 on next page).

FIGURE 1: Average earnings by education level at career midpoint in New Jersey



Source: Emsi complete employment data.

LOCAL TAXPAYER PERSPECTIVE

Union generates more in local tax revenue than it takes. These benefits consist primarily of taxes that the local government will collect from the added revenue created in the county. As Union students earn more, they will make higher tax payments. We use regional earnings to calculate students' higher earnings, and thus, increased local 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 2016-17 students' working careers, the local government will have collected a present value of \$61.4 million in added taxes.

Benefits to local taxpayers also 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. For a list of study references to these statistical benefits, please contact the college for a copy of the main report. All of these benefits will generate a present value of \$13.7 million in savings to local taxpayers.

Total benefits to taxpayers equal \$75.1 million, equal to the sum of the added taxes and public sector savings. Comparing this to the taxpayer costs of \$14.7 million—equal to the funding that Union received from the local government during the analysis year—yields a benefit-cost ratio of 5.1. This means that for every dollar of public money invested in Union, local taxpayers receive a cumulative value of \$5.10 over the course of the students' working lives. The average annual rate of return is 11.8%, a solid investment that compares favorably with other long-term investments in both the private and public sectors.

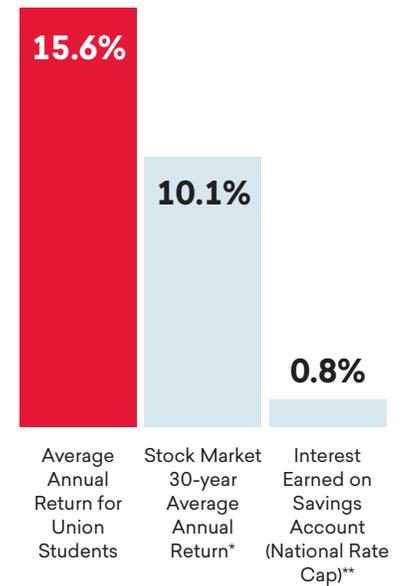
STATE AND LOCAL TAXPAYER PERSPECTIVE

Similar to the local taxpayer perspective, benefits to state and local taxpayers consist of the increase in state and local tax revenues and reduced government expenditures due to students' improved lifestyles.

Because we are now considering state government, we use state level earnings to calculate the present value of the students' future higher earnings stream and the subsequent added state tax revenue. By the end of the FY 2016-17 students' working careers, the state and local government will have collected a present value of \$227.5 million in added tax revenues.

Just as local taxpayers benefit from students' improved lifestyles, state taxpayers benefit from reduced government expenditures as well. To calculate these benefits, we take into account the portion of students that settle in the county and in the

FIGURE 2: Student rate of return



* Forbes' S&P 500, 1987-2016.

** FDIC.gov, 7-2017.



state. State and local government savings from health-related programs, crime savings, and unemployment savings will generate a present value of \$18.4 million in savings over the course of the FY 2016-17 students' working lives.

Total benefits to taxpayers equal \$246 million, equal to the sum of the added tax revenues and public sector savings. Comparing this to the taxpayer costs of \$29.4 million—equal to the funding that Union received from the state and local government during the analysis year—yields a benefit-cost ratio of 8.4. This means that for every dollar of public money invested in Union, taxpayers receive a cumulative value of \$8.40 over the course of the students' working lives. The average annual rate of return is 18.6%, a solid investment that compares favorably with other long-term investments in both the private and public sectors.

SOCIAL PERSPECTIVE

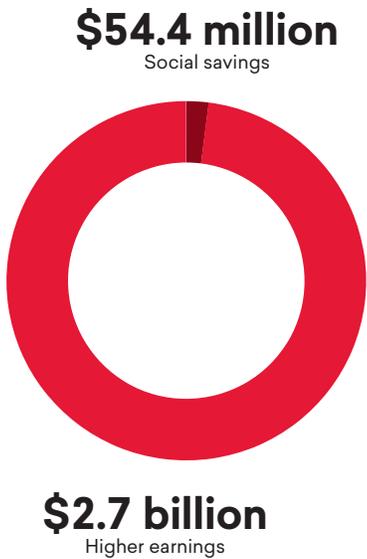
Society as a whole within New Jersey benefits from the presence of Union in two major ways. The first and largest benefit that society receives is an increased state economic base. As discussed in the previous section, the higher student earnings and increased business output occurs across the state. This raises prosperity in New Jersey 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 New Jersey over the working lifetime of the FY 2016-17 student population at Union. Higher earnings amount to a present value of \$2.7 billion due to the increased lifetime earnings of students and associated increases in business output. Social savings amount to \$54.4 million, the sum of health, crime, and unemployment savings in New Jersey. Altogether, total benefits to society equal \$2.7 billion (in present value terms).

Society invested a present value of \$183.8 million for FY 2016-17 Union educations. This includes all expenditures by Union, all student expenditures, and all student opportunity costs. For every dollar of this investment, society as a whole in New Jersey will receive a cumulative value of \$14.70 in benefits, equal to the \$2.7 billion in benefits divided by the \$183.8 million in costs. These benefits will occur for as long as Union's FY 2016-17 students remain employed in the state workforce.

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



SUMMARY OF INVESTMENT ANALYSIS RESULTS

Table 3 presents the results of the investment analysis for all of Union’s 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 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)	\$503,461	\$75,075	\$245,965	\$2,707,759
Costs (thousands)	\$98,295	\$14,693	\$29,446	\$183,793
Net present value (thousands)	\$405,166	\$60,382	\$216,519	\$2,523,966
Benefit-cost ratio	5.1	5.1	8.4	14.7
Rate of return	15.6%	11.8%	18.6%	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 Union creates value from multiple perspectives. The college benefits local businesses by increasing consumer spending in the county 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 New Jersey 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 2016-17 academic and financial reports from Union, 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.



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