

# The Economic Impact of Southern Illinois University Carbondale

*FULL TEXT REPORT*

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## **Executive Summary**

This 2024 study provides estimates of the university's economic impact on the state and select points of pride. The previous impact study was conducted in 2011. SIU School of Medicine is part of SIU Carbondale (SIUC) and is included in this impact report. SIU Healthcare, however, is not included in this report. The data used in this study is from the fiscal year 2023. Key findings are as follows.

### ***Economic Impacts***

SIUC substantially impacted the region's and the state's economies while fulfilling its mission of developing human capital, growing ideas and transmitting knowledge to the public. In 2023, an economic impact of about **\$2.7 billion** came from the university's operations, student expenditures, visitor spending, and alumni income and the university's economic activity supported **18,601** jobs in Illinois.

SIUC's economic impact reflects day-to-day economic activity on campus and also related activities off-campus, each with its economic impact, as follows:

- SIUC's general operation as a university creates an economic impact of **\$1.36 billion** and supports **9,669** jobs in Illinois.
- Spending by SIUC students contributes to the economy, with an economic impact of **\$163 million**, supporting **1,335** jobs.
- SIUC visitors' spending is another significant economic stimulus, with an impact of **\$12,618,731**, supporting **95** jobs.
- SIUC alumni working in Illinois leverage their college degrees to achieve higher incomes for themselves, supporting more business activity. Income gains from these alumni have an economic impact of over **\$1 billion**.

### ***Return on Investment***

Students and the State of Illinois invest in SIUC, and each receives significant benefits from their investment.

- SIUC students receive, on average, a strong return on investment from their university education. The direct cost of attending a university includes tuition, fees, other related expenses, and interest paid on student loans, all of which are direct costs. The total economic cost also includes an indirect or opportunity cost of foregone income while attending university. For a student completing all four years of a bachelor's degree at SIUC, the total economic cost or outlay (including foregone income) is \$160,000, and the reward to that outlay is \$438,397 of additional future income, expressed in present value terms. In other words, each invested dollar creates a present value return of **\$2.74** to the SIUC graduate who gets all their university education at SIUC, and students transferring to SIUC from a junior college also receive an excellent return on investment.

- For a student completing a doctor of medicine (M.D.) degree at SIU School of Medicine, the total economic cost or outlay (including foregone income while in school) is \$402,848, and the reward to that outlay is \$3,470,007 of additional future income, expressed in present value terms. In other words, each invested dollar creates a present value return of **\$8.6 dollars** to the SIU School of Medicine graduating M.D.
- Taxpayers provide significant funding for SIUC's economic activity, and in return, that activity creates new tax income from related activities – including university operations, student spending, visitor spending, and future income gains from higher education for this year's SIUC graduates, yielding tax revenues equal to \$153,322,462 in present value terms, which exceeds the state tax dollars currently spent on SIUC, equal to \$132,886,900. In other words, the taxpayer's return on investment in SIUC is **\$1.15** in tax revenue for each state tax dollar spent on SIUC. This return does not include community service, free health workshops and screenings, free (or reduced-price) music and theatre performances, free sports events, free environmental projects and others.

## **Introduction**

This study examines various ways the SIUC contributes to the state's economy, emphasizing its role as a catalyst for driving the region's growth. This report utilizes an IMPLAN economic impact modeling technique to measure the multiplier effect of economic activities. It calculates the cumulative impact of multiple rounds of spending triggered by expenditures, new incomes, or job creation within the region. Not all activities generate a quantifiable economic ripple effect. Certain activities, like volunteering as a doctor, are crucial in maintaining the community's well-being, yet they are not quantified or evaluated. The economic impact is calculated by adding up the initial direct spending and the subsequent ripple effects throughout the supply chain, including direct, indirect, and induced spending. The economic benefits are classified according to the following effects: 1) The effect of operational expenditures, 2) The influence of student expenditures, 3) The impact of visitor expenditures, and 4) the alumni contribution to the region. The research conducted at SIU positively influences student learning and career opportunities. It also stimulates the creation of innovative methods and technologies that cater to the needs of the region and enhance the overall quality of life. In addition, SIUC actively participates in community-oriented initiatives that contribute to the growth of small businesses, entrepreneurial endeavors and the development of a highly skilled workforce in the region.

