



INDIANA UNIVERSITY

The Economic Value of Indiana University

EXECUTIVE SUMMARY



200 YEARS

INDIANA University (IU) and the daily lives of Hoosiers are inextricably intertwined. Through economic engagement activities, IU connects the university's intellectual and creative resources with strategic opportunities that not only align educational programs with the workforce needs of the state, but the university also provides a foundation to foster continued economic growth.

Recognizing that active engagement in the economic well-being of Indiana is a primary obligation for IU as the state's largest public research institution, President Michael A. McRobbie created the *Innovate Indiana* initiative upon assuming university leadership in 2007. *Innovate Indiana*, which coordinates economic development activity across all IU campuses and in every corner of the state, encompasses the breadth and depth of activity at IU focused on, and dedicated to, channeling the university's resources and expertise to enhance Indiana's economic vitality and quality of life for Hoosiers. The Office of the Vice President for Government Relations and Economic Engagement provides stewardship for Innovate Indiana through statewide outreach that brings together internal university constituencies and engages diverse external stakeholders in business and industry, government and communities, and media of all forms.

The university's impact on Indiana can be felt widely and tangibly across each of its 92 counties. Collectively, all of IU's campuses actively engage their respective communities and regions to develop and deliver education, quality degrees, cooperative initiatives, and research that addresses important regional needs and opportunities. Through the vast scope of its statewide activities, IU benefits Indiana as a whole by educating citizens, preventing and treating disease to improve health, enriching arts and culture, enhancing policymaking, developing sustainable infrastructure, and promoting economic growth. IU researchers also develop scientific and technological advancements that drive productivity in commercial markets. In terms of direct contributions to economic growth, the university purchases a considerable amount of goods and services from local businesses across the state while also employing residents in nearly every county, each of whom contributes directly to local tax bases.

200 years and counting

The Indiana University Bicentennial is a multi-year, multi-campus program that is academically driven, historically grounded, intellectually stimulating, and enjoyable. Through focused study and criticism, reflection, celebration, and documentation, the Bicentennial demonstrates how IU has served as a "people's university." The program includes a dynamic series of Bicentennial Signature Projects complemented by activities stemming from individuals, departments, schools, and campuses. The goals of the IU Bicentennial are: 1) celebrate and recognize, 2) chronicle, document, and explore, and 3) inspire and engage.

The university commissioned this economic impact study under the overarching context of the university's Bicentennial to help illustrate IU's important role as an economic driver for the state of Indiana over its 200-year history—which is more important than ever as the university begins its 3rd century.

Additionally, IU supports creation of new jobs in vital growth sectors, such as the life sciences, health and medicine, technology, defense and national security, and cybersecurity and prepares a workforce ready to fill them. Research indicates that a well-educated workforce corresponds with improved health, lower rates of mortality, and lower overall rates of crime and poverty. A degree from IU provides citizens with the capacity to increase lifetime earning potential and to achieve upward social mobility. IU alumni contribute greatly to the state in serving their local communities as business owners and employers, entrepreneurs, researchers, teachers, doctors, nurses, lawyers, policymakers, and more.

This study measures the economic impacts created by IU on the state 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

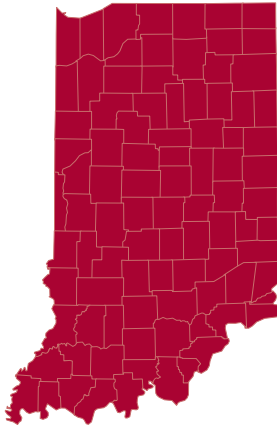


Investment analysis

All results reflect employee, student, and financial data, provided by the university, for fiscal year (FY) 2018-19 (July 1, 2018 – June 30, 2019). Impacts on the Indiana 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 Indiana are reported under the investment analysis.

KEY TAKEAWAYS

- IU created **\$9.9 billion** in added income for Indiana in FY 2018-19.
- **One out of every 26 jobs** in Indiana is supported by the activities of IU and its students.
- For every dollar students invest in their education at IU, they will receive **\$3.50** in higher future earnings.
- For every tax dollar spent educating IU students, taxpayers will receive an average of **\$2.40** in return over the course of the students’ working lives.



