

The Economic Impact of Southern Illinois University Edwardsville

FULL TEXT REPORT

October 2024

**SOUTHERN ILLINOIS UNIVERSITY
EDWARDSVILLE**

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Executive Summary

The Center for Business and Economic Research at Southern Illinois University Edwardsville (SIUE) investigated the university's economic impact in 2015. This 2024 study provides an updated view of the university's effects on the state and region. The data used in this study is from fiscal year 2023. Key findings are as follows.

Economic Impacts

SIUE 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, more than **\$1.3 billion** in economic impact came from the university's operations, student expenditures, visitor spending, and alumni income, and the university's economic activity helped support **12,178** jobs in Illinois.

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

- SIUE's general operation as a university creates an economic impact of **\$637 million** and supports **6,977** jobs in Illinois and the St. Louis Metropolitan area.
- Expenditures by SIUE students off-campus contribute to the economy, with an economic impact of **\$129,665,705**, supporting **1,379** jobs.
- SIUE visitors' off-campus spending is another significant economic stimulus, with an economic impact of **\$4,338,569** and 37 jobs supported.
- State of Illinois tax dollars contribute importantly to SIUE's economic impact, and are associated with **\$144,368,570** of impact dollars.
- SIUE 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 **\$516,306,895**.

Return on Investment

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

- SIUE alumni receive, on average, a strong return on investment in their university education. The cost of attending a university includes tuition, fees, other related expenses, and interest paid on student loans, all of which are direct costs. The overall cost also includes an indirect or opportunity cost of foregone income while attending university. For alumni completing all four years of a bachelor's degree at SIUE, the total economic cost or outlay (including foregone income while in school) is \$160,000, and

the reward to that outlay is \$1.1 million of additional future income¹. In other words, each invested dollar creates a present value return of **3.32 dollars** to the SIUE graduate who gets all their university education at SIUE, and students transferring to SIUE from a junior college also receive an excellent return on investment.

- Taxpayers provide significant funding for SIUE'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 SIUE graduates, yielding tax revenues equal to \$199,315,953 in present value terms, which exceeds the state tax dollars currently spent on SIUE -- equal to \$58,491,000. In other words, the taxpayer's return on investment in SIUE is **\$3.41** in tax revenue for each state dollar tax spent on SIUE.

Introduction

This study examines various ways the Southern Illinois University Edwardsville (SIUE) contributes to the state's economy, emphasizing its role as a catalyst for driving the growth of the sub-region. 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 contribution of alums 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, SIU 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 Edwardsville

As the number one producer of bachelor's degrees in the St. Louis Metropolitan Statistical Area (MSA), SIUE is a nationally recognized university that provides students with a high-quality education that powerfully transforms the lives of all individuals who aspire for something greater. A premier metropolitan university, SIUE is creating social and economic mobility for individuals while powering the future workforce.

¹ When expressed in present value terms, lifetime income gains of \$1,108,520 equal \$530,927 when future income gains are discounted to present value using current market interest rates on U.S. Treasuries.

SIUE students receive a comprehensive education that combines a broad-based liberal education with practical research and real-world experiences. The academic preparation SIUE students receive equips them to thrive in the global marketplace and contribute to improving our communities.

Situated on 2,660 acres of beautiful woodland atop the bluffs overlooking the natural beauty of the Mississippi River's rich bottomland and conveniently close to downtown St. Louis, the SIUE campus is home to a diverse student population of over 12,500. Though located in Illinois, SIUE also serves the thriving areas in the nearby St. Louis metropolitan area in the state of Missouri.

SIUE awards degrees in undergraduate and graduate programs covering various disciplines, including arts, sciences, nursing, education, health, human behavior, business and engineering. The SIUE Schools of Dental Medicine and Pharmacy confer first-professional doctoral degrees in dental medicine (DMD) and pharmacy (PharmD). Doctoral degrees are offered in the fields of nursing practice and educational leadership. SIUE also offers six cooperative PhD degrees in education, engineering, history, computer science, environmental resources and policy, pharmacology and neuroscience.

