



The Economic Value of the University of Iowa

EXECUTIVE SUMMARY



THE University of Iowa (UI) creates value in many ways. The university plays a key role in helping students increase their employability and achieve their individual potential. The university facilitates new research and company developments and draws visitors and students to the state, generating new dollars and opportunities for Iowa. UI provides students with the education, training, and skills they need to have fulfilling and prosperous careers. Furthermore, UI is a place for students to meet new people, increase their self-confidence, and promote their overall health and well-being.

UI influences both the lives of its students and the state economy. The university supports a variety of industries in Iowa, serves state businesses, and benefits society as a whole in Iowa from an expanded economy and improved quality of life. The benefits created by UI even extend to the state government through increased tax revenues and public sector savings.

This study measures the economic impacts created by UI on the business community and the benefits the university 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 employee, student, and financial data, provided by the university, for fiscal year (FY) 2017-18. Impacts on the Iowa 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 Iowa are reported under the investment analysis.

*The value of UI influences both the **lives of its students** and the **state economy**.*



Economic impact analysis

IMPACTS CREATED
BY UI IN FY 2017-18*

UI promotes economic growth in Iowa through its direct expenditures and the resulting expenditures of visitors, students, and state businesses. The university serves as an employer and buyer of goods and services for its day-to-day, construction, hospital, clinic, and research operations. Numerous start-up and spin-off companies have formed as a result of programs and knowledge at UI, and volunteer activities have contributed to the community. The university's reputation and activities attract visitors and students from outside Iowa, whose expenditures benefit state vendors. In addition, UI is a primary source of higher education to Iowa residents and a supplier of trained workers to state industries, enhancing overall productivity in the state workforce.

Operations spending impact



UI adds economic value to Iowa as an employer of state residents and a large-scale buyer of goods and services. In FY 2017-18, the university employed 10,443 full-time and part-time faculty and staff (excluding hospital, clinic, and research employees), 100% of whom lived in Iowa. Total payroll at UI was \$988.3 million¹ (excluding payroll from hospital, clinic, and research employees), much of which was spent in the state for groceries, mortgage and rent payments, dining out, and other household expenses. In addition, the university spent \$237.4 million on day-to-day expenses related to facilities, supplies, and professional services (excluding construction, hospital, clinic, and research expenditures).

UI's day-to-day operations spending added \$1.1 billion in income to the state during the analysis year. This figure represents the university's payroll, the multiplier effects generated by the in-state spending of the university and its employees, and a downward adjustment to account for funding that the university received from state sources. The \$1.1 billion in added income is equivalent to supporting 10,940 jobs in the state.

Construction spending impact



UI commissioned contractors to build or renovate its facilities in FY 2017-18. The quick infusion of income and jobs that occurred in the state economy as a result of this construction spending is considered short-term due to the one-time nature of such projects. Nonetheless, the university's construction spending had a substantial impact on the state economy in FY 2017-18, equal to \$90.8 million in added income and equivalent to supporting 1,392 jobs.

¹ Includes royalty payments to inventors related to UI that still live in Iowa.



* This table excludes the positive impacts of UI volunteer activities.

UI Hospital & Clinic spending impact



UI Hospitals & Clinics (UIHC), including the Iowa River Landing, University of Iowa Stead Family Children’s Hospital, and pharmacy locations, would not exist without the university. UIHC provides a hands-on learning and research environment for students and employs thousands of workers. Although broader health-related impacts are outside the scope of this analysis, UIHC is known for providing quality patient care.

In FY 2017-18, UIHC spent over \$745 million on payroll and \$760 million on other non-pay expenditures to support its operations. These expenditures added a net impact of \$1.5 billion in added income to the state. This is equivalent to supporting 21,276 jobs.

Research spending impact



Research activities impact the economy by employing people and requiring the purchase of equipment and other supplies and services. Over the last four years, UI received 534 invention disclosures, filed 199 new patent applications, and produced 191 licenses.

