



# Economic and Social Contribution

of the University of Connecticut

September 2014

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## **I. EXECUTIVE REPORT**

### **A. Introduction**

The University of Connecticut is a significant source of pride for the state of Connecticut. Since its founding in 1881, the UConn brand has grown to represent excellence in scholarship and research, with faculty and graduates alike serving as creative leaders in industries, educational institutions, healthcare, government, and non-profit foundations. It is recognized as an academic leader in many fields such as medicine, dentistry, engineering, statistics, liberal arts, digital media, fine arts, business, and law. Its research enterprise is internationally recognized for work in broad and diverse areas, such as additive manufacturing, psychology, gifted and talented education, genomics, human rights, public health, visual arts, and linguistics.

A land grant and sea grant institution that also is a member of the space grant consortium, the University is valued for the academic programming it offers and also is seen as critically important to the state's economic growth and development. With unprecedented investments by the state in recruitment of globally prominent faculty, targeted programs of societal need, and transformational research that improves lives, UConn's potential for growth, quality, and rising economic impact on Connecticut is virtually unlimited.

As a result, UConn has increasingly attracted a diverse mix of ambitious and talented students, many of whom stay in the state after graduation. The University currently serves more than 30,000 students across seven locations in Connecticut. In addition to its main campus and administrative hub in Storrs, the University operates campuses in Avery Point, Farmington, Hartford, Stamford, Torrington, and Waterbury, as well as numerous health clinics and extension offices throughout the state.

Beyond the state's borders, the University has a strong global orientation as evidenced by the breadth of its academic programs offered across time zones. In an increasingly globalized world, access to international experiences and educators is critical to developing future leaders.

UConn utilizes an interdisciplinary approach to create partnerships between different academic areas and across many departments. Engaging a variety of departments in these collaborative relationships leads to increased access to funding sources. Interprofessional education extends to UConn Health as well, as its graduate medical education program and public-private research partnerships are moving the University's health and medical enterprise toward fulfilling its full promise and potential.

Because the University does not operate in a vacuum, strategic and mutually beneficial partnerships with external entities such as United Technologies, GE, Cigna, and The Jackson

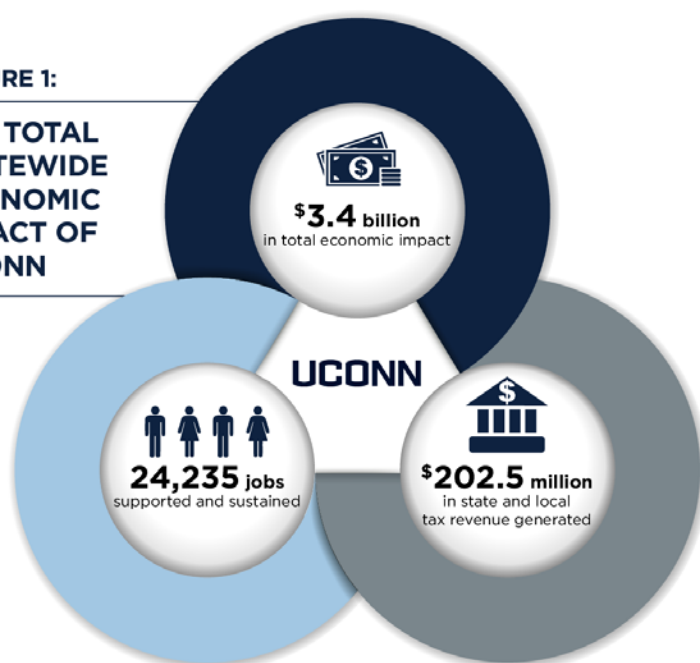
Laboratory provide strong examples of research collaborations that also serve as economic drivers. These industry partnerships generate innovative projects, and create opportunities for students who want to work on tangible industry efforts; leading them to internships and careers in fields critical to the economic strength of Connecticut and the nation.

The state of Connecticut remains committed to its support for UConn’s teaching, research, and clinical missions. In a time when state budgets nationally have reflected significantly diminished support for universities, Connecticut remains committed to bolstering its medical and education sectors. Initiatives such as 21st Century UConn and Next Generation Connecticut show a commitment to infrastructure support and science, technology, engineering, and math (STEM) education.

- **21st Century UConn** is the continuation of UConn 2000 and is another billion-dollar construction investment by the state of Connecticut to upgrade facilities at the University of Connecticut.
- **Next Generation Connecticut** is a multi-faceted \$1.5 billion plan to build the state's economic future through strategic investments in STEM.

FIGURE 1:

**THE TOTAL  
STATEWIDE  
ECONOMIC  
IMPACT OF  
UConn**



The results presented in UConn’s economic impact study are generated on an annual basis. The economic impact in future years can either be higher or lower, based on the number of students, faculty, capital expansion, increases in external research, and the level of state appropriations. It is important to note that the economic and employment impacts stated in this report represent the “fresh dollar”<sup>1</sup> impact of UConn. **The operations of UConn generate \$3.4 billion in economic impact and sustains more than 24,000 jobs throughout Connecticut.**

<sup>1</sup> Fresh dollars refer to the dollars attracted from out-of-state into the state's economy.

## B. Project Overview

Tripp Umbach was retained by the University of Connecticut to measure the economic, employment, and government revenue impacts of the University's main campus in Storrs, UConn Health enterprise based in Farmington, and regional campus locations throughout the state. The goal was to quantify annual economic impact of institutional spending and employment on the state of Connecticut for fiscal year 2013, specifically:

- ✓ Quantitative measure of net economic expansion to the economy;
- ✓ Direct and indirect jobs supported as a result of the University's spending;
- ✓ Attraction of out-of-state visitors and out-of-state patients;<sup>2</sup>
- ✓ Direct and indirect local and state tax revenue generated by the University;
- ✓ Visitors to conferences, meetings, and athletic events held at the University;
- ✓ External research from applied University research;
- ✓ Social impacts provided by University employees and volunteers, including annual charitable donations, volunteerism, and community leadership; and
- ✓ Annual economic impact of UConn alumni and graduates.

### UConn STUDY OVERVIEW

**STUDY OVERVIEW:**  
Fiscal year 2012 - 2013

**THIS STUDY INCLUDES:**  
All UConn Campuses,  
including UConn Health

**STUDY GEOGRAPHY:**  
State of Connecticut

**METHODOLOGY:**  
IMPLAN

<sup>2</sup> Tripp Umbach does not include in-state visitors or patients in its models to avoid overestimating the economic impact.

## C. Methodology Employed in the Economic Impact Study

This economic impact analysis measures the effect of direct and indirect/induced business volume and government revenue impacts for all of UConn's operations throughout the state of Connecticut. The methodology employed in the calculation of these impacts is IMPLAN.<sup>3</sup> Primary data utilized to conduct the analysis was collected from the University of Connecticut and UConn Health. Data included: capital expenditures, operational expenditures, jobs, payroll and benefits, and direct taxes. The approach taken on this study was decidedly conservative. UConn provides value and additional economic impact beyond its day-to-day operations. Operations are only one component of a university's economic impact; the graphic below details what is included in this assessment and what is not (See Figure 2).