## ***Profile of SIU Carbondale***

SIUC is the flagship campus of the SIU System. It is a strong, diverse, student-centered, research-intensive and comprehensive university that recently earned the prestigious 2015 community engagement classification from the Carnegie Foundation for the Advancement of Teaching. That designation reflects a longstanding commitment to service and outreach. In 2013 alone, 237,000 residents in central and southern Illinois benefited from 578 initiatives with

more than 3,000 community partners. Diversity is integral to the SIUC legacy, dating to the inaugural SIU class of 143 in 1869 that included two African American students. Today, minority students make up 29 percent of our total enrollment, and SIUC continues to rank among the nation's top colleges and universities in the number of degrees awarded to students in ethnic and racial minority groups.

The SIUC campus sits on 1,133 scenic acres which includes a large campus lake. It's minutes away from Giant City Park, popular for hiking and camping and part of the vast Shawnee National Forest in Southern Illinois. The region's physical beauty and fun outdoor recreation are a major attraction to students, faculty and visitors.

SIUC embraces a unique tradition of access and opportunity, inclusive excellence, innovation in research and creativity and outstanding teaching focused on nurturing student success. SIUC has achieved the Carnegie Research R1 status after securing over \$50 million in total R&D and offering over 70 doctoral research degrees. As a nationally ranked public research university and regional economic catalyst, it creates and exchanges knowledge to shape future leaders, improve communities and transform lives. The university produces quality graduates with creative and critical thinking skills, emotional intelligence, ethical reasoning, teamwork experience, fluent communication and effective technological skills. Graduates demonstrate professional integrity, respect social constructions and engage diverse individuals and groups.

## **Economic Impact Analysis**

### ***Operations Spending Impact***

The operational spending by SIUC contributes significantly to the economic activities of the Southern Illinois region and statewide economy.

Table 1 presents the university's expenditures, including research, hospital, construction, operation and maintenance of plants, purchases for supplies and services, and all other spending. Also included in all other expenditures are expenses associated with grants and scholarships. Many students receive grants and scholarships that exceed the cost of tuition and fees. The universities then dispense this residual financial aid to students, who spend it on living expenses. Some of this spending takes place in the state and is, therefore, an injection of new money into the state economy that would not have happened if the university did not exist. Operational expenditures, both in and out of the state, from the SIUC campus totaled over \$640.97 million in the 2023 fiscal year. The university purchases supplies and services from various vendors, and many vendors are based in Illinois. These expenditures create a ripple effect that generates more jobs and higher wages throughout the economy. Using the average expenditure of the university by geography, we created the in-state and out-of-state expenditure of the university's operations to estimate economic impacts in this report. In some cases, payments made to local businesses through third-party financial agents were corrected for and attributed to the local economy.

A significant portion of the university’s expenditures goes toward payroll for the faculty and staff employed by the institution. In fiscal year 2023, payroll expenditures were nearly \$380.316 million of the total annual spending. This annual payroll expenditure occurred within the Southern Illinois region. Spending on operation and maintenance equaled \$40.81 million; other spending included construction spending, instruction, research, fellowship, and scholarships, which amounted to \$219.85 million.

**Table 1: Expenses of Southern Illinois University Carbondale**

<b>Expense category</b>	<b>In-state expenditures (thousands)</b>	<b>Out-of-state expenditures (thousands)</b>	<b>Total expenditures (thousands)</b>
Employee salaries, wages, and benefits	\$379,366,501	\$949,199	\$380,315,700
Operation and maintenance of plant	\$31,625,896	\$9,182,455	\$40,808,351
All other expenditures	\$113,716,489	\$106,131,160	\$219,847,649
<b>Total</b>	<b>\$524,708,886</b>	<b>\$116,262,814</b>	<b>\$640,971,700</b>

**Table 2: SIUC Operational Expenses by Function**

<b>Category</b>	<b>Amount</b>
Instruction	\$118,947,703
Research	\$31,520,000
Public Services	\$45,171,488
Academic Support	\$231,232,186
Student Support	\$40,215,430
Instructional Support	\$42,727,930
Operations and Maintenance	\$40,808,351
Independent Operations	\$48,557,800
Scholarships & Fellowships	\$41,790,812
<b>Total:</b>	<b>\$640,971,700</b>

SIUC has many functional units. We group the university’s spending by function and show the results in table 2. Scholarships and fellowships comprised 7% or about 41.79 million of the total expense, and expenses on instruction comprised about 20% or \$118.95 million. Research spending totaled \$31.52 million or 5%, while public services -- which include the normal cost of pensions and fringe benefits provided by the State of Illinois in the form of payments on behalf of the university -- form about 7% or \$45.17 million. All other expenditures, including instructional, academic, and student support, constitute about 7%, 36%, and 6% of university expenses, respectively.

SIUC operations and spending created economic activity within Illinois is through direct, indirect, and induced routes or channels. Table 3 shows the effects on Illinois' economy, including increases in jobs, income, and total economic output.