In FY 2017-18, UI spent \$229.1 million on payroll to support research activities. This, along with \$282.9 million in other research spending, created a net total of \$417 million in added income for the state economy. This added income is equivalent to supporting 5,506 jobs.

UI RESEARCH DEVELOPMENTS

	Inventions	Patents	Licenses
2014-15	147	58	40
2015-16	151	69	40
2016-17	93	33	60
2017-18	143	39	51
Total	534	199	191

Source: UI.

Economic development impact²



UI creates an exceptional environment that fosters innovation and entrepreneurship, evidenced by the number of UI start-up and spin-off companies related to the university and companies that have grown in the state with the support of UI. Start-up companies, created specifically to license and commercialize UI technology or knowledge, have a strong and clearly defined link to UI. Spin-off companies, created and fostered

² The following three impacts (economic development, visitor spending, and volunteerism) are based off data that is not tracked regularly or captured completely. Thus, the results that follow are conservative.

Customized prosthetics start-up

Erica Cole is the founder of No Limbits, a start-up that creates customized prosthetics covers for amputees that allow each individuals’ personal style and fit needs to be met—at a fraction of the cost. She has competed and placed in every one of the UI John Pappajohn Entrepreneurial Center (JPEC) business competitions.

UI technology transforming health care

For the last 20 years, Dr. Michael Abramoff, a professor in the UI Carver College of Medicine, has studied how artificial intelligence (AI) can be used to detect disease in medical images—specifically how to use “smart cameras” enhanced with AI algorithms to detect signs of diabetic retinopathy. In 2010, Abramoff launched IDx, AI diagnostics company, with collaborators and several colleagues in UI Department of Ophthalmology and Visual Sciences.

In 2017, IDx funded a clinical trial that compared the performance of IDx-DR to the gold standard diagnostic for diabetic retinopathy. It was the first study to prospectively assess the safety of an autonomous AI system in patient care. In April 2018, the Food and Drug Administration (FDA) cleared the technology for use on patients. Two months after FDA authorization, IDx-DR made its debut at the Diabetes and Endocrinology Center at UI Health Care—Iowa River Landing in Coralville, Iowa. The clinic has approximately 7,200 diabetes and endocrinology patient visits each year. IDx-DR has increased the clinic’s ability and confidence to assess patients for complications of diabetes and refer them to a retinal specialist if needed. A diabetic retinopathy screening by a specialist costs \$220. A screening using Dr. Abramoff’s system costs \$30 to \$50. Recently, IDx secured \$33 million in venture capital funding to develop more diagnostic systems for its AI platform.

through university programs or faculty and alumni, have a clear but weaker link to UI. In addition, companies that benefited from UI's Small Business Development Center (SBDC) are included under spin-off companies.³

In FY 2017-18, UI start-up and spin-off companies added \$532 million⁴ in income to the Iowa economy, which is equivalent to supporting 5,780 jobs. The majority of this impact was due to spin-off companies, with the remainder due to start-up companies.

Visitor spending impact



Thousands of visitors from outside the state were attracted to UI during the analysis year to attend commencement, sports events, and other activities sponsored by the university. While in the state, visitors spent money for lodging, food, transportation, and other personal expenses. The off-campus expenditures of the university's out-of-state visitors generated a net impact of \$18.9 million in added income for the state economy in FY 2017-18. This \$18.9 million in added income is equivalent to supporting 558 jobs.

Value of volunteerism



Beyond positively impacting the state through the activities occurring at the university, such as research, UI also directly impacts the state economy through its facilitation and support of student and employee volunteer activities. Volunteers are an important part of any society because they positively impact those less fortunate. In FY 2017-18 alone, 11,612 UI student and employee volunteers supported non-profit organizations and causes across the state. These students and employees volunteered 318,789 hours of their time. Their volunteer activities added \$7.5 million in value⁵ for the state and local communities. The impact of volunteerism is not measured in this analysis; however, the value volunteers offer should not be overlooked.