SIUE is an NCAA Division I member of the Ohio Valley Conference, the Missouri Valley Conference as an affiliate of men's soccer, and the Mid-American Conference as an affiliate member in men's wrestling.

SIUE has one college and six schools, including the College of Arts and Sciences, School of Business, School of Dental Medicine, School of Engineering, School of Nursing, School of Pharmacy and the School of Education, Health and Human Behavior. The graduate school operates several graduate programs. Campuses in Alton and East St. Louis enhance the Edwardsville campus.

Economic Impact Analysis

Operations Spending Impact

SIUE, which serves the St. Louis Metropolitan region, contributes significantly to the region's economic activities and the Illinois economy. Table 1 presents SIUE's expenditures, including research, hospital, construction, operation and maintenance of plants, purchases of supplies and services, and other spending. Also included in all other expenditures are expenses associated with grants and scholarships. Many students receive grants and scholarships that cover tuition and fees and pay stipends, and the university dispenses this 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 in and out of the state from SIUE totaled over \$309.17 million in fiscal year 2023 (FY23). The university purchases supplies and services, and many of its vendors are in Illinois. These expenditures create a ripple effect that generates more jobs and higher wages in the economy. Using the average spending by the university by

geography, we created the in-state and out-of-state expenditure profiles for the University's operations to estimate economic impacts in this report.

Table 1: Expenses of Southern Illinois University Edwardsville

Expense category	In-state expenditures (thousands)	Out-of-state expenditures (thousands)	Total expenditures (thousands)
Employee salaries, wages & benefits	\$119,479	\$41,153	\$160,633
Operation & maintenance of plant	\$6,230	\$7,601	\$13,831
All other expenditures	\$41,454	\$94,000	\$135,154
Total	\$167,163	\$142,754	\$309,618

A significant portion of SIUE’s expenditures go toward payroll for the faculty and staff employed by the institution. In FY23, payroll expenditures were nearly \$160.63 million of the total annual spending. In-state payments to the faculty and staff amounted to \$119.48 million, which took place in Illinois, and about \$41.15 million was out of state. This annual payroll expenditure occurred within the St. Louis Metropolitan Area. Spending on operation and maintenance equaled \$13.83 million of the total spending. Other spending, including construction spending, instruction, research, fellowship, and scholarships, amounted to \$135.15 million in FY23.

SIUE has many functional units. We group the university's spending by function and show the results in table 2. Scholarships and fellowships comprised 16% or about \$48.45 million of total expenses. Expenses on instruction comprised another 31% or \$97.64 million; research spending totaled \$9.12 million or 3% of operational expenditure. Public services, which include the typical cost of pensions and fringe benefits provided by the State of Illinois in the form of payments on behalf of the university, form about 5% or \$16.85 million, respectively. All other expenditures, including academic, instructional, and student support, constitute about 7%, 9%, and 7%, respectively.

Table 2: SIUE Operational Expenses by Function

Category	Amount
Instruction	\$97,644,903
Research	\$9,120,360
Public Services	\$16,851,671
Academic Support	\$20,450,248
Student Support	\$20,750,698
Instructional Support	\$33,279,882
Operations and Maintenance	\$64,614,377
Scholarships and Fellowships	\$48,450,546
Total:	\$311,162,685

SIUE operations and spending created economic activity within Illinois and the St. Louis Metropolitan Area through direct, indirect and induced routes or channels. Table 3 shows the effects on the Illinois state economy, including increases in jobs, income and total economic output.