INDIANA





Economic impact analysis



On an annual basis, IU generates a flow of spending that has a major impact on the state economy. The impacts are captured by the university's operations, research, construction, entrepreneurial, visitor, and student spending. As impressive as these numbers are, they are further enhanced by IU's core mission of producing knowledgeable, creative, and entrepreneurial graduates—with the most contemporary skills—who keep Indiana's talent pipeline full. Therefore, the greatest economic impact of IU stems from the added human capital—the knowledge, creativity, imagination, and entrepreneurship—found in its alumni. IU alumni along with its spending impacts added **\$9.9 billion in income to the state economy in FY 2018-19.**

IU's campuses and centers span across the state, providing access to education for hundreds of thousands of students. In fact, 80% of students live within an hour's drive of an IU campus. As the largest producer of Indiana's nurses, teachers, dentists, IT professionals, surgeons, lawyers, and public safety officers of any Indiana college or university, IU plays a major role in supporting the state's talent strategy.

In addition, IU is home to world-class schools of business, music, and public and environmental affairs, the world's first school of philanthropy, the nation's first school of informatics, and the nation's largest medical school. A wide array of programs at IU have received world-wide recognition, including programs in the arts and sciences, education, engineering, law, international studies, journalism, nursing, public health, and public affairs.

While attending IU, students gain experience, education, and the knowledge, skills, and abilities that increase their productivity and allow them to command a higher wage once they enter the workforce. The employers of IU alumni enjoy the fruits of this increased productivity in the form of additional non-labor income (i.e., higher profits).

IMPACTS CREATED
BY IU IN FY 2018-19



\$1.9 billion

Operations Spending Impact



\$464.7 million

Research Spending Impact



\$65.2 million

Construction Spending Impact



\$106 million

Start-up & Spin-off Company Impact



\$79.8 million

Visitor Spending Impact



\$268.7 million

Student Spending Impact



\$7 billion

Alumni Impact



\$9.9 billion

TOTAL IMPACT

- OR -

151,015

JOBS SUPPORTED

Operations spending impact



IU adds economic value to Indiana as an employer of state residents and a large-scale buyer of goods and services. In FY 2018-19, the university employed 43,825 full-time and part-time faculty and staff¹ and 98% of whom lived in Indiana. Total payroll at IU was \$1.8 billion (excluding payroll from 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 \$624.7 million on day-to-day expenses related to facilities, supplies, and professional services (excluding research expenditures).

IU's day-to-day operations spending added \$1.9 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 **\$1.9 billion** in added income is equivalent to supporting **39,374 jobs** in the state.

Research spending impact



IU provides education, expertise, innovation, and leadership to Hoosier communities by partnering on a variety of initiatives. Research activities impact the economy by employing people and requiring the purchase of equipment and other supplies and services. IU research activities attracted \$545 million in funding from out-of-state sources to the state of Indiana.

Research spending supports research that saves lives, enriches and transforms Indiana communities, and helps address some of the biggest challenges facing the economy, including addictions, cybersecurity, deadly diseases, economic inequality and environmental change. IU has hundreds of research centers, institutes and museums spread across its campuses, which bring people together to pursue new discoveries and innovations. Grand Challenges helps make this research possible by investing \$300 million every five years in IU research. IU research works in close collaboration with community partners across the state. In addition, the Public Policy Institute and Indiana Business Research Center help businesses, public policymakers, and nonprofits to succeed.

In FY 2018-19, IU spent \$261.5 million on payroll to support research activities. This, along with \$470.9 million in other research spending, created a net total of **\$464.7 million** in added income for the state economy. This added income is equivalent to supporting **8,777 jobs**.

*IU's operations spending alone added **\$1.9 billion** in income to the state in FY 2018-19.*



*IU research activities attracted **\$545 million** in funding from out-of-state sources to the state of Indiana.*

¹ Of the 43,825 IU faculty and staff, 38,219 were not research employees.

Construction spending impact



IU invests in construction each year to renovate, construct new buildings, demolish old buildings, and repair and replace equipment, roofing, flooring, windows, asphalt, water pumps, HVACs, and more. While the amount varies from year to year, these quick infusions of income and jobs have a substantial impact on the state economy. In FY 2018-19, IU's construction spending generated **\$65.2 million** in added income, which is equivalent to supporting **958 jobs**.

Start-up and spin-off company impact



IU works with faculty, staff, students, alumni and external partners such as business and industry, economic development organizations and individual entrepreneurs to support and advance new innovations and discoveries. Start-up companies, created specifically to license and commercialize IU technology or knowledge, have a strong and clearly defined affiliation to IU and they frequently use their connections to the university to attract prospective investors, facilitate connections with other high-potential companies and contribute to a pervasive entrepreneurial culture throughout IU and the state. Spin-off companies are created and fostered through university programs or faculty and alumni. Over the last four years, IU received 661 invention disclosures, filed 865 new patent applications, and produced 175 licenses.