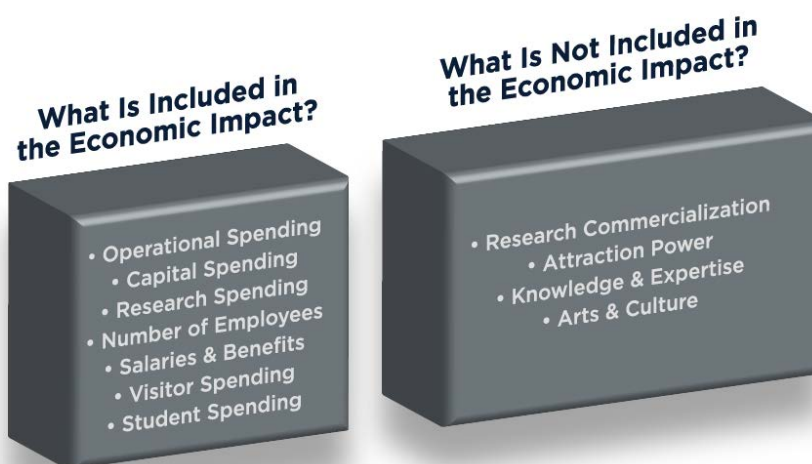
Economic impact begins when an organization spends money. Studies measuring economic impact capture the direct economic impact of an organization's spending, plus additional indirect and induced spending in the economy as a result of direct spending. Economic impact has nothing to do with dollars collected by institutions.

The total economic impact measures the dollars that are generated within Connecticut due to the presence of UConn.

This includes not only spending on goods and services with a variety of vendors within the state and the spending of its staff and visitors, but also the business volume generated by businesses within Connecticut that benefit from UConn's spending. It is important to remember that not all dollars spent by a university remain in its home state. Dollars that "leak" out of the state in the form of purchases from out-of-state vendors are not included in the university's economic impact on the state. The multipliers utilized in this study are derived from the IMPLAN software.

**FIGURE 2:**

### COMPONENTS OF ECONOMIC IMPACT



<sup>3</sup> Minnesota IMPLAN Group, Inc. (MIG) is the corporation that is responsible for the production of IMPLAN (IMpact analysis for PLANning) data and software. IMPLAN is a micro-computer-based, input-output modeling system. With IMPLAN, one can estimate Input-Output models of up to 528 sectors for any region consisting of one or more counties. IMPLAN includes procedures for generating multipliers and estimating impacts by applying final demand changes to the model.

## II. UCONN ECONOMIC IMPACT FINDINGS

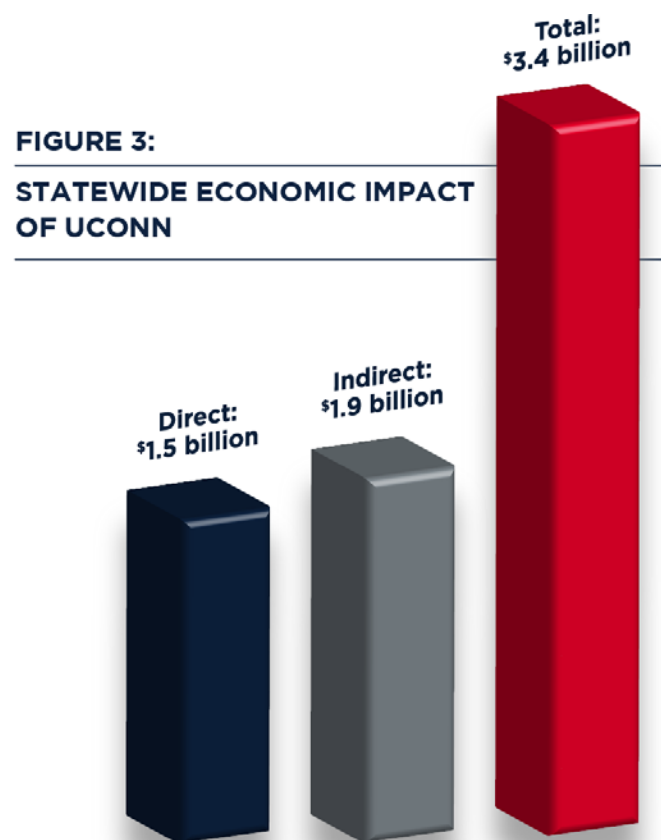
As one of the top 20 public universities in the nation, UConn's faculty are leaders academically and experts in their respective fields – excellence that thousands of students benefit from each year. The University's already strong reputation in Connecticut is spreading throughout the nation. In 2013, UConn received its highest rating to date in the *U.S. News & World Report* annual ranking, and the quantity and quality of students applying for admission has continued to climb. The University's standard of academic excellence is attracting the nation's best and brightest students and bringing in premier faculty who ensure the University's continued success and create an impact in a multitude of ways.

### A. UConn Economic Impact

UConn is an integral piece of Connecticut's economy, and University operations directly or indirectly impact residents of Connecticut. **UConn affects business volume in Connecticut in two ways:**

1. **Direct expenditures** for goods and services by the University, its employees, students, and visitors. This spending supports local businesses, which in turn employ local individuals to sell the goods and provide the services that the University's various constituencies need.
2. **Indirect or induced spending** within the state of Connecticut. The businesses and individuals that receive direct payments re-spend this money within the state, thus creating the need for even more jobs.

Expenditures on goods and services by the University, its employees, students, and visitors generated an economic impact in 2013 of **\$3.4 billion** (\$1.5 billion direct impact and \$1.9 billion indirect and induced). See Figure 3, Table 1. The economic impact of UConn represents **1.5 percent of the total Connecticut economy. One out of every 68 dollars** in the state's economy is attributable to UConn.



Source: Tripp Umbach, using IMPLAN results from data obtained through the University of Connecticut.

**TABLE 1:****ECONOMIC IMPACT OF UCONN**

Impact Type	Employment	Labor Income	Value Added	Output
<i>Direct</i>	<i>10,505 jobs</i>	<i>\$1,188,708,628</i>	<i>\$1,272,521,941</i>	<i>\$1,534,182,007</i>
<i>Indirect/Induced</i>	<i>13,730 jobs</i>	<i>\$682,378,949</i>	<i>\$1,199,685,277</i>	<i>\$1,852,100,886</i>
<b>Total Effect</b>	<b>24,235 jobs</b>	<b>\$1,871,087,577</b>	<b>\$2,472,207,218</b>	<b>\$3,386,282,893</b>

Source: Tripp Umbach, using IMPLAN results from data obtained through the University of Connecticut.

Table 2 below shows the top 10 sectors in terms of economic output in the Connecticut economy impacted by the presence of UConn.

**TABLE 2:****TOP 10 SECTORS FOR ECONOMIC OUTPUT**

Description	Total Output
<i>Universities/colleges</i>	<i>\$860,634,492</i>
<i>Private hospitals</i>	<i>\$755,886,402</i>
<i>Real estate establishments</i>	<i>\$191,946,900</i>
<i>Hotels and motels, including casino hotels</i>	<i>\$154,805,181</i>
<i>Imputed rental activity for owner-occupied dwellings</i>	<i>\$137,530,898</i>
<i>Food services and drinking places</i>	<i>\$111,149,558</i>
<i>Wholesale trade businesses</i>	<i>\$63,479,993</i>
<i>Offices of physicians, dentists, and other health practitioners</i>	<i>\$60,438,171</i>
<i>Monetary authorities and depository credit intermediation activities</i>	<i>\$58,309,331</i>
<i>Insurance carriers</i>	<i>\$53,965,126</i>

Source: Tripp Umbach, using IMPLAN results from data obtained through the University of Connecticut.