Table 3: SIUE Economic Impacts from University Operations

Channel	Jobs	Income	Output
Direct	5,401	\$234,532,472	\$309,348,533
Indirect	336	\$27,513,114	\$85,316,713
Induced	1,239	\$82,098,008	\$242,151,391
Total:	6,977	\$433,506,343	\$636,816,638

Student Spending Impact

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

Table 4: SIUE Economic Impacts from Student Spending Off-Campus

Channel	Jobs	Income	Output
Direct	1,074	\$38,011,281	\$66,054,898
Indirect	91	\$7,421,826	\$21,877,067
Induced	215	\$14,177,237	\$41,733,739
Total	1,379	\$59,610,344	\$129,665,705

These impacts generate over 1,000 jobs, create nearly \$60 million in income, and generate \$130 million in economic output, in addition to the impacts of SIUE's operations.

Visitor Spending Impact

SIUE visitors spend money in the community, generating economic impacts, as shown in table 5.

Table 5: SIUE Economic Impacts from Visitor Spending

Channel	Jobs	Income	Output
Direct	27	\$1,031,580	\$2,336,198
Indirect	3	\$272,556	\$796,919
Induced	6	\$409,511	\$1,205,453
Total	37	\$1,713,647	\$4,338,569

SIUE also attracts many visitors and below is a select list with estimated revenues.

Table 6: Revenue for Select SIUE-hosted events

Event	Revenue
Theater and Arts	\$52,359.00
Athletics	\$163,470.46
Other	\$17,369.73
Agency Account Ticket	
Sales	\$45,485.81
Total	\$278,685.00

Alumni Impact

Students who attend SIUE, complete their education, and pursue a career have improved human capital and opportunities to earn more income. With 56,890 SIUE 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 SIUE education is \$516,306,895.

Total Economic Impact

Combining the economic impacts of university operations, student off-campus spending, visitor spending, and alumni incomes, table 6 shows SIUE's total economic impact:

Table 6: SIUE's Total Economic Impact

Source	Impact
Operations	\$636,816,638
Student Spend	\$129,665,705
Visitor Spend	\$4,338,569
Alumni Impact	\$516,306,895
Total:	\$1,287,127,807

Points of Pride and Public Impacts

SIUE's points of pride and public impacts are not measured in dollars but have human, research, social and workforce value. Below is a select list of the points of pride and public impacts.

Anti-Racism, Equity, Diversity and Inclusion

- SIUE has achieved INSIGHT Into Diversity's Higher Education Excellence in Diversity Award for the 9th consecutive year. The HEED Award is the only national honor recognizing U.S. colleges and universities that demonstrate an outstanding commitment to diversity and inclusion across their campus.

- SIUE’s values of inclusion, civic engagement, integrity, excellence and wisdom have served as the backbone for its work to operationalize inclusive excellence. Inclusive excellence is an active process through which colleges and universities intentionally integrate diversity, inclusion and equity into their educational quality efforts, missions, and infrastructure. Inclusive excellence is the framework and change model SIUE has adopted to develop and implement systemic actions to facilitate the upbuilding of an equity-minded and centered campus culture. The four components of SIUE’s inclusive excellence framework are as follows:
 - Access and success (students, faculty and staff): Attentiveness to the demographic diversity of the university and ensuring equitable opportunities for all faculty, staff and students to succeed.
 - Campus climate: Commitment to creating a campus community where all are embraced, honored and valued.
 - Diversity learning and education: The intentional incorporation of diversity into the curriculum and active engagement with diversity for fostering student learning and development; and support for faculty, staff and administrators in acquiring knowledge and developing skills needed to approach their work with cultural competence, cultural humility and an equity mindset.
 - Community engagement: Considers the role of the university in addressing systemic inequality and improving outcomes for underserved populations in surrounding communities.

Commerce

- In June 2023, the Illinois Small Business Development Center (SBDC) and International Trade Center (ITC) at SIUE received the “E” award for export service at the 62nd anniversary of the award ceremony at the U.S. Department of Commerce. The award is the highest recognition a person or U.S. entity can receive for making a significant contribution to the expansion of U.S. exports. A total of 24 U.S. companies and organizations from 14 states were presented with the President’s “E” and “E Star” Awards. The Illinois SBDC ITC was one of four organizations that won the “E” award for export service and the only one located at a university.