Student spending impact



Around 44% of students attending UI originated from outside the state in FY 2017-18, and some of these students relocated to Iowa to attend UI. These students may not have come to the state if the university did not exist. In addition, some in-state students, referred to as retained students, would have left Iowa if not for the existence of UI. While

Providing dental care for the underserved

In each of the last six years, the College of Dentistry has been awarded the Iowa Primary Care Association's "Underserved Champion Award" for its work with Iowans who need dental care. For many years, faculty and staff have regularly volunteered at the Iowa Mission of Mercy, an annual two-day community dental clinic where dental professionals and general volunteers donate their time to provide free dental care. Over 50 faculty and staff and between 100 and 150 students participate each year. The College also conducts broader outreach work and annually organizes a charity trip to provide services in Mexico.

3 The number of employees included is limited to the employees hired as a direct result of the spin-off companies and the growth in employees at companies supported by the SBDC.
4 To maintain an acceptable level of data reliability, this impact is limited to those companies that were created in the last five years. It is therefore conservative.
5 Value per volunteer hour per state provided by Independent Sector. See https://independentsector.org/resource/vovt_details/.

attending the university, these relocated and retained students spent money on groceries, accommodation, transportation, and other household expenses. This spending generated \$119.2 million in added income for the state economy in FY 2017-18, which supported 2,784 jobs in Iowa.

Alumni impact



The education and training UI provides for state residents has the greatest impact. Since its establishment, students have studied at UI and entered the state workforce with greater knowledge and new skills. Today, thousands of former UI students are employed in Iowa. For example, 78% of Iowa's dentists are UI alumni, 77% of Iowa's physician assistants studied at UI, and UI-trained K-12 teachers are found in 100% of Iowa's school districts. As a result of their UI educations, the students receive higher earnings and increase the productivity of the businesses that employ them. In FY 2017-18, UI alumni generated \$2.7 billion in added income for the state economy, which is equivalent to supporting 32,838 jobs.

Total impact

UI added \$6.5 billion in income to the Iowa economy during the analysis year, equal to the sum of the operations, construction, UIHC, and research spending impacts, the economic development impact, the visitor and student spending impacts, and the alumni impact. For context, the \$6.5 billion impact was equal to approximately 3.4% of the total gross state product (GSP) of Iowa. This contribution that the university provided on its own is nearly as large as the entire Professional & Technical Services industry in the state. Note that the \$6.5 billion impact does not include the value that UI's volunteer activities are adding to the state and local communities.

UI's total impact can also be expressed in terms of jobs supported. The \$6.5 billion impact supported 81,073 state jobs, using the jobs-to-sales ratios specific to each industry in the state. This means that one out of every 26 jobs in Iowa is supported by the activities of UI and its students.

In addition, the \$6.5 billion, or 81,073 supported jobs, stemmed from different industry sectors. Among non-education industry sectors, UI's spending and alumni in the Health Care & Social Assistance industry sector supported 18,610 jobs in FY 2017-18. These are impacts that would not have been generated without the university's presence in Iowa.

One out of every 26 jobs in Iowa is supported by the activities of UI and its students.

UI is the top trainer of Iowa professionals:

- **78%** of Iowa's dentists are UI alumni
- **53%** of Iowa's physicians are UI alumni
- **51%** of Iowa's pharmacists are UI alumni
- **82%** of Iowa's physician assistants are UI alumni
- UI-trained K-12 teachers are found in **100%** of Iowa's school districts

UI IMPACTS BY INDUSTRY (JOBS SUPPORTED)





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 UI as an investment from the perspectives of students, taxpayers, and society in Iowa.

Student perspective



In Fall 2017, UI served 32,166 students. Expanding to the annual unduplicated headcount across FY 2017-18, UI served more than 35,000 students. In order to attend the university, 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 UI's students in FY 2017-18 amounted to a present value of \$885.4 million, equal to \$458.4 million in out-of-pocket expenses (including future principal and interest on student loans) and \$427.1 million in forgone time and money.