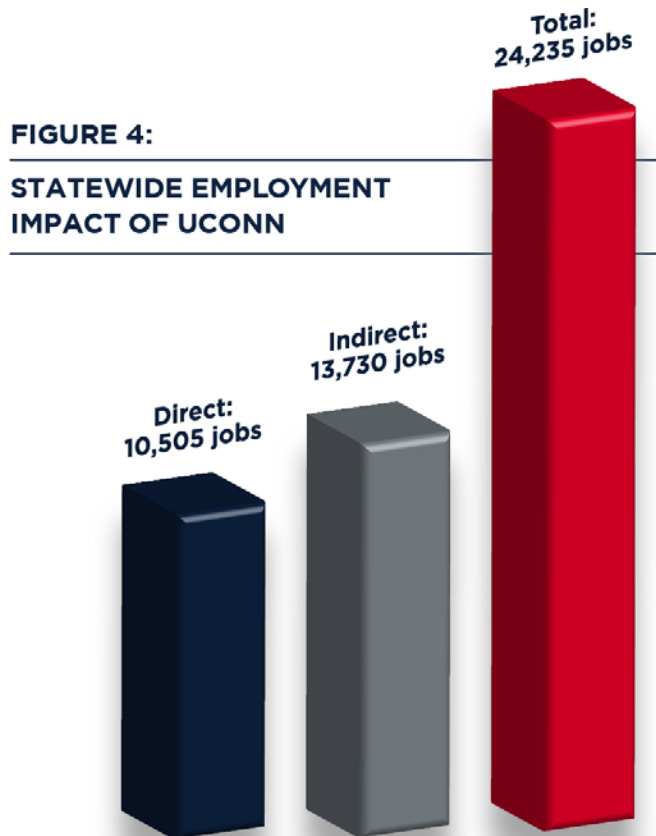
## B. UConn Employment Impact

The University of Connecticut supported **24,235 jobs** in the state of Connecticut. **One out of every 90 jobs in the state is attributable to UConn.** These jobs (both full-time and part-time employees) include not only direct employment by the University, but also indirect and induced jobs created for supply and equipment vendors, contractors, and laborers for the construction and renovation of University facilities. Also, jobs created in the community at hotels, restaurants, and retail stores in support of the combined workforce and visitors to the University.

In 2012, UConn embarked on an ambitious, multi-year hiring initiative to expand its faculty numbers across numerous academic disciplines. This four-year investment in 500 tenure-track faculty positions is poised to build on the institution's existing strengths while growing new expertise in strategic areas by hiring talented scholars within a targeted selection of academic departments. This effort will boost the University's research productivity, provide outstanding teaching and service to UConn students, and continue the transformation that has led the University to stand among the nation's leading public research universities.

The University directly employed **10,505 faculty and staff** during fiscal 2012-13. UConn supports thousands of jobs annually statewide in virtually every sector of the Connecticut economy, such as construction, business and professional services, restaurants and hotels, information technology, security, and temporary employment companies. These indirect/induced jobs (**13,730 jobs**) are in support of the more than 10,505 full- and part-time people who are employed directly by the University.

Table 3 below shows the top 10 employment sectors in the Connecticut economy impacted by the presence of UConn.



Source: Tripp Umbach, using IMPLAN results from data obtained through the University of Connecticut.

**TABLE 3:****TOP 10 SECTORS FOR EMPLOYMENT IMPACT**

Description	Total Employment
<i>Private hospitals</i>	<i>6,698 jobs</i>
<i>Universities/colleges</i>	<i>4,769 jobs</i>
<i>Food services and drinking places</i>	<i>1,734 jobs</i>
<i>Real estate establishments</i>	<i>1,477 jobs</i>
<i>Hotels and motels, including casino hotels</i>	<i>1,236 jobs</i>
<i>Offices of physicians, dentists, and other health practitioners</i>	<i>433 jobs</i>
<i>Employment services</i>	<i>391 jobs</i>
<i>Services to buildings and dwellings</i>	<i>357 jobs</i>
<i>Retail Stores - Food and beverage</i>	<i>348 jobs</i>
<i>Wholesale trade businesses</i>	<i>291 jobs</i>

Source: Tripp Umbach, using IMPLAN results from data obtained through the University of Connecticut.

**C. UConn Government Revenue Impact**

It is a common misperception that public universities do not generate tax revenue. State and local government revenues attributable to the presence of the University of Connecticut totaled **\$202.5 million** in fiscal 2012-13. State and local governments throughout Connecticut received tax revenues that were University-related. The tax revenue impact of UConn includes income, sales, real estate, corporate income, payroll, and capital stock/franchise taxes. The total tax revenue impact includes both those taxes paid by the University and the indirect taxes paid by employees of UConn, and those paid by vendors who are doing business with the University within the state.

Through its local spending, as well as direct and indirect support of jobs, the presence of the

Direct and Indirect  
\$202.5 million

**FIGURE 5:**  
**GOVERNMENT REVENUE  
IMPACT OF UCONN**



Source: Tripp Umbach, using IMPLAN results from data obtained through the University of Connecticut.

University stabilizes and strengthens the local and statewide tax base. The University is an integral part of the of state's economy – generating revenue, jobs, and spending.

## D. UConn Research Enterprise Impact

The University of Connecticut is a Carnegie Foundation Research University, lauded for breadth and range of research. More than 100 research centers and institutes serve UConn's teaching, research, diversity, and outreach missions. Undergraduate, graduate, and faculty research at UConn drives business development and enhances quality of life.

The data indicates that UConn faculty and their ideas contribute prominently to Connecticut's economy. The Technology Partnerships and Licensing group at the University serves as a resource to help transform unique research findings into potentially patentable and marketable products. The office has been working extensively with UConn researchers and entrepreneurs to help fulfill this goal. UConn had noteworthy increases in gross licensing income, number of licenses and options, disclosures received, patents filed, and number of U.S. patents issued from 2011 (See Table 5). A total of \$242.2 million was spent on research during 2013.