Research

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

Center for Predictive Analytics (C-PAN)

This university-wide research center serves both the SIUE community and external partners by using and developing state-of-the-art data analysis, machine learning and data visualization

techniques to mine complex data for meaningful insights and real-world applications. This computational technology center is primarily focused on "Big Data." In addition to supporting the analytical needs of our faculty researchers and industry partners, the center offers educational and training opportunities in data analytics and machine learning to SIUE students and the regional workforce, supports student retention and intervention strategies at the campus level, and promotes the ethical use of data analytics and machine learning through workshops, seminars and conferences.

Center for STEM Research, Education and Outreach

The SIUE Center for STEM Research, Education and Outreach is a collaborative enterprise among several SIUE academic units, local community colleges and school districts, regional offices of education and the community at large. The center's mission is to develop, strengthen and promote STEM research, education and outreach in the region.

GeoSpatial Mapping, Applications and Research Center (GeoMARC)

GeoMARC is a research center that is focused on the use of advanced technologies in geographic information systems (GIS), remote sensing, digital image processing, geospatial automation and machine learning to help solve a wide range of issues within government, private, institutional and local communities. The center aims to foster cross disciplinary and multi-institutional partnerships to develop and promote geospatial technologies to conduct, lead and influence research and innovation. In addition to research, GeoMARC actively provides community and intra-university educational outreach to advance spatial thinking and the evolving uses of geospatial technologies.

Interdisciplinary Research and Informatics Scholarship Center

The IRIS Center at SIUE is an interdisciplinary facility designed to support individual and collaborative scholarship that applies digital content as a primary methodology. The center's mission is to facilitate cross-disciplinary projects that involve innovative uses of technology in the humanities and social sciences, support these projects with facilities, equipment and human resources, foster active collaboration between faculty and students, encourage the development of curricular innovation that makes use of digital applications and promote digital endeavors that intersect with community initiatives.

National Corn-to-Ethanol Research Center (NCERC)

The National Corn-to-Ethanol Research Center (NCERC) is a nationally recognized research center dedicated to developing and commercializing biofuels, specialty chemicals and other renewable compounds. NCERC's fully functional dry grind pilot plant and laboratories have advanced biofuel capabilities, including corn fractionation, pretreatment and a fermentation suite with 5, 30, 150 and 1500L scale-up. Industry veterans staff facilities with more than 100 years of collective experience in fermentation and biofuel production. This knowledgeable team

has the flexibility and expertise to design and carry out projects in any region of the advanced biofuels or specialty chemicals space.

Center for Crime Sciences and Violence Prevention (CCSVP)

The Center for Crime Sciences and Violence Prevention (CCSVP) contributes to the region's crime/violence reduction efforts. CCSVP promotes and develops partnerships with violence prevention/reduction and works with stakeholders to assist in product/program development and evaluation of crime/violence prevention efforts. CCSVP assists in improving the accountability and transparency of all stakeholders in the criminal justice process and serves as a regional clearinghouse for granular criminal justice data, improving access to data across agencies, researchers and the public.

In FY23, faculty and staff were awarded \$32.8 million in grants and contracts for research, teaching and service initiatives from various federal funding agencies.

Service

- SIUE's School of Dental Medicine students manage approximately 35,000 patient visits each year at patient clinics in Alton and East St. Louis. In addition, students offer oral health treatment, screenings and education to more than 13,000 people annually through a wide variety of community outreach events.
- The SIUE East St. Louis Center received more than \$14 million in grant awards and applied those funds toward comprehensive programs, services and training for children and families in the community. A vital educational resource and a supportive neighbor to the Metro East Community, the center empowers individuals and families to lead successful and healthy lives.
- The SIUE STEM Center for Research, Education and Outreach loans science materials to teachers and offers camps and activities for area K-12 students and educators. The center has forged vital partnerships to expand community outreach efforts, including those with the United States Transportation Command and Boeing Company.
- The University Park at SIUE supports business innovation and economic development in the community via a 330-acre technology park on campus and its partnerships with crucial regional economic development engines: Leadership Council Southwestern Illinois and the Ed/Glen Chamber. SIUE also supports the Illinois Small Business Development Center (SBDC) for Metro East St. Louis, providing business innovation and economic development opportunities in East St. Louis and beyond.