Two individual units lead innovation at Indiana University, IU Ventures and IU Innovation and Commercialization Office. IU Ventures' predecessor, IU Research and Technology Corporation, was named Tech Transfer Unit of the Year in the 2018 Global University Venturing Awards. Since its formation in 1997, it has launched nearly 100 startups. The IU Innovation and Commercialization Office brings IU discoveries out of the lab and into the marketplace by helping IU researchers protect and commercialize their inventions. Since 1997, IU research has generated more than 500 patents, nearly 2,000 inventions protected and commercialized, and \$145 million in licensing and royalty income.



*Since 1997, IU research has generated more than **500 patents**, nearly **2,000 inventions** protected and commercialized, and **\$145 million** in licensing and royalty income.*

IU RESEARCH DEVELOPMENTS

| | Inventions | Patent applications | Licenses |
|--------------|------------|---------------------|------------|
| 2015-16 | 150 | 235 | 46 |
| 2016-17 | 164 | 200 | 62 |
| 2017-18 | 171 | 210 | 46 |
| 2018-19 | 176 | 220 | 21 |
| Total | 661 | 865 | 175 |

Source: IU.

In FY 2018-19, IU start-up and spin-off companies added **\$106 million** in income to the Indiana economy, which is equivalent to supporting **445 jobs**. Of this added income, \$32.9 million was due to the start-up companies, with the remainder due to spin-off companies.

Visitor spending impact



Hundreds of thousands of visitors from outside the state were attracted to IU during the analysis year to attend commencement, sports events, and other activities sponsored by the university.² 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 **\$79.8 million** in added income for the state economy in FY 2018-19. This \$79.8 million in added income is equivalent to supporting **2,222 jobs**.

Student spending impact



Around 26% of students attending IU originated from outside the state in FY 2018-19, and some of these students relocated to Indiana to attend IU. These students may not have come to the state if the university did not exist. In addition, some in-state students would have left Indiana if not for the existence of IU.³ While attending the university, these students spent money on groceries, accommodation, transportation, and other household expenses. This spending generated **\$268.7 million** in added income for the state economy in FY 2018-19, which supported **6,583 jobs** in Indiana.

Alumni impact



The education and training IU provides for state residents has the greatest impact. Since its establishment, students have studied at IU and entered the state workforce with greater knowledge and new skills. In addition to technical skills, students are leaving IU with contemporary skills, such as creativity and leadership, that are in extremely high demand by the state's leading employers. Even though all alumni, graduates or not, are included in this analysis, it is worth noting that IU graduates more 20,000 student each year—more than any other institution in the state. In FY 2018-19, nearly seven out of every 10 graduates were residents of Indiana. There is no greater reflection of IU's commitment to delivering a world-class education—and the career



² Note that the change in spending of in-state visitors visiting other areas of the state to attend events hosted by the individual IU campuses is also included.

³ Note that the change in spending of in-state students moving within the state to attend the individual IU campuses is also included.

preparation that our students and Indiana's leading employers expect—than the number of students we graduate each year.

Today, hundreds of thousands of former IU students are employed in Indiana. As a result of their IU educations, the students receive higher earnings and increase the productivity of the businesses that employ them. In FY 2018-19, IU alumni generated **\$7 billion** in added income for the state economy, which is equivalent to supporting **92,655 jobs**.

As the largest producer of Indiana's nurses, teachers, dentists, IT professionals, surgeons, lawyers, and public safety officers of any Indiana college or university, IU plays a major role in supporting the state's talent strategy.

Total impact

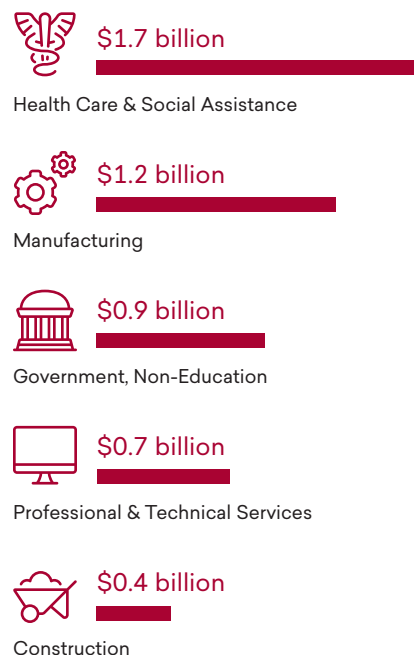
IU added **\$9.9 billion** in income to the Indiana economy during the analysis year, equal to the sum of the operations, research, and construction spending impacts, the start-up and spin-off company impact, the visitor and student spending impacts, and the alumni impact. For context, the \$9.9 billion impact was equal to approximately **2.7%** of the total gross state product (GSP) of Indiana. This contribution that the university provided on its own is larger than the entire Accommodation & Food Services industry in the state.