In return for their investment, UI's students will receive a stream of higher future earnings that will continue to grow throughout their working lives. For example, the average UI 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 Iowa. Over a working lifetime, the benefits of the bachelor's degree over a high school diploma will amount to an undiscounted value of \$972.4 thousand in higher earnings per graduate. The present value of the cumulative higher future earnings that UI's FY 2017-18 students will receive over their working careers is \$3.2 billion.

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



14.2%

Average annual return for UI's students



9.9%

Stock market 30-year average annual return

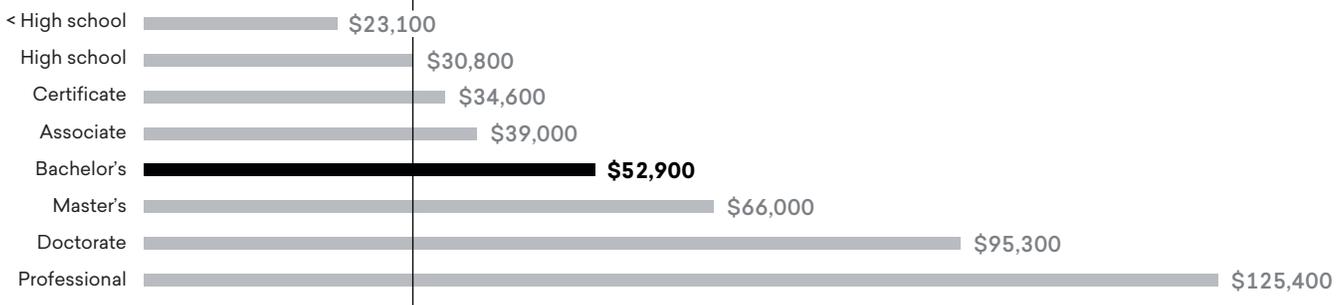


0.8%

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 UI will see an increase in earnings of **\$22,100** each year compared to a person with a high school diploma or equivalent working in Iowa.



Source: Emsi employment data.

The students' benefit-cost ratio is 3.6. In other words, for every dollar students invest in UI, in the form of out-of-pocket expenses and forgone time and money, they will receive a cumulative value of \$3.60 in higher future earnings. Annually, the students' investment in UI has an average annual internal rate of return of 14.2%, which is impressive compared to the U.S. stock market's 30-year average rate of return of 9.9%.

Taxpayer perspective⁶



UI generates more in tax revenue than it takes. These benefits to taxpayers consist primarily of taxes that the state government will collect from the added revenue created in the state. As UI students 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 government will have collected a present value of \$770 million in added taxes.

Benefits to taxpayers will also consist of savings generated by the improved lifestyles of UI students and the corresponding reduced government services. Education is statistically correlated with a variety of lifestyle changes. Students' UI educations 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 be less likely to interact with the criminal justice system, resulting in a reduced demand for law enforcement and victim costs. UI 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 the university for a copy of the main report. Altogether, the present value of the benefits associated with a UI education will generate \$116.5 million in savings to state taxpayers.

Total taxpayer benefits amount to \$886.5 million, the present value sum of the added taxes and public sector savings. Taxpayer costs are \$316.8 million, equal to the amount of state government funding UI received in FY 2017-18. These benefits and costs yield a benefit-cost ratio of 2.8. This means that for

*For every dollar of public money invested in UI, taxpayers will receive a cumulative value of **\$2.80** over the course of the students' working lives.*

⁶ In order to focus on the costs and benefits that are more directly related to UI, UIHC operational costs and benefits were removed from the taxpayer and social perspectives.