**Table 3: SIUC Economic Impacts from University Operations**

<b>Channel</b>	<b>Jobs</b>	<b>Income</b>	<b>Output</b>
Direct	6,293	385,247,122	654,034,200
Indirect	1,174	80,734,391	279,851,535
Induced	2,203	145,681,504	429,095,223
<b>Total</b>	<b>9,669</b>	<b>611,663,017</b>	<b>1,362,980,958</b>

SIUC, excluding the School of Medicine, owns 454 buildings occupying 7,997,074 of square footage. SIUC, excluding the School of Medicine, has a total of 8,621.81 acres. There are other Natural Sciences Research Areas, including the Middle Mississippi River Environmental Research Field Station, 1,380 acres with one building, and wetlands managed by SIU, owned by the Illinois Department of Natural Resources (IDNR).

### ***Student Spending Impact***

Spending by SIUC students off-campus generates significant economic impacts, as shown in table 4.

**Table 4: SIUC Economic Impacts from Student Spending Off-Campus**

<b>Channel</b>	<b>Jobs</b>	<b>Income</b>	<b>Output</b>
Direct	946	54,720,444	85,791,288
Indirect	96	7,451,662	20,676,996
Induced	293	19,364,246	57,029,431
<b>Total</b>	<b>1,335</b>	<b>81,536,351</b>	<b>163,497,715</b>

These impacts generate nearly 1,335 jobs, create more than \$81.54 million in income and \$163.5 million in economic output, and are in addition to the impacts of SIUC's operations.

### ***Visitor Spending Impact***

Visitors to SIUC spend money in the community, generating economic impacts, as shown in table 5.

**Table 5: SIUC Economic Impacts from Visitor Spending**

<b>Channel</b>	<b>Jobs</b>	<b>Income</b>	<b>Output</b>
Direct	68	\$2,659,169	\$6,885,552
Indirect	10	\$860,436	\$2,483,666
Induced	17	\$1,103,792	\$3,249,514
<b>Total</b>	<b>95</b>	<b>\$4,623,397</b>	<b>\$12,618,731</b>

SIUC, its community partners, and affiliates host many events that bring many visitors to the southern Illinois region. Events include music festivals, sports, dance, and theatre bringing renowned entertainers, affiliates, and other speakers into the state. The University also attracts many visitors to the region who attend athletic events, camps, conferences, and visits to students, faculty, staff, and university offices. For example, in Table 6, the University athletic, music and theatre events created about \$1.5 million in annual revenue.

**Table 6: Revenue for Select SIUC-hosted events**

<b>Event</b>	<b>Revenue</b>
Football	\$391,311
Men’s Basketball	\$729,643
Women’s Basketball	\$13,692
Mcleod Summer Playhouse	\$73,539
Department of Theater	\$33,132
School of Music 5	\$2,601
Sam Hunt	\$214,602
Yung Gravy	\$38,500

To measure visitor activity in the area, the analysis team surveyed visitors during the Fall 2022 semester. The first survey was administered during the Fine Arts Performance events, and the second was administered during the homecoming events. To estimate the economic impact of non-locals, the analysis used the average distance traveled, lodging information, and the county of the visitor for classification. The percentage of Illinois visitors from 75+ miles or outside the Southern Illinois area was 27%, the percentage of visitors from other states was around 9%, and the percentage of visitors from the Southern Illinois area was 64%. Table 7 shows spending patterns and sales associated with visitors from outside the region.

**Table 7: Average Spending and Sales per SIUC Visitor**

<b>Visitor spending</b>	<b>Southern Illinois Region Visitors</b>	<b>Out-of-State Visitors</b>
Accommodation	\$150	\$300
Food	\$35	\$60
Entertainment and shopping	\$20	\$40
Transportation	\$110	\$230
<b>Total expenses per visitor</b>	<b>\$315</b>	<b>\$630</b>
Number of out-of-state/region visitors	60,532	16,814
Gross sales	\$19,067,681	\$10,596,334
Less On-campus sales (excl. textbooks)	\$1,547,390	\$417,795
<b>Net off-campus sales</b>	<b>\$17,520,292</b>	<b>\$10,178,539</b>



## ***Alumni Impact***

Alumni from SIU Carbondale and the School of Medicine have a present value of increased income of \$1,146,637,412 due to their degrees. A further breakdown is described below. Students who attend SIUC, complete their education, and pursue a career have improved human capital and opportunities to earn more income. With 123,457 SIUC alumni living in Illinois, and assuming that the alumni participate in the labor force at a rate that declines linearly toward zero over 40 years, the present value of the alumni's increased incomes due to SIUC education is \$1,041,790,593.