FIGURE 6:

### THE ECONOMIC IMPACT OF UCONN'S RESEARCH ENTERPRISE

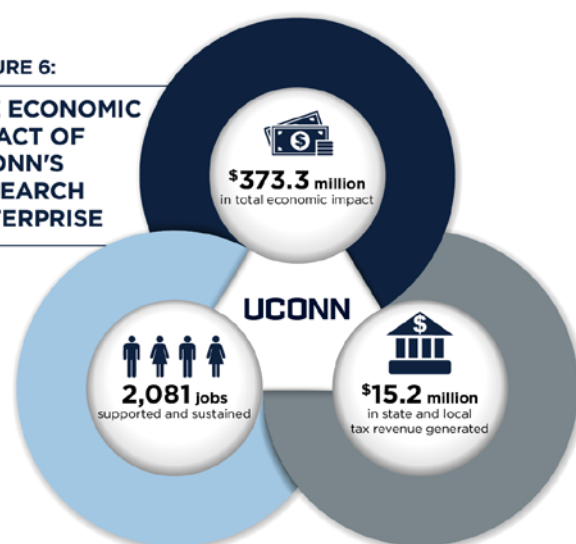


TABLE 4:

### UConn TECHNOLOGY TRANSFER

Fiscal Year	Invention Disclosures Received (Total/HC*)	New U.S. Patent Applications Filed	Licenses/Options Signed	Licenses/Options Producing Income	Total Income Received
2009	85/13	34	14	42	\$1,173,886
2010	91/20	33	12	57	\$1,214,747
2011	67/14	29	7	53	\$1,090,000
2012	81/12	42	10	54	\$287,400
2013	71/13	51	10	52	\$1,140,178

Source: University of Connecticut  
\*HC is an abbreviation for UConn Health

Stakeholders agree that the University provides strong support for research in many ways. The University has entered into a partnership with The Jackson Laboratory, which will put the University at the forefront of life sciences research in the area of genomics and genetics. In addition, partnerships with GE, United Technologies Corporation, and Pratt & Whitney are

developing new technology for those businesses in cooperation with the expert faculty at UConn. The School of Engineering, in conjunction with Connecticut Innovations, offers Ph.D. students the opportunity to form their own companies based upon their graduate work. As a result of this collaboration, 10 companies have been formed that have generated economic activity within the state. These types of research partnerships encourage the entrepreneurial spirit in students and grow cutting-edge research locally.

**The impact of research spending already is included in the \$3.4 billion economic impact of UConn.** It is critical to note that the majority of the research dollars that UConn brings into the state are “fresh” dollars for the state of Connecticut – meaning that because of the quality of its faculty and strength of its programs, UConn is attracting out-of-state dollars to Connecticut. UConn competes nationally for these dollars against its peer institutions to fund the research enterprise.

**\$242.2 million dollars in research expenditures** translates into a significant economic impact for Connecticut. As a result of its strong research programs and expenditures on research, the economic impact of the UConn research enterprise is **\$373.3 million** (\$202.8 million direct impact and **\$170.5 million** indirect/induced impact). As UConn’s research expenditures grow as a result of increased research funding, the impact of research spending also will continue to grow.

The University’s research operations make tangible and quantifiable economic contributions. Along with creating jobs for research staff and support personnel, UConn scientists are contributing to new product development and technology commercialization. Knowledge and technology transfers have helped to start commercial ventures that promote entrepreneurship, economic development, and job creation.

**In fiscal 2012-13, the operational and capital expenditures that the University made for sponsored research and other sponsored programs supported 2,081 jobs.** These research employment numbers represent 8.5 percent of the total UConn job impact.

These jobs include not only direct employment of research professionals by the University, but also indirect jobs created for supply and equipment vendors, contractors, and laborers for the construction and renovation of laboratory facilities, administrators and managers who support the research infrastructure, and jobs created in the community by the disposable income of the scientific workforce.

If the University can maintain and grow its strong faculty base, it will continue to attract, and consequently spend, increasingly higher levels of research dollars, and the number of jobs supported will rise. With a new emphasis on attracting external research funding and

consequent expenditures, the University will continue to grow as a source of support for thousands of local jobs based on its research funding alone.

## **RESEARCH COMMERCIALIZATION AND TECHNOLOGY TRANSFER**

Discovery and scholarly activities also lead to real-life solutions, and research involving new technology can be quantified in the form of inventions and patents. UConn has made significant strides in improving its infrastructure to harness the potential of research commercialization and technology transfer, leading to an even stronger economic impact today than ever before.

Since 2011, statewide bioscience and genomic research initiatives have been enacted by the governor and the Connecticut General Assembly to jumpstart the state's economy. These initiatives put UConn Health front and center in the state's plans to expand its bioscience industry sector.

- **Bioscience Connecticut:** The initiative includes plans for renovations to existing facilities on the UConn Health campus in Farmington, as well the construction of a new patient tower and ambulatory care facility, and seeks to increase UConn Health's medical and dental school enrollments by 30 percent. According to the proposal, Bioscience Connecticut will result in the creation of 3,000 construction jobs annually from 2012 through 2018 and a \$4.6 billion increase in personal income by 2037, while generating more than 16,000 jobs.
- **The Jackson Laboratory:** This partnership centers around construction of a \$1.1 billion genomic medicine laboratory on the campus of UConn Health. This collaborative research agreement between The Jackson Laboratory and UConn Health will create at least 300 positions within 10 years, 30 percent of total employees being senior scientist positions. Once fully developed, the facility is projected to employ 600 scientists and technicians.

## **UConn ALUMNI PLAY A VITAL ROLE IN THE CONNECTICUT ECONOMY**

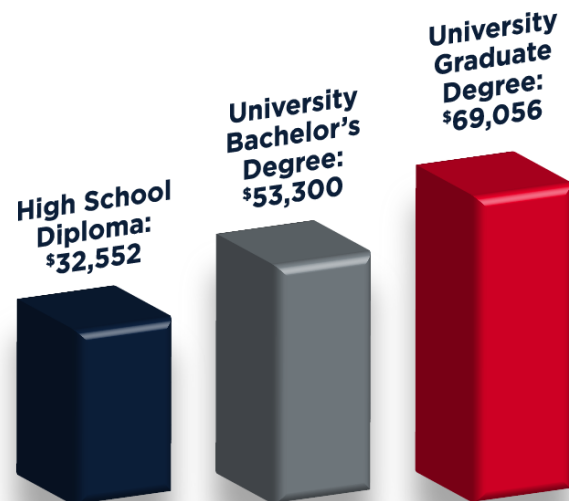
The University of Connecticut educates the workforce that Connecticut needs to succeed in the 21st century. The nearly **8,000 students** who graduate every year from UConn are providing essential contributions to the state's human capital and workforce needs. About **57 percent of those graduates will stay in Connecticut** and contribute to the state economy.

UConn graduate contributions are critically important to the economic vitality of the state. There are nearly 217,000 University of Connecticut alumni worldwide, with more than half (56.6 percent) of UConn alumni living in Connecticut. UConn is a global talent magnet, attracting top students in a wide range of disciplines.

By educating students, UConn adds to the talent pool of human capital in the state of Connecticut. Thus, students are able to earn more in the job market because they are more valuable and productive. Based on data on median annual earnings for university graduates in 2008 from the U.S. Department of Commerce's Bureau of Economic Analysis, a bachelor's degree earned at a university increases a graduate's salary compared with a high school diploma by an average of about \$20,748 a year (from \$32,552 to \$53,300), while a graduate degree earned at a university increases a graduate's salary compared to a bachelor's degree by an average of about \$15,756 a year (from \$53,300 to \$69,056). Considering the average individual's work life is roughly 40 years, the benefit of earning a college degree provides about \$829,920 more in total lifetime wages over only receiving a high school diploma.

**FIGURE 7:**

## **SALARY COMPARISONS BY DEGREE TYPE**



Source: Tripp Umbach, using IMPLAN results from data obtained through the University of Connecticut.