Workforce Development

- The Center for Sustainable Communities and Entrepreneurship at SIUE is our Illinois Innovation Network hub and provides a framework to leverage the university's strengths in support of economic and workforce development, sustainability, equity-minded engagement and community impact.

- The Workforce Education Exchange (WEX) facilitates partnerships and collaboration across educational institutions including community colleges, workforce and employer/industry training programs to foster workforce development and ensure the local talent pool has access to the education, training and competencies needed to succeed. WEX is a joint venture between the Illinois Innovation Network, the University of Illinois and other institutions.
- The Partners for Opportunities in Workforce Development (PROWD) project is designed to reduce recidivism rates through training, employment and supportive services to individuals incarcerated in federal, minimum-security prisons, during their transition to Returning Residential Centers and upon release to the community.
- The Gateway Apprenticeship Hub consists of six local workforce investment areas across the bistate region and aims to create 750 new registered apprenticeship placements in in-demand occupations within the healthcare, bioscience and education industries. At SIUE, faculty and staff develop and implement pre-apprenticeship training programs for chemical and lab technicians, as well as providing apprenticeship pathways with local school districts for undergraduates pursuing a degree in education. SIUE faculty and staff develop and implement pre-apprenticeship training programs for chemical and lab technicians, as well as providing apprenticeship pathways with local school districts for undergraduates pursuing a degree in education. Employer partners such as MilliporeSigma, Thermo-Fisher Scientific, Pfizer, Tyson, BJC, SSM and HSHS have been strong collaborators on the Gateway Hub project, creating new registered apprenticeship programs and emphasizing their commitment to hiring a diverse, inclusive workforce.
- SIUE is also working with regional education, government and community partners to address a critical shortage of forensic scientists, advance criminal justice research and support reform through the launch of the new Southwestern Illinois Justice and Workforce Development Campus at the former Lindenwood-Belleville campus. SIUE's efforts support collaboration among partners and builds capacity for developing professionals to serve in various roles within criminal justice, define pressing applied criminal justice research needs, expand community engagement opportunities and contribute to workforce development throughout the region and state. As part of a holistic perspective, SIUE is also engaged in supporting community justice and racial equity work in the region.

According to Washington Monthly, SIUE is "2023 Best Bang for the Buck" among Midwest institutions. Among Illinois public institutions, SIUE ranks 4th on Forbes magazine's list of America's Top Colleges based on return on investment, including success after graduation, student debt and student satisfaction.

SIUE received national recognition via the 2023 Military Times' Best for Vets: Colleges ranking.

SIUE and the city of Edwardsville have consistently been rated highly for their safe environments by a variety of organizations, including the National Council for Home Safety and Security and YourLocalSecurity.

SIUE received the Higher Education Excellence in Diversity (HEED) award from INSIGHT Into Diversity magazine for 10 consecutive years. This is the only national honor recognizing U.S. colleges and universities that demonstrate an outstanding commitment to diversity and inclusion across their campus.

SIUE has been named a Bicycle Friendly University in the bronze category by the League of American Bicyclists. The designation is based on equity, engineering, education, encouragement, evaluation and planning.

SIUE is one of three higher education institutions in the nation to be designated a Living Architecture Regional Center of Excellence by Green Roofs for Healthy Cities and the Green Infrastructure Foundation.