Students who attend SIU MEDICINE, complete their education, and pursue a career have improved human capital and opportunities to earn more income. With 943 SIU MEDICINE alumni practicing medicine in Illinois, the present value of the alumni's increased incomes due to SIU School of Medicine education is \$104,846,819.

## ***Total Economic Impact***

The total economic impact combines the economic impacts of university operations, student off-campus spending, visitor spending, and alumni contributions.

**Table 8: SIUC's Total Economic Impact**

<u>Source</u>	<u>Impact</u>
Operations	1,362,980,958.00
Student Spend	163,497,715
Visitor Spend	\$12,618,731
Alumni Impact	\$1,146,637,412
Total:	2,685,734,816.00

As shown in Table 6, SIUC's total economic impact on the state is 2.686 billion dollars. Excluding alumni contributions to the state, the university directly produces an economic impact of 1.54 billion dollars.

## **Points of Pride and Public Impacts**

SIUC's public impacts include community benefits that are not measured in dollars but have human and social value. University service to the community has public impacts today, and university research will have public impacts and benefits in the future – as the research helps to shape future opportunities. SIUC is a strong, diverse, student-centered, research-intensive, and

comprehensive university with a long history of community engagement. Select points of pride are described below<sup>1</sup>.

The university is among the top 5% of all U.S. higher education institutions for research. During fiscal year 2023, faculty members received \$95.7 million in research, training, and service grants. Partners included the U.S. Department of Health and Human Services, the National Science Foundation, the U.S. Department of Agriculture and the U.S. Department of Education.

The Carnegie Classification of Institutions of Higher Education designates SIUC as a “high research” institution (Research 2) and is expected in 2025 to classify SIUC as a Research 1 institution — “very high research spending and doctorate production,” the same level as many flagship universities across the U.S. As part of a 2019 initiative to harness the research expertise of Illinois universities to drive the state’s economic growth, SIUC joined other state institutions as a hub in the Illinois Innovation Network.

At the Dunn-Richmond Economic Development Center, the university provides a plethora of services to launch and grow businesses. In 2024, the Illinois Small Business Development Center at SIUC was named the Illinois SBDC of the Year. The SBDC’s impressive numbers include:

- 629: New jobs created by businesses assisted by SBDC between 2018 and 2023
- 650: Jobs retained by SBDC-assisted businesses between 2018 and 2023
- 113: new businesses launched with assistance from SBDC from 2018 to 2023
- 1,750 clients assisted by SBDC, nearly one-fourth of them minorities.

Diversity is integral to the SIUC legacy, dating to the inaugural SIU class of 143 in 1869 that included two African American students. Today, minority students make up more than 35% of its total enrollment of about 11,400.

The campus sits on 1,133 scenic acres, which includes woods and a large campus lake. The 2,000-acre University Farms system is the backbone of research and hands-on learning activities for:

- Animal science, including a unique specialization in equine science.
- Crop, soil, and environmental management, including a vibrant program in soybean research.
- Agricultural systems and education, featuring precision agriculture technology for planting, harvesting, and other tractor operations—thanks to our partnership with Sydenstricker Nobbe Partners, a John Deere dealer.

The campus is minutes away from Giant City Park, which is popular for hiking and camping and is part of the vast Shawnee National Forest in Southern Illinois. The region’s physical beauty and fun outdoor recreation are a major attraction to students, faculty and visitors.

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<sup>1</sup> <https://news.siu.edu/points-of-pride/>

SIUC embraces a unique tradition of access and opportunity, inclusive excellence, innovation in research and creativity and outstanding teaching focused on nurturing student success. As a nationally ranked public research university and regional economic catalyst, it creates and exchanges knowledge to shape future leaders, improve communities and transform lives.