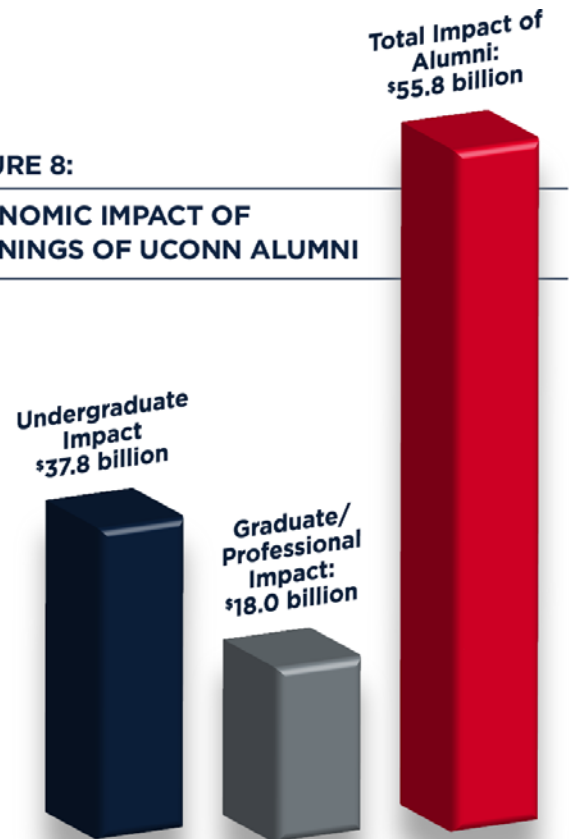
The 5,122 baccalaureate degrees UConn awarded in academic year 2012-13 equates to the creation of **\$741.3 million of future value** over 40 years (only counting the graduates from a single year). Even if the total is adjusted by 80 percent to allow for the forgone income while attending the University, future periods of unemployment, time out of the labor force for child rearing, and other life events, the future value creation is still nearly **\$593.0 million**. A similar analysis applied to the 2,473 advanced degrees (i.e., masters, doctoral, professional) for academic year 2012-13 indicates another **\$358.3 million of value created**. So, the University is creating **\$1.1 billion** (\$741.3 million + \$358.3 million) of incremental lifetime earnings for members of each graduating class.

To calculate the economic impact of the University's alumni on a continuing basis in the state of Connecticut, Tripp Umbach assembled figures on the distribution of the alumni for whom the University has current address information, and used this distribution for the body of nearly 123,000 alumni who have graduated in the past 30 years and are living in the state of Connecticut. Based on an average of \$8,532<sup>4</sup> in additional salary per graduate of the University

<sup>4</sup> This number is the average amount of additional income that a graduate of a school with a similar profile to the University of Connecticut earns over the average college graduate. It is based upon an average of the studies that Tripp Umbach has completed for peer universities in which primary survey analysis was conducted.

of Connecticut, it is estimated that UConn working graduates since 1980 support **\$55.8 billion in additional income (\$37.8 billion from undergraduate alumni and \$18.0 billion from graduate alumni)** in the state's economy annually (assuming that 70 percent are in the workforce).

**FIGURE 8:**  
**ECONOMIC IMPACT OF EARNINGS OF UCONN ALUMNI**



Source: Tripp Umbach, using IMPLAN results from data obtained through the University of Connecticut.



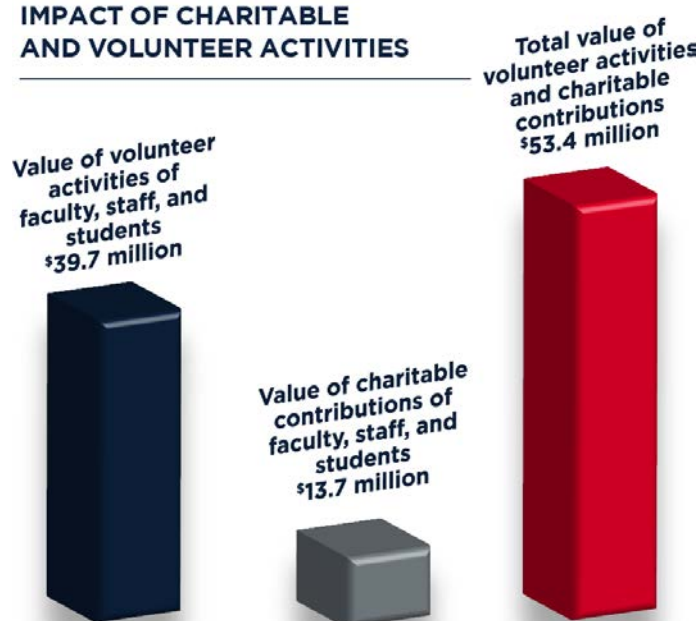
## UConn COMMUNITY AND SOCIETAL BENEFITS

The University of Connecticut's total impact on the state of Connecticut goes beyond the annual economic impact presented above. Tripp Umbach estimates that UConn staff, faculty, physicians, and students who received their education and training at the University generate more than **\$53.4 million** annually in charitable donations and volunteer services.<sup>5</sup> UConn Health's provision of charity care brings this total to \$54.2 million annually. These benefits (in addition to the \$3.4 billion annual impact) include the following:

- In 2013, UConn faculty, staff, and students donated **\$13.7 million** to local charitable organizations.
- UConn faculty, staff, and students provide a generous amount of hours in volunteer services. The economic value of such services is estimated at more than **\$39.7 million**.
- In 2013, UConn Health's John Dempsey Hospital provided **\$801,071** in charity care valued at **\$415,547** in gross revenue to Connecticut residents.

**FIGURE 9:**

### IMPACT OF CHARITABLE AND VOLUNTEER ACTIVITIES



UConn offers a diverse range of opportunities for students to engage in community outreach. At the forefront of this are The Husky Programs, which include Husky Reads, Husky Nutrition, and Healthy Aging. Students who are involved with the Husky Programs deliver a range of nutrition education activities for low-income families, children, and seniors throughout Connecticut. By way of workshops and activities, students are striving to improve the health status of the region through health promotion and obesity prevention.

The College of Agriculture, Health, and Natural Resources also focuses on community nutrition, particularly working with the Hispanic population in urban areas. Furthermore, its Extension programming provides families and communities with programs that teach Connecticut

<sup>5</sup> Primary data collection via survey research where faculty, staff, and students provide estimates on spending patterns, including information on the number of volunteer hours and charitable donations which they contribute. A conservative assumption of \$22.14 per hour was used to calculate the value of volunteer services. This hourly amount was calculated independently by the Points of Light Foundation.



residents how to lead healthy, productive, and financially secure lives through programs such as 4H, Master Gardeners, and Farm Risk Management.

The School of Engineering is also very active in community outreach, especially working to get younger students, as well as their teachers, involved in STEM initiatives. It offers camps, competitions, and other programming that engages UConn students and professors with elementary, middle, and high school students.

A sampling of additional outreach provided by UConn students and faculty includes:

- Clinics provided by School of Dental Medicine students;
- Center for Public Health's involvement with early child care centers, aging centers, farmer's markets, etc. to increase awareness about health and nutrition;
- Marriage and family therapy clinics staffed by therapy professionals and professionals in training;
- Simulation van used to educate nurses at prisons and jails; and
- Entrepreneurial boot camp for veterans.