*The additional income of **\$9.9 billion** created by IU is equal to approximately **2.7%** of the total gross state product of Indiana.*

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



IU IMPACTS BY INDUSTRY



IU's total impact can also be expressed in terms of jobs supported. The \$9.9 billion impact supported **151,015 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 Indiana is supported by the activities of IU and its students. In addition, the \$9.9 billion, or 151,015 supported jobs, stemmed from different industry sectors. Among non-education industry sectors, IU's spending and alumni in the Health Care & Social Assistance industry sector added \$1.7 billion in income to the state in FY 2018-19. These are impacts that would not have been generated without the university's presence in Indiana.





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 IU as an investment from the perspectives of students, taxpayers, and society in Indiana.

Student perspective



In FY 2018-19, IU served a total annual unduplicated headcount of 126,597 students,⁴ including 17,919 dual credit high school students.

By attending IU, students will receive higher future earnings throughout their working lives; however, college is also an investment for students. In

*In FY 2018-19, IU served **126,597** students, 17,919 of whom were dual credit high school students.*

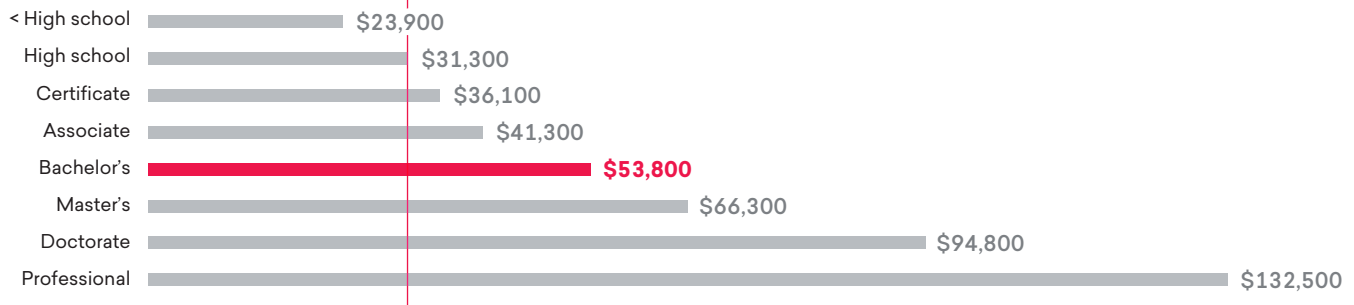
IU Student Debt Initiative

IU leads among institutions of higher education in making an affordable, world-class education accessible to all students. IU has received national recognition for offering an affordable, high-quality education and developing cutting-edge financial literacy initiatives that have served as a statewide and nationwide model for easing the burden of student loan debt on college students, their families, and the nation's economy.

"All of us in higher education have a responsibility to help our students make sound financial decisions based on a solid understanding of the implications of taking on excessive debt. At the same time, we must continue to work to keep a college education as affordable as possible." — IU President Michael A. McRobbie

⁴ The study used an unduplicated count of students enrolled between 7/1/18 and 6/30/19, which included students enrolled in the Summer II 2018, Fall 2018, Spring 2019, and Summer I 2019 semesters. This count also includes dual credit, high school enrollments as of the end of term, which is the most inclusive count of such students. The method is more meaningful for studying economic impact, but it differs from IU's standard enrollment reporting, which uses beginning-of-term numbers on a semester-by-semester basis. Both perspectives accurately draw from the same underlying data.

The average bachelor's degree graduate from IU will see an increase in earnings of **\$22,500** each year compared to a person with a high school diploma or equivalent working in Indiana.



Source: Emsi employment data.