### **Additional Points of Pride**

- In 2024, The Princeton Review included SIUC among its “Best of the Midwest” — just 23% of the nation's four-year colleges.
- The iFERM Hub, launched in 2022, aims to solve food/nutrition, agriculture and health challenges through interdisciplinary research, innovation and education. It also provides infrastructure for the development of Illinois agriculture value-added products to promote and support successful entrepreneurial activities. Additionally, it benefits SIU students and researchers engaged in such pursuits and enhances public-private partnerships. The Bachelor of Science degree program in fermentation science is one of only a handful in the nation and the only one in Illinois.
- The aviation management and aviation flight programs place SIU among a group of universities whose exceptional aviation programs warranted certification by the Federal Aviation Administration to substantially reduce flight time requirements (500-hour deduction) for graduates interested in becoming airline pilots.
- SIU is the only university that works with major airlines to fly prospective students to campus for aviation career day events. SIU regularly holds aviation career days featuring SIU alumni now with American Airlines and United Airlines who fly students in from Chicago’s O’Hare International Airport.
- SIUC has several distinctive academic programs in the state and nation, including:
  - The only Bachelor of Science program in automotive technology in Illinois is exceptional, part of a major research university, and one of only a few in the nation.
  - Illinois’ only baccalaureate in mortuary science and funeral service — one of just six in the country. SIU is also home to the only university-housed crematory in the U.S.
  - The only dental hygiene baccalaureate in Illinois. The Dental Hygiene Clinic hosts “Give Kids A Smile Day” and “Give Adults A Smile Day” annually.
  - One of two paralegal studies bachelor’s degree programs approved by the American Bar Association and available at public universities in Illinois.
  - One of two public safety management programs in Illinois programs accredited by the International Fire Service Accreditation Congress (IFSAC).
  - The only social work program is in the southern part of Illinois, Indiana, Missouri, and Kentucky.
  - One of five medical dosimetry MS degree programs in the U.S.

- One of two universities in Illinois offering a bachelor's degree in radiologic sciences and one of 13 in the U.S. with a specialization in MRI/CT, accredited by the Joint Review Committee on Education in Radiologic Technology (JRCERT).
  - One of only a handful in the nation and the only one in Illinois to offer a bachelor's degree in fermentation science.
  - The only comprehensive undergraduate forestry program in Illinois.
  - The only bachelor's degree horticulture program in Illinois.
- Accreditation by the Association to Advance Collegiate Schools of Business International puts SIUC's College of Business and Analytics among the top 5% of business schools worldwide. The double AACSB accreditation for the college and the accounting program places SIU in a very small, elite group. The college also has 12 state-of-the-art Bloomberg terminals on the Burnell D. Kraft Trading Floor, where students get market quotes, financial analyses and information in equity, fixed-income, money markets, derivatives, and foreign exchange markets around the globe.
  - SIUC was at the epicenter of the solar eclipses in 2017 and 2024. Through partnerships with the city of Carbondale and other area entities, SIUC delivered a first-class experience for spectators from across the U.S. and the world and garnered unprecedented international media coverage and exposure for the university and region. The university also used the celestial events as an opportunity for research and received funding:
    - A \$2.6 million NASA grant for the SolarSTEAM project, a multifaceted, national heliophysics public engagement and empowerment program.
    - A \$314,000 NASA grant for the Dynamic Eclipse Broadcast Initiative (DEB), where more than 40 teams used telescopes to provide critical coronal data as the moon's shadow traversed the continent.
    - A \$465,000 grant from the National Science Foundation for the REAL Field Trip Model to pioneer a way to allow any school, regardless of location, to actively participate in large-scale scientific events.
    - A \$20,000 NASA SCoPE grant for volunteers to record nature before, during and after the total solar eclipse.
  - SIUC is one of 54 colleges and universities to earn national recognition for its economic development work in the region from The Association of Public and Land-grant Universities. The designation as an Innovation and Economic Prosperity University, awarded in 2015, is valid for ten years.

## ***Service***

The *SIU Research Park* is a non-profit corporation affiliated with SIUC that promotes technology and knowledge-based enterprise development within the park and Southern Illinois. It is the primary innovation and technology space in the southern third of Illinois and is a member of the Association of University Research Parks (AURP).

SIUC's *Touch of Nature Outdoor Education Center*, nestled amidst the breathtaking beauty of the Shawnee National Forest in southern Illinois, provides diverse programs and activities. The serene environment inspires discovery, personal growth, and environmental stewardship.

SIUC provides two learning facilities for children in the region. The child development laboratories provides care and education for children aged six months to five years. A highly qualified teaching staff and research-approved curriculum provide all children with group and individual learning opportunities. Rainbow's End Child Development Center provides a secure, educational, and positive atmosphere for children – from toddlers through pre-K and after-school school-aged children -- in the Southern Illinois community.

SIUC hosts a range of summer camps each year, bringing in children from across the region and beyond. These include music camps, Junior Aviator and Summer Wings camps for aspiring young pilots, sports camps, an Archeology Field Camp, Challenge to Excellence for middle school children, a STEM Research camp, a STEAM Camp for girls, an Agricultural Education Leadership camp, and the SOAR (Saluki Opportunities Awareness Residency) camp that introduces and educates minority high school students about the expectations of college life and opportunities in accounting, finance and business-related fields while providing the foundation of financial literacy and the development of interpersonal skills.

SIUC's Craft Shop, located in the student center, organizes workshops for community members of all ages, with training in pottery, sculpture, woodworking, sewing, printmaking and more.