STUDENT PERSPECTIVE

\$3.2 billion
Present value benefits

\$885.4 million
Present value costs

\$2.3 billion
Net present value

Benefit-cost ratio	Rate of return
3.6	14.2%



TAXPAYER PERSPECTIVE

\$886.5 million
Present value benefits

\$316.8 million
Present value costs

\$569.8 million
Net present value

Benefit-cost ratio	Rate of return
2.8	8.4%



SOCIAL PERSPECTIVE

\$9.1 billion
Present value benefits

\$2.6 billion
Present value costs

\$6.5 billion
Net present value

Benefit-cost ratio	Rate of return
3.5	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.

every dollar of public money invested in UI in FY 2017-18, taxpayers will receive a cumulative value of \$2.80 over the course of the students' working lives. The average annual internal rate of return for taxpayers is 8.4%, which compares favorably to other long-term investments in the public and private sectors.

Social perspective



Society as a whole in Iowa benefits from the presence of UI 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 Iowa.

Benefits to society also consist of the savings generated by the improved lifestyles of UI 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 the university for a copy of the main report.

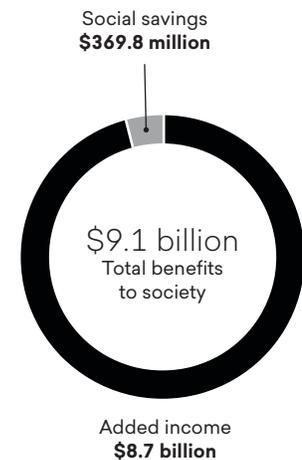
Altogether, the social benefits of UI equal a present value of \$9.1 billion. These benefits include \$8.7 billion in added income through students' increased lifetime earnings and increased business output, as well as \$369.8 million in social savings related to health, crime, and income assistance in Iowa. People in Iowa invested a present value total of \$2.6 billion in UI in FY 2017-18. The cost includes all the university and student costs.

The benefit-cost ratio for society is 3.5, equal to the \$9.1 billion in benefits divided by the \$2.6 billion in costs. In other words, for every dollar invested in UI, people in Iowa will receive a cumulative value of \$3.50 in benefits. The benefits of this investment will occur for as long as UI's FY 2017-18 students remain employed in the state workforce.

Summary of investment analysis results

The results of the analysis demonstrate that UI 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 UI education. At the same time, taxpayers' investment in UI returns more to government budgets than it costs and creates a wide range of social benefits throughout Iowa.

SOCIAL BENEFITS IN IOWA FROM UI



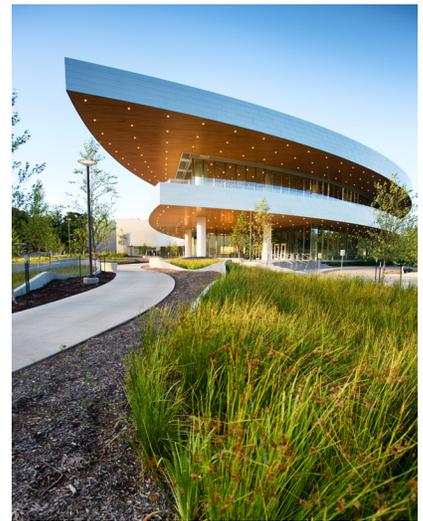
Conclusion

The results of this study demonstrate that UI creates value from multiple perspectives. The university benefits state businesses by increasing consumer spending in the state and supplying a steady flow of qualified, trained workers to the workforce. UI enriches the lives of students by raising their lifetime earnings and helping them achieve their individual potential. The university benefits state taxpayers through increased tax receipts and a reduced demand for government-supported social services. Finally, UI benefits 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 2017-18 academic and financial reports from UI, 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 the university for a copy of the main report.

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



Emsi is a labor market analytics firm that integrates data from a wide variety of sources to serve professionals in higher education, economic development, workforce development, talent acquisition, and site selection. Emsi is a leading provider of economic impact studies and labor market data to educational institutions in the U.S. and internationally. Since 2000, Emsi has completed over 2,000 economic impact studies for institutions across three countries. For more information about Emsi's products and services, visit www.economicmodeling.com.