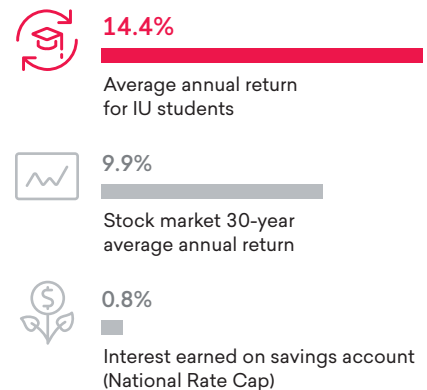
order to attend the university, the students paid for tuition, fees, books, and supplies. They also took out loans and will incur interest on those loans. Additionally, students forewent income they would have otherwise earned had they been working instead of attending college. The total investment made by IU's students in FY 2018-19 amounted to a present value of \$2.2 billion.

In return for their investment, IU's students will receive a stream of higher future earnings that will continue to grow throughout their working lives. For example, the average IU bachelor's degree graduate from FY 2018-19 will see annual earnings that are \$22,500 higher than a person with a high school diploma or equivalent working in Indiana. Over a working lifetime, the benefits of the bachelor's degree over a high school diploma will amount to an undiscounted value of \$990,000 in higher earnings per graduate. The present value of the cumulative higher future earnings that IU's FY 2018-19 students will receive over their working careers is \$7.7 billion.

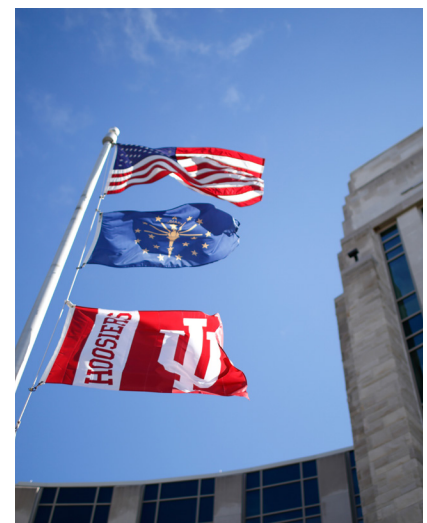
The students' benefit-cost ratio is 3.5. In other words, for every dollar students invest in IU, in the form of out-of-pocket expenses and forgone time and money, they will receive a cumulative value of \$3.50 in higher future earnings. **For every \$10,000 students invested in their education at IU, they will receive \$35,000 in return** in the form of higher future earnings. Annually, the students' investment in IU has an average annual internal rate of return of 14.4%, which surpasses the U.S. stock market's 30-year average rate of return of 9.9%.

This analysis is conservative because it does not take into account the improved well-being of IU students. Many years of research have demonstrated that a college education leads to happier and healthier lives. Educated members of society typically use the knowledge and skills they acquire over their years of learning to pursue their life goals and dreams, while also improving their lifestyles and overall well-being. They are generally more financially stable than those who do not engage in higher education, and they are inspired to work to improve their mental, physical and emotional health.

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



Source: Forbes' S&P 500, 1989-2018. FDIC.gov, 6-2019.



Taxpayer perspective



IU generates more in tax revenue than it receives. Benefits to taxpayers will also consist of savings generated by the improved lifestyles of IU students and the corresponding reduced government services.

As IU students will 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 2018-19 students' working lives, the state and local government will have collected a present value of \$1.3 billion in added taxes.

Taxpayers will also experience savings generated by the improved lifestyles of IU students and the corresponding reduced government services. Education is statistically correlated with a variety of lifestyle changes. Students' IU education will generate savings in three main areas—health care, crime, and income assistance—of tax savings. 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. IU students will be more employable, decreasing their need for income assistance such as welfare and unemployment benefits. 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 an IU education will generate \$257.6 million in savings to state and local taxpayers.

Total taxpayer benefits amount to \$1.5 billion, the present value sum of the added taxes and public sector savings. Taxpayer costs are \$623.3 million, equal to the amount of state and local government funding IU received in FY 2018-19. These benefits and costs yield a benefit-cost ratio of 2.4. This means that for every dollar of public money invested in IU in FY 2018-19, taxpayers will receive a cumulative value of \$2.40 over the course of the students' working lives. To state this another way, **for every \$10,000 invested by taxpayers, they will receive \$24,000 in return.** The average annual internal rate of return for taxpayers is 7.6%, which compares favorably to other long-term investments in the public and private sectors.

*For every dollar of public money invested in IU, taxpayers will receive a cumulative value of **\$2.40** over the course of the students' working lives.*



STUDENT PERSPECTIVE

\$7.7 billion

Present value benefits

\$2.2 billion

Present value costs

\$5.5 billion

Net present value

Benefit-cost ratio

3.5

Rate of return

14.4%



TAXPAYER PERSPECTIVE

\$1.5 billion

Present value benefits

\$623.3 million

Present value costs

\$894.7 million

Net present value

Benefit-cost ratio

2.4

Rate of return

7.6%



SOCIAL PERSPECTIVE

\$22 billion

Present value benefits

\$4.6 billion

Present value costs

\$17.4 billion

Net present value

Benefit-cost ratio

4.8

Rate of return

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.