The Saluki Express mass transit system provides reliable transportation for students, faculty, staff, and the Carbondale community around the region and community.

## ***Research***

SIUC's Research Centers are engaged in innovative, collaborative projects both on and off campus. They provide educational offerings and offer opportunities to collaborate with our faculty and students on customized projects.

The Paul Simon Public Policy Institute brings together public service leaders, the community, and students to carry on the late U.S. Senator Paul Simon's vision to create a place to research and provide constructive public policy resources, encourage others to take part in conversations on the issues of our time and support the next generation of public leaders.

The STEM Education Research Center is a research and public service unit of Science, Technology, Engineering, and Mathematics (STEM). It organizes and sustains a diverse community of educators and researchers, collaboratively prepares the next generation of STEM educators and professionals, and advances STEM literacy at the local, state, and national levels through interdisciplinary and integrative strategies in research, education, and service.

The Middle Mississippi River Wetland Field Station is a 1,380-acre research area owned by the state of Illinois and managed by SIUC. It serves as a research, education and demonstration area

on large river floodplain ecology, management and restoration. As situated on public land, it is also open to recreational and sporting activities, including hunting, fishing, and hiking. Wildlife is abundant in the area, including white-tailed deer, wild turkey, river otter, and many species of waterfowl.

## **Research Team**

This report was prepared for the SIU System President's Office by a research team of SIU faculty (including Jebaraj Asirvatham, Ph.D. in Agricultural and Applied Economics, and Scott Gilbert, Ph.D. in Economics) with the help of Economics graduate assistants (including Stephen Troveh and Haya Akram Khan). For questions, please contact the study authors at [jebaraj@siu.edu](mailto:jebaraj@siu.edu) or [gilberts@siu.edu](mailto:gilberts@siu.edu).

## Appendix: Economic and Public Impact Methodology

### *Economic Impacts*

#### *Direct Impacts*

Economic activities that provide services (such as a college education) or goods (such as cars) benefit the consumers of those services and goods. For example, students benefit from going to college, and drivers benefit from getting around with their vehicles. These consumer benefits are reflected in the dollars consumers pay for their goods and services, and on the other side of the transaction, the resulting revenue dollars are another measure of consumer benefit or economic impact of an activity. These revenue dollars are a measure of the direct benefit of an economic activity.

Direct impacts sometimes go beyond the revenues associated with some activity. For example, part of the cost of a college education may be funded by the government, in which case a college or university's total expenditure on providing education is a measure of the benefit of that education to students, as it covers both the revenue and government funding of education services. In these situations, total expenditure or outlay is a good measure of direct impacts.

#### *Indirect Impacts*

To provide a college education, a car, or some other consumable service or good, the businesses and producers use resources that include inputs or intermediate goods. A college uses resources like paper and electricity, and car manufacturers use metal. The revenue or expenditures associated with these intermediate goods indirectly affect a given activity, such as a university's provision of education services during a year. Indirect impacts are another benefit of economic activity, increasing the total economic impact.

Economic analysis is useful for measuring indirect impacts, via the Nobel prize-winning research of Wassily Leontief on input-output economics. In Leontief's input-output economic model<sup>2</sup>, outputs in a given industry are paired with inputs or intermediate from other industries. With industry data available from the U.S. and state governments, economists apply the Leontief model to measure the indirect effects of economic activity,<sup>3</sup> typically using statistical apps like IMPLAN<sup>4</sup> (used in the present study) or RIMS.

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<sup>2</sup> Leontief wrote and contributed to a series of writings about input-output economics, including the following seminal book which he edited: *Input-Output Economics, Second Edition* published by Oxford University Press in 1986.

<sup>3</sup> For more on the sorts of U.S. government data associated with input-output modelling, see the U.S. Bureau of Economic Analysis online -- including the article: "Improved Estimates of the Industry Economic Accounts: Results of the 2018 Comprehensive Update", in *SCB Survey of Current Business*, Volume 98, Number 12.

<sup>4</sup> IMPLAN is commercial software provided by the IMPLAN company, and is an economic input output modeling application that comes with relevant economic data obtained from government sources and elsewhere. For more on IMPLAN see [www.implan.com](http://www.implan.com) online.



Apps like IMPLAN are also useful for adjusting the core or basic Leontief input-output model because economic activity is often regional and relies on some intermediate goods produced elsewhere. For example, a school may get its paper from a supplier in another state. Using regional data that tracks the location where goods are made, IMPLAN adjusts for out-of-region inputs when computing the regional impact of an activity like education at a university.