Opportunities to engage in outreach opportunities are abundant and due to UConn's high levels of engagement, the University was one of five institutions recognized as Presidential Awardees in the 2013 President's Higher Education Community Service Honor Roll. This designation is the highest honor a college or university can receive for its commitment to volunteering, service-learning, and civic engagement. In the 2011-12 academic year, UConn's community outreach saw an increase of 278 percent in student participation and 540 percent in service hours compared to 2003. At UConn, interest currently exceeds capacity and students are encouraged to participate in diverse projects that benefit surrounding communities and inner cities.

## APPENDIX A: DEFINITION OF TERMS

<b>STUDY YEAR</b>	Fiscal Year 2012-2013
<b>TOTAL ECONOMIC IMPACT</b>	The total economic impact of an institution includes both the direct impact and the indirect impact generated in the economy as a result of the institution.
<b>DIRECT ECONOMIC IMPACT</b>	Direct impact includes items such as institutional spending, employee spending and spending by visitors to the institution.
<b>INDIRECT ECONOMIC IMPACT</b>	Indirect impact, also known as the multiplier effect, includes the re-spending of dollars within the local economy by vendors/suppliers and households.
<b>MULTIPLIER EFFECT</b>	The multiplier effect is the additional economic impact created as a result of the institution's direct economic impact. Local companies that provide goods and services to an institution increase their purchasing by creating a multiplier.
<b>DIRECT TAX PAYMENTS</b>	Direct tax payments made by an institution to a unit of government.
<b>INDIRECT TAX PAYMENTS</b>	Government revenue that is collected by governmental units in addition to those paid directly by an institution, including taxes paid directly by employees of the institution, visitors to the institution, and vendors who sell products to the institution.
<b>DIRECT EMPLOYMENT</b>	Total employees based on total jobs.
<b>INDIRECT EMPLOYMENT</b>	Indirect employment is the additional jobs created as a result of the institution's economic impact. Local companies that provide goods and services to an institution increase their number of employees as purchasing increases, thus creating an employment multiplier.

## APPENDIX B: ECONOMIC IMPACT BY CAMPUS

The table below shows the breakout of economic impact by each campus in the UConn system.

**TABLE 1:**

### ECONOMIC IMPACT BY UCONN CAMPUS

Campus	Direct	Indirect/Induced	Total
<i>Storrs</i>	\$758,014,993	\$948,991,260	\$1,707,006,253
<i>UConn Health</i>	\$687,840,014	\$797,479,570	\$1,485,319,584
<i>Hartford</i>	\$46,154,000	\$56,120,129	\$102,274,129
<i>Avery Point</i>	\$19,861,000	\$23,337,318	\$43,198,318
<i>Stamford</i>	\$11,793,000	\$13,548,898	\$25,341,898
<i>Waterbury</i>	\$7,756,000	\$9,221,180	\$16,977,180
<i>Torrington</i>	\$2,763,000	\$3,402,531	\$6,165,531
<b>Total Impact</b>	<b>\$1,534,182,007</b>	<b>\$1,852,100,886</b>	<b>\$3,386,282,893</b>

Source: Tripp Umbach, using IMPLAN results from data obtained through the University of Connecticut.

The table below shows the breakout of employment impact by each campus in the UConn system.

**TABLE 2:**

### EMPLOYMENT IMPACT BY UCONN CAMPUS

Campus	Direct	Indirect/Induced	Total
<i>UConn Health</i>	5,829 jobs	6,210 jobs	12,039 jobs
<i>Storrs</i>	4,031 jobs	6,784 jobs	10,815 jobs
<i>Hartford</i>	318 jobs	393 jobs	711 jobs
<i>Avery Point</i>	117 jobs	163 jobs	280 jobs
<i>Stamford</i>	114 jobs	93 jobs	207 jobs
<i>Waterbury</i>	69 jobs	63 jobs	132 jobs
<i>Torrington</i>	27 jobs	24 jobs	51 jobs
<b>Total Impact</b>	<b>10,505 jobs</b>	<b>13,730 jobs</b>	<b>24,235 jobs</b>

Source: Tripp Umbach, using IMPLAN results from data obtained through the University of Connecticut.

The table below shows the breakout of government revenue impact by each campus in the UConn system.

**TABLE 3:**

## GOVERNMENT REVENUE IMPACT BY UCONN CAMPUS

Campus	Total
<i>Storrs</i>	<i>\$108,567,958</i>
<i>UConn Health</i>	<i>\$81,355,388</i>
<i>Hartford</i>	<i>\$6,681,744</i>
<i>Avery Point</i>	<i>\$2,745,604</i>
<i>Stamford</i>	<i>\$1,640,105</i>
<i>Waterbury</i>	<i>\$1,116,735</i>
<i>Torrington</i>	<i>\$404,498</i>
<b><i>Total Impact</i></b>	<b><i>\$202,512,032</i></b>

Source: Tripp Umbach, using IMPLAN results from data obtained through the University of Connecticut.

## APPENDIX C: METHODOLOGY

Economic impact begins when an organization spends money. Studies measuring economic impact capture the direct economic impact of an organization's spending, plus additional indirect and induced spending in the economy as a result of direct spending. Economic impact has nothing to do with dollars collected by institutions.

Total economic impact measures the dollars that are generated within Connecticut due to the presence of UConn and UConn Health. This includes not only spending on goods and services with a variety of vendors within the state, and the spending of its staff and visitors, but also the business volume generated by businesses within Connecticut that benefit from the University's spending. It is important to remember that not all dollars spent by a university remain in its home state. Dollars that "leak" out of the state in the form of purchases from out-of-state vendors are not included in the University's economic impact on the state. The multipliers utilized in this study are derived from the IMPLAN software.

### IMPACT ON STATE BUSINESS VOLUME AND GOVERNMENT REVENUE

UConn is a major employer in the state and, as such, a major generator of personal income for state residents. Businesses operating within Connecticut in the wholesale, retail, service, and manufacturing sectors benefit from the direct expenditures of the institution and its faculty, staff, students, and visitors on goods and services. Additionally, many of these "direct" expenditures are re-circulated in the economy as recipients of the first-round of income re-spend a portion of this income with other businesses and individuals within Connecticut.

### METHODOLOGY AND DATA UTILIZED FOR THE ESTIMATION OF UCONN'S ECONOMIC IMPACT

The economic impact of UConn was estimated using IMPLAN (IMpact Analysis for PLANing), an econometric modeling system developed by applied economists at the University of Minnesota and the U.S. Forest Service. The IMPLAN modeling system has been in use since 1979, and is currently used by more than 500 private consulting firms, university research centers, and government agencies. The IMPLAN modeling system combines the **U.S. Bureau of Economic Analysis' Input-Output Benchmarks** with other data to construct quantitative models of trade flow relationships between businesses and between businesses and final consumers. From this data, one can examine the effects of a change in one or several economic activities to predict its effect on a specific state, regional, or local economy (impact analysis). The IMPLAN input-output accounts capture all monetary market transactions for consumption in a given time period. The IMPLAN input-output accounts are based on industry survey data collected periodically by the U.S. Bureau of Economic Analysis and follow a balanced account format recommended by the United Nations.

IMPLAN's regional economic accounts and social accounting matrices were used to construct state-level multipliers, which describe the response of the state economy to a change in demand or production as a result of the activities and expenditures of the University of Connecticut. Each industry that produces goods or services generates demand for other goods and services; and this demand is multiplied through a particular economy until it dissipates through "leakage" to economies outside the specified area. IMPLAN models discern and calculate leakage from local, regional, and state economic areas based on workforce configuration, the inputs required by specific types of businesses, and the availability of both inputs in the economic area. Consequently, economic impacts that accrue to other regions or states as a consequence of a change in demand are not counted as impacts within the economic area.