Social perspective

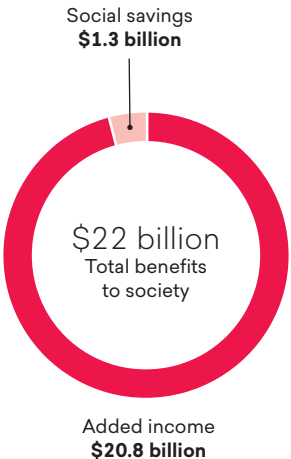


Although the public often emphasizes the benefits of a college degree to themselves, the benefits to society are equally important. Through their volunteer work, leadership and philanthropic contributions, IU students enrich the civic and economic life of their communities. They contribute more in taxes and they are also less reliant on government programs and services than those without college degrees. They are also more actively involved in vital societal activities, such as voting. In addition, IU provides vital services to communities that are often overlooked, such as sports, culture, arts, and music. Many of these benefits are difficult to quantify; however, this study is able to capture the increased economic base to the state from the growth in gross state product stemming from IU's impact on the state and the higher future earnings. In addition, the personal and governmental benefits from the improved lifestyles of IU students is captured.

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 costs 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 IU equal a present value of \$22 billion. These benefits include \$20.8 billion in added income through students' increased

SOCIAL BENEFITS IN INDIANA FROM IU



*For every dollar invested in IU, people in Indiana will receive a cumulative value of **\$4.80** in benefits.*



lifetime earnings and increased business output, as well as \$1.3 billion in social savings related to health, crime, and income assistance in Indiana. People in Indiana invested a present value total of \$4.6 billion in IU in FY 2018-19. The cost includes all the university and student costs.

The benefit-cost ratio for society is 4.8, equal to the \$22 billion in benefits divided by the \$4.6 billion in costs. In other words, for every dollar invested in IU, people in Indiana will receive a cumulative value of \$4.80 in benefits. One can also say that **for every \$10,000 society invested in IU, Indiana will see \$48,000 in benefits** over the students working lives. The benefits of this investment will occur for as long as IU's FY 2018-19 students remain employed in the state workforce.

Summary of investment analysis results

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



Conclusion

This study demonstrates that IU increases the economic activity in the state, the earnings of its students, and the tax revenues received by the state. IU fills the state's talent pipeline with knowledgeable, skilled, and innovative employees, who then generate substantial tax revenue for the state. IU's alumni not only give back to their state through the economic contributions they make, but also through the impact they have on strengthening society. The university enriches the lives of students, drives the success of state and local businesses, supports the state and local taxpayers, and advances society as a whole in Indiana by creating a more prosperous economy and generating a variety of savings.

In FY 2018-19, IU added **\$9.9 billion** in income to the state. This income would not have existed in the state without IU. This is an annual impact and will continue year after year as IU continues to serve students. The \$9.9 billion impact was equal to approximately **2.7%** of the total gross state product (GSP) of Indiana. The contribution that the university provided on its own is larger than the entire Accommodation & Food Services industry in the state. The impact is equivalent to supporting **151,015 jobs**. In other words, **one out of every 26 jobs** in the state is supported by IU and its students. For every dollar students and taxpayers invested in IU, students will receive **\$3.50** in the form of higher future earnings and taxpayers will receive **\$2.40** in the form of added tax revenues and government savings. By almost any measure and across every economic sector, IU delivers a substantial positive impact on the state and a strong return on investment for its students, taxpayers, and Indiana as a whole.



IU created \$9.9 billion for the state in FY 2018-19, this is equivalent to saying that one out of every 26 jobs in the state is supported by the activities of IU and its students.

For every dollar students and taxpayers invested in IU, they will receive \$3.50 and \$2.40 in benefits, respectively.

About the study

Data and assumptions used in the study are based on several sources, including the FY 2018-19 IU academic and financial reports from IU Financial Management Systems and IU University Institutional Research and Reporting Research, 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.



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. Emsi is well known for its conservative methodology. Emsi's methodology for this study adheres to the Association of American Universities (AAU) and the Association of Public and Land-grant Universities (APLU) guidelines, published in December 2014. For more information about Emsi's products and services, visit www.economicmodeling.com.