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Economic Contribution of University of Utah Health

University of Utah Health's patient care, training, and research make a significant economic contribution in Utah and help people live healthier lives.

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Economic Contribution of University of Utah Health

Analysis in Brief

University of Utah Health’s patient care, training, and research make a significant economic contribution in Utah and help people live healthier lives.

University of Utah Health (U of U Health) serves as the state’s only academic medical center and provides patient care for the people of Utah, Idaho, Wyoming, Montana, and much of Nevada. In 2019, U of U Health directly and indirectly supported 47,500 jobs, \$3.0 billion in earnings, and \$3.9 billion in the Utah economy. These impacts, and the services provided by the tripartite clinical, research, and academic mission, create an academic medical center that makes a profound and positive impact on people’s lives and the state of Utah.

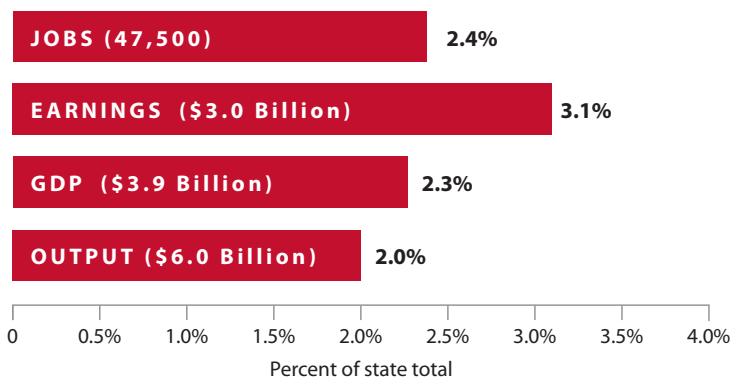
Key Findings

In 2019 U of U Health made the following contributions:

- **Patient care** – Serviced approximately two million patient visits, with a staff of more than 1,600 physicians. The reach of U of U Health includes five hospitals, 12 community health centers, five schools and colleges, a library, one of the nation’s largest reference laboratories (ARUP Laboratories), and numerous institutes and centers.
- **Students** – Educated and trained an estimated 5,400 health sciences students in the School of Dentistry, School of Medicine, College of Health, College of Nursing, College of Pharmacy, and Eccles Health Sciences Library. U of U Health trains nearly two-thirds of Utah physicians.ⁱ
- **Degrees** – Granted 1,460 degrees in health sciences. This includes 358 doctorate degrees, 411 master’s degrees, and 691 bachelor’s degrees. Degrees were given to future dentists, medical doctors, pharmacists, physician’s assistants, nurses, and other health care professionals.ⁱⁱ

i. Office of Budget and Institutional Analysis, includes all students enrolled in the Schools of Dentistry & Medicine and Colleges of Health, Nursing, & Pharmacy
 ii. *ibid*
 iii. University of Utah Health, Office of the Senior Vice President, Research Unit
 iv. University of Utah Hospitals and Clinics, Finance Department & University Medical Billing

U of U Health Economic Contribution Summary, FY 2019 (\$ Billions)



Source: Kem C. Gardner Policy Institute analysis of University of Utah data using IMPLAN 2017

- **Extramural research** – Received \$373.3 million in extramural research funding.ⁱⁱⁱ The co-location of U of U Health’s academic medical center with a comprehensive research university makes it rare among its peers. There are less than two dozen such institutions in the country.
- **Real estate** – U of U Health owns and manages buildings in 26 cities and 12 counties in Utah. U of U Health’s real estate holdings include 3.2 million net square feet of institutional space.
- **Charitable care** – Contributed \$190.6 million in uncompensated care, 426,987 meals to the Utah Food Bank, and 24,386 patient visits to incarcerated youth.^{iv,v} U of U Health also served global health in 115 countries. There are 81 active projects in 41 countries representing 54 specialties.^{vii}

v. University of Utah Hospitals & Clinics Human Resources
 vi. University of Utah College of Nursing
 vii. Office of Global Health, University of Utah Health

Table of Contents

U of U Health Overview	1
Functional Groups	3
Concepts and Definitions	6
Economic Analysis	8
Operations and Capital Expenditures	8
Construction	8
Visitor Spending	9
Summary of Economic Contribution	9
Summary Societal Analysis	10
Healthy Workforce	10
Training the Health Workforce	11
Access to Care	11
Charitable Care	12
Appendix A: Impact Analysis	13
Economic Impact	13
Fiscal Impact	14
Appendix B: Research Methods	15
Tables	
Table 1: U of U Health Clinic Visits, 2019	1
Table 2: U of U Health Employment, 2019	1
Table 3: Utah’s Ten Largest Employers, 2019	1
Table 4: Total U of U Health Operations and Capital Expenditures, FY 2019	7
Table 5: U of U Health Economic Contribution Summary, FY 2019	8
Table 6: U of U Health Operations and Capital Investment Economic Contribution, FY 2019	8
Table 7: U of U Health Construction Economic Contribution, FY 