The model accounts for substitution and displacement effects by deflating industry-specific multipliers to levels well below those recommended by the U.S. Bureau of Economic Analysis. In addition, multipliers are applied only to personal disposable income to obtain a more realistic estimate of the multiplier effects from increased demand. Importantly, IMPLAN's regional economic accounts exclude imports to an economic area, so the calculation of economic impacts identifies only those impacts specific to the economic impact area, in this case the state of Connecticut. IMPLAN calculates this distinction by applying regional purchase coefficients to predict regional purchases based on an economic area's particular characteristics. The regional purchase coefficient represents the proportion of goods and services that will be purchased regionally under normal circumstances, based on the area's economic characteristics described in terms of actual trade flows within the area.

## **MODEL INPUTS AND DATA SOURCES**

Model inputs included actual fiscal 2012-13 expenditures provided by the University of Connecticut and UConn Health.

## **APPENDIX D: FAQs REGARDING ECONOMIC IMPACT ASSESSMENT**

### **What is economic impact?**

Economic impact begins when an organization spends money. Economic impact studies measure the direct economic impact of an organization's spending, plus additional indirect spending in the economy as a result of direct spending. Economic impact has nothing to do with dollars collected by institutions, their profitability, or even their sustainability, since all operating organizations have a positive economic impact when they spend money and attract spending from outside sources.

Direct economic impact measures the dollars that are generated within the state of Connecticut due to the presence of the University of Connecticut. This includes not only spending on goods and services with a variety of vendors within the state, and the spending of its staff and visitors, but also the business volume generated by businesses within Connecticut that benefit from UConn's spending. It is important to remember that not all dollars spent by the University remain in its home state. Dollars that "leak" out of the state in the form of purchases from out-of-state vendors are not included in the University's economic impact on the state.

The total economic impact includes the "multiplier" of spending from companies that do business with UConn. Support businesses may include lodging establishments, restaurants, construction firms, vendors, temporary agencies, etc. Spending multipliers attempt to estimate the ripple effect in the state economy where the spending occurs. For example: spending by UConn with local vendors provides these vendors with additional dollars that those vendors re-spend in the local economy, causing a "multiplier effect."

### **What is the multiplier effect?**

Multipliers are a numeric way of describing the secondary impacts stemming from the operations of an organization. For example, an employment multiplier of 1.8 would suggest that for every 10 employees hired in the given industry, eight additional jobs would be created in other industries, such that 18 total jobs would be added to the given economic region. The multipliers used in this study range from 1.8 to 2.0.

The multiplier model is derived mathematically using the input-output model and social accounting formats. The social accounting system provides the framework for the predictive multiplier model used in economic impact studies. Purchases for final use drive the model. Industries that produce goods and services for consumer consumption must purchase products, raw materials, and services from other companies to create products. These vendors must also procure goods and services.

This cycle continues until all the money is leaked from the region's economy. There are three types of effects measured with a multiplier: the direct, the indirect, and the induced effects. The direct effect is the known or predicted change in the local economy that is to be studied. The indirect effect is the business-to-business transactions required to satisfy the direct effect. Finally, the induced effect is derived from local spending on goods and services by people working to satisfy the direct and indirect effects.

- **Direct effects** take place only in the industry immediately being studied.
- **Indirect effects** concern inter-industry transactions: because UConn is in business, it needs locally produced materials in order to operate.
- **Induced effects** measure the effects of changes in household income: employees of UConn and suppliers purchase from local retailers and restaurants.
- **Total Economic Impacts** the total changes to the original economy as the result of UConn's operations; i.e., Direct Effects + Indirect Effects + Induced Effects = Total Economic Impacts

### What methodology was used in this study?

IMPLAN (**IM**pnact analysis for **PLAN**ning) data and software: Using classic input-output analysis in combination with regional specific social accounting matrices and multiplier models, IMPLAN provides a highly accurate and adaptable model for its users. The IMPLAN database contains county, state, zip code, and federal economic statistics which are specialized by region, not estimated from national averages. It can be used to measure the effect on a regional or local economy of a given change or event in the economy's activity.

### What is employment impact?

Employment impact measures the direct employment (staff, faculty, administration) plus additional employment created in the economy as a result of the operations of the University of Connecticut.

Indirect and induced employment impact refers to other employees throughout the region that exist because of UConn's economic impact. In other words, jobs related to the population – city services (police, fire), employees at local hotels and restaurants, clerks at local retail establishments, residents employed by vendors used by UConn.



**What is the difference between direct and indirect taxes?**

Direct tax dollars include sales taxes and net corporate income taxes paid directly by the institution to the state, while indirect taxes include taxes paid to the state by vendors that do business with UConn and individuals that do business with UConn.

**Is this a one-time impact or does the impact repeat each year?**

The results presented in the UConn economic impact study are generated on an annual basis. The economic impact in future years can either be higher or lower based on number of students, capital expansion, increases in external research, and state appropriations.

**What are Tripp Umbach's qualifications to perform an Economic Impact Study for UConn?**

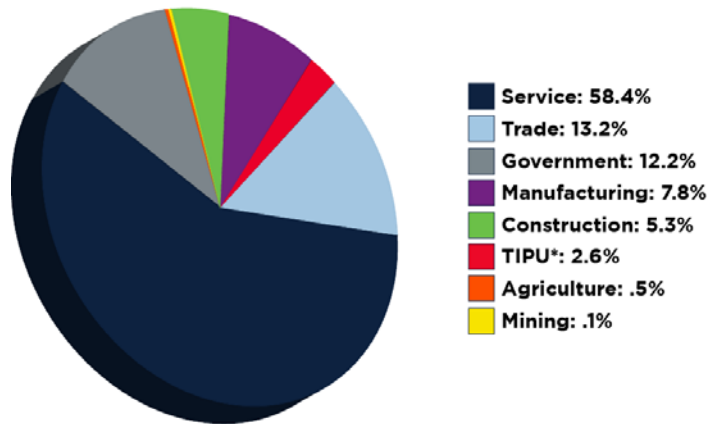
Tripp Umbach is the national leader in providing economic impact analysis to leading healthcare organizations, universities, and academic medical centers. We have completed more than 150 economic impact studies over the past 25 years for clients such as: The Pennsylvania State University, The Ohio State University, University of Washington, The University of Iowa, University of Alabama-Birmingham, Cleveland Clinic, University of Florida Shands HealthCare, the University of North Carolina Hospitals, the University of Pennsylvania Medical Center, the University of Pittsburgh Medical Center, and the Ohio State University Medical Center.

## APPENDIX E. ECONOMIC PROFILE OF CONNECTICUT

According to analysis compiled by IMPLAN which includes the Bureau of Economic Analysis, the top three employment clusters in the state of Connecticut are: 1) service, 2) trade, and 3) government.

**FIGURE 1:**

### TOTAL EMPLOYMENT OUTPUT BY INDUSTRY SECTOR

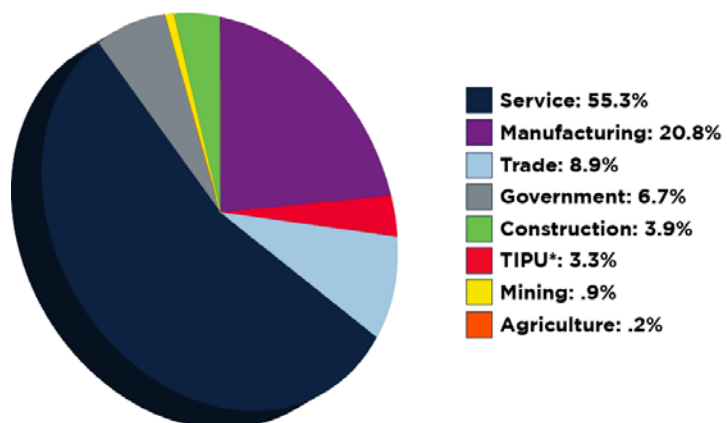


\*TIPU=Transportation, Information, and Public Utilities  
Source: Tripp Umbach, using IMPLAN results from data obtained through the University of Connecticut.  
Numbers may not sum to 100% due to rounding.

According to analysis compiled by IMPLAN which includes the Bureau of Economic Analysis, the top three clusters in terms of economic output in the state of Connecticut are: 1) service, 2) manufacturing, and 3) trade.

**FIGURE 2:**

### TOTAL OUTPUT BY INDUSTRY SECTOR



\*TIPU=Transportation, Information, and Public Utilities  
Source: Tripp Umbach, using IMPLAN results from data obtained through the University of Connecticut.  
Numbers may not sum to 100% due to rounding.

## APPENDIX F: UCONN HEALTH ECONOMIC IMPACT

### Introduction

Based in Farmington, Connecticut, UConn Health is home to the School of Medicine, School of Dental Medicine, John Dempsey Hospital, UConn Medical Group, UConn Health Partners, University Dentists, and a thriving research enterprise. UConn Health is heavily involved with the Bioscience Connecticut initiative to elevate the state's position as a national and global leader for bioscience innovation and improve access to quality healthcare for residents.

### Education and Research

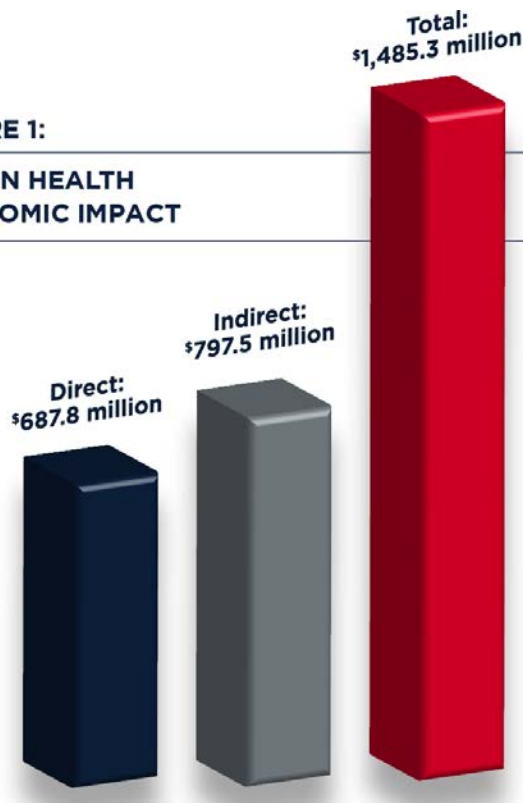
As an academic health center, UConn Health is a key component of the University of Connecticut in training both physicians and dentists. Additionally, a Ph.D. program in biomedical sciences and master's degree programs in public health and dental science also are offered. Postdoctoral fellowships, residency programs providing specialty training for newly graduated physicians and dentists, and continuing education programs for practicing healthcare professionals are also educational opportunities available at UConn Health.

Research is an integral part of UConn Health's mission. With the ongoing Bioscience Connecticut initiative, research efforts have seen additional support through the addition of collaborative projects involving UConn, The Jackson Laboratory, and the state of Connecticut, among other entities.

UConn Health is a critical component of the University's research arm and pulls in approximately **\$90 million** each year in research funding. Having clinical scientists in the hospital conducting translational research and medicine, which takes their practice from discovery directly to patients, positions UConn Health at the pinnacle of health care innovation. Lastly, UConn Health is a benefit to the community due to access to quality and reliable care for Connecticut residents.

Economic Impact

FIGURE 1:  
UCONN HEALTH  
ECONOMIC IMPACT



The overall economic impact of UConn Health operations on the state of Connecticut in 2013 was nearly **\$1.5 billion** (\$687.8 million direct impact and \$797.5 million indirect and induced).

Source: Tripp Umbach, using IMPLAN results from data obtained through the University of Connecticut.

TABLE 1:  
UCONN HEALTH ECONOMIC IMPACT

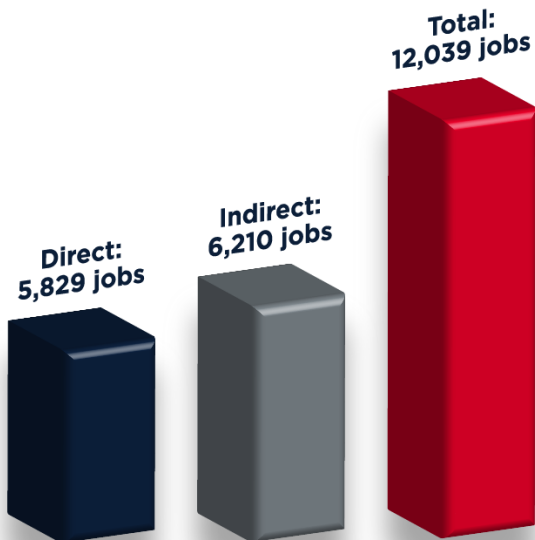
Impact Type	Employment	Labor Income	Value Added	Output
Direct	5,829 jobs	\$565,642,556	\$604,608,363	\$687,840,014
Indirect/Induced	6,210 jobs	\$300,553,422	\$525,131,071	\$797,479,570
Total Effect	12,039 jobs	\$866,195,978	\$1,129,739,434	\$1,485,319,584

Source: Tripp Umbach, using IMPLAN results from data obtained through the University of Connecticut.

Employment Impact

The total employment impact of UConn Health operations in the state of Connecticut is **12,039 jobs** (5,829 direct jobs).

FIGURE 2:  
UCONN HEALTH EMPLOYMENT IMPACT

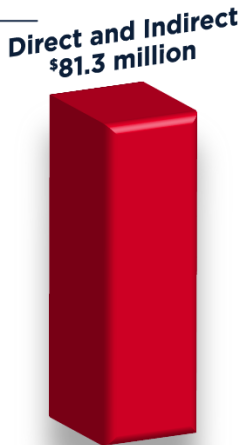


Source: Tripp Umbach, using IMPLAN results from data obtained through the University of Connecticut.

Government Revenue Impact

UConn Health operations throughout the state of Connecticut generate **\$81.3 million** per year in direct and indirect state and local tax revenue.

FIGURE 3:  
GOVERNMENT REVENUE  
IMPACT OF UCONN HEALTH



Source: Tripp Umbach, using IMPLAN results from data obtained through the University of Connecticut.