The U.S. Environmental Protection Agency (EPA) ranks SIUE number one in Illinois and 22nd in the nation in green power usage. The EPA's Green Power Partnership program has named the top 30 colleges and universities representing the largest green power users among higher education institutions within the Partnership. SIUE ranks first in the state and 22nd nationally. SIUE is one of only two Illinois schools that made the top 30.

SIUE is recognized as a STARS Silver Institution for accomplishments in campus sustainability. The rating is based on the Sustainability Tracking, Assessment and Rating System for campus-wide sustainable practices from the Association for the Advancement of Sustainability in Higher Education.

All new campus construction is Leadership in Energy and Environmental Design (LEED®) certifiable by the U.S. Green Building Council.

LEED Gold: Art & Design West building

LEED Silver: Science Building East, Science Building West, Lukas Athletics Annex, Engineering Building Addition and the Multidisciplinary Dental Medicine Laboratory

LEED Silver Residential: Cougar Village

Pending Certification: Fowler Student Design Center, Founders Hall and School of Dental Medicine Advanced Care Clinic

SIUE has installed a 120-foot wind turbine and 140 solar panels; and maintains more than 17,500-square-feet of green roof space.

The 35-acre Gardens at SIUE and the 380-acre Nature Preserve are places where students and faculty take part in valuable research, lab projects and class assignments.

The NCERC at SIUE is a nationally recognized research center dedicated to the development and commercialization of biofuels, specialty chemicals and other renewable compounds.

SIUE is fully certified at the Division I level by the NCAA and is a member of the Ohio Valley Conference (OVC) and the Mid-American Conference (MAC) as affiliate members in the sports of men's soccer and wrestling.

SIUE currently is ranked 1st among Illinois state universities and 13th in the nation among public universities graduating student-athletes, according to a report released by the NCAA.

Fall 2022 marked the 33rd consecutive semester all student-athletes have earned a cumulative 3.0 or higher GPA.

Research Team

This report was prepared for the Office of the President, Southern Illinois University System, 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 get in touch with the study authors at jebaraj@siu.edu or 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 measure 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, and other consumable services or goods, 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 are an indirect effect of a given activity, such as a university's provision of education services during a year. Indirect impacts are another benefit of economic activity and increase 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 model², 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 using statistical apps like IMPLAN³ (used in the present study) or RIMS.

² 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.

³ 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 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 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 an 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, and by including data on tax rates in the economic analysis, apps like IMPLAN compute tax revenue impacts.

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 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 computed from apps like IMPLAN 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.⁴

⁴ 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, for those living in a given region, the human capital impact 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. There is no unique or specific increase in human capital for these alumni from attending a particular college. To adjust for these college opportunities⁵, 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 effects⁶.

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 increase⁷ from completing college. The economist also makes a suitable assumption about the proportion

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).

⁵ Such opportunities are also called economic substitutes.

⁶ Such multipliers are available from Apps like IMPLAN.

⁷ 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*.

(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, including the expenses 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 attendance⁸, the amount of interest typically paid on student loans⁹, the income available to workers in the region without a college degree, the additional expected income from attending the university, the market discount rate¹⁰ for computing the present value of future expected income, and the number of post-college years during which alumni work¹¹.

Taxpayer Return on Investment

The state government uses taxpayers’ money to provide essential and necessary funding for the operation of a college or university. Essentially, taxpayers fund economic activities that generate current and future tax revenues from college graduates’ elevated incomes and enhanced

⁸ 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.

⁹ 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.

¹⁰ 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.

¹¹ 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,¹² the current tax revenues generated by that support¹³, and the income taxes associated with the additional future income and business activity associated with alumni work and spending after college¹⁴.

Public Impact

A college or university provides education that enriches college students, and 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 impacts¹⁵ arise when a university's research and service to the community improves or enhances the quality of life of people outside the university.

¹² For the Southern Illinois University System, the total dollars of taxpayer spending – also called state appropriation – is information available online at 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 SIUE Chancellors Report and the

¹³ 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.

¹⁴ 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.

¹⁵ 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).