### *Induced Impacts*

For a given economic activity, the people who work to provide that activity receive income and use it to buy consumer goods and services. The dollar value of these additional goods and services is called an induced effect, increasing the total economic impact. Apps like IMPLAN compute direct, indirect and induced effects, the sum of which is the total impact.

### *Student Spending and Visitor Impacts*

For a college or university with a student population that includes those living near campus who have traveled from outside the area to attend college, those students' off-campus spending contributes to the local economy with a total economic impact computable via apps like IMPLAN. Similarly, non-student visitors to events on campus create their computable economic impact, and both impacts contribute positively to the local economy, above and beyond the total economic impacts of university expenditure.

### *Tax Revenue Impacts*

For a region where economic activity occurs, tax revenue generated by the activity positively impacts the local and state governments that rely on tax revenue to serve the public. Tax revenue comes from transactions linked to total economic impact. Apps like IMPLAN compute tax revenue impacts by including data on tax rates in the economic analysis.

### *Impact Adjustment: Accounting for Competing Opportunities*

In application to the economic activity associated with a particular university's provision of education, research, and creative works, some who benefit from it may find those opportunities provided by another college or university as a substitute. With substitute or competing opportunities sometimes available, it is helpful to reduce or discount the dollar values of economic loss to get an adjusted dollar value that reflects the benefits from a university's operation that are unique to that university. This study adjusts economic impacts via a 10 percent discount or reduction in dollar values, similar to the adjustment in the recent economic impact study of the University of Illinois System.<sup>5</sup>

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<sup>5</sup> See the following report, available from the University of Illinois System online: *Analysis of the Economic Impact and Return on Investment of Education: The Economic Value of the University of Illinois System* (June 2022). This report, prepared by the company EMSI - Burning Glass, is very similar methodologically to following one prepared

## *Alumni Impacts*

A college education provides many benefits, including an increase in a person's knowledge and valuable training for future work, also called human capital. An increase in human capital offers opportunities to earn more money in the workplace, and that increased income has a positive economic impact. By tracking the number of graduates or alumni from a specific college or university, the human capital impact for those living in a given region includes all of their income increases, and their total economic impact is computable via apps like IMPLAN.

Alumni impacts are a positive result of a university's operation. To identify the impact of the university on a student's human capital, in addition to the human capital gained before going to college, it is essential to measure the income *increases* associated with going to college. These increases reflect the difference between a college graduate's earnings and those of people who have not completed college. Also, for a specific college or university, some of its alumni may have had the opportunity to get a comparable college degree elsewhere. For those students, there is no unique or specific increase in human capital from attending a particular college. To adjust for these college opportunities<sup>6</sup>, the following formula is helpful and applied in the present study:

Alumni Impact = (Number of Working Alumni) x (Average Income Increase) x Factor,

where "Factor" is a number in the form of a product AxB, with A the proportion of all working alumni who did not have a significant opportunity to complete their college degree within the region during their college years, and B is a multiplier that reflects indirect and induced effects<sup>7</sup>.

To compute alumni impacts for a specific college or university, using the formula just discussed, the economist gets data on the number of working alumni and the average income increase<sup>8</sup> from a college education. The economist also makes a suitable assumption about the

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by the company Lightcast: *The Economic Value of Iowa's Regent Universities* (January 2023), reflecting a recent merger between the companies. For these past studies, the companies apply their own in-house input-output application of input-output economic modelling. The present study of Southern Illinois University uses the IMPLAN app for input-output modelling, as do recent studies by Tripp Umbach: *Economic and Community Impacts of the University of Missouri System* (January 2022) and ICF: *The Impact of California State University* (2020), and a past study by Subhash Sharma, Aboubacar Diaby and Kyle Harst: *The Economic Impact of Southern Illinois University Carbondale in the Region and the State of Illinois* (August 2011).

<sup>6</sup> Such opportunities are also called economic substitutes.

<sup>7</sup> Such multipliers are available from Apps like IMPLAN.

<sup>8</sup> To measure current and future increases in income associated with completing a Bachelor's degree from a particular university, current pay levels are reported via the U.S. Bureau of Labor Statistics' College Scorecard online, and a regional measure of pay for those without a college degree is available from the U.S. Bureau of Labor Statistics and online job market and recruiting websites – including ZipRecruiter, Glassdoor, and Indeed. To compute inflation-related increases in future income, forecasts of wage inflation are available from the following publication and its supplements: *Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Federal Disability Insurance Trust Funds*.

proportion (denoted “A” earlier) of all working alumni who did not have a significant opportunity to complete their college degree within the region under study.

### *Student Return on Investment*

College students and their families invest in college education. Part of this investment is the cost of attending college, which includes the spending and any interest paid on student loans. Another cost is the student’s time and the income they could have earned with that time if they had not attended college but instead joined the workforce full-time. These costs allow the student to invest in their human capital and gain access to the labor market for college-educated workers with a higher average income. The income gains throughout a person’s work life are the rewards of investing in college, and the present dollar value of those future gains is the return on investment in college. By comparing the total cost of attending college to the present value of income gains, prospective college students and their families can gauge the dollar return on investment in a college education.

To compute students’ return on investment for a specific college or university, the relevant inputs are data on the university’s average cost of attendance<sup>9</sup>, the amount of interest typically paid on student loans<sup>10</sup>, the income available to workers in the region without a college degree, the additional expected income from attending the university, the market discount rate<sup>11</sup> for computing the present value of future expected income, and the number of post-college years during which alumni work<sup>12</sup>.

### *Taxpayer Return on Investment*

Taxpayers pay taxes to a state government that, in turn, provides essential funding for the operation of a college or university. In essence, taxpayers fund economic activity that generates current and future tax revenues from college graduates’ elevated incomes and enhanced

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<sup>9</sup> Average annual cost of attendance, for attending a specific U.S. college or university, is available from the U.S. Department of Education online via their College Scorecard program, and via their Institute of Education Sciences’ IPEDS Data Feedback Reports.

<sup>10</sup> The median total debt after graduation, for students graduating from a specific U.S. college or university, is available from the U.S. Department of Education online via their College Scorecard program. Also, interest rates on federal student loans are available from the U.S. Department of Education online via their Federal Student Aid website. Most student loans are repaid within ten years or so, and the dollar amount of interest for a ten-year loan is a function of the amount to be repaid and the interest rate.

<sup>11</sup> In the market for student loans, the interest rate represents the discount rate that lenders associate with their investment of funds in college education, and is also a relevant discount rate for students when valuing future income associated with going to college. Data on federal student loan interest rates is available from the U.S. Department of Education’s Federal Student Aid information set: from this source a current market interest rate for student loans is 5.5 percent.

<sup>12</sup> The worklife expectancy, measured by the number of additional years of expected time in the U.S. labor force for college graduates, is about 40 years, as in the following study: “The Markov Model of Labor Force Activity 2012-17: Extended Tables of Central Tendency, Shape, Percentile Points, and Bootstrap Standard Errors”, by Gary R. Skoog, James E. Ciecka, and Kurt V. Krueger, in *Journal of Forensic Economics*, Volume 28, Number 1, year 2019.

business activity. The present value of the added current and future tax revenue is a return on taxpayers' investment in a university.

To compute taxpayers' return on investment associated with a university's operation, relevant inputs include the dollar amount of taxpayer support for the university,<sup>13</sup> the current tax revenues generated by that support<sup>14</sup>, and the income taxes associated with the additional future income and business activity associated with alumni work and spending after college<sup>15</sup>.

### *Public Impact*

A college or university provides education that enriches college students, while expenditures by a university and its students contribute dollars to the local or regional economy. These dollars and those generated by visitor spending measure a university's economic impact. A university also provides a monetary return on investment to its students and to taxpayers who, via government spending, invest their money in the university. Other positive impacts of a university's operations include benefits to society that are not measurable in dollars but hold social or public value. These public impacts<sup>16</sup> arise when a university's research and service to the community improves or enhances the quality of life of people outside the university.

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<sup>13</sup> For the Southern Illinois University System, the total dollars of taxpayer spending – also called state appropriation – is information available online at [www.siusystem.edu](http://www.siusystem.edu) via the Annual Report of the Board of Trustees, Southern Illinois University. More information on SIU System campuses is available via the SIUC Chancellors Report and the

<sup>14</sup> Apps like IMPLAN compute the amount of state and local tax dollars generated from specific economic activities – including the general operations of a university, spending in the local community by students that attend the university but are from outside the region, and visitor spending.

<sup>15</sup> To compute these additional future tax revenues, for alumnis' increased income the relevant income tax rate in Illinois is 4.95 percent, information on tax rates are available from the Illinois Department of Revenue online. See earlier discussion (Alumni Return on Investment) about computing income increases themselves. For business activity and tax generated by those future income increases, apps like IMPLAN are useful.

<sup>16</sup> Public impacts are distinct from economic impacts, and include benefits from an economic activity that are qualitative and lack a direct quantitative measurement. Public impacts are also called social impacts – as in the following economic impact study prepared by Harvard University in year 2022: *Harvard in Massachusetts: Facts and Impact*, or community impacts, as in the following study prepared by the company Tripp Umbach: *Economic and Community Impacts of the University of Missouri System* (January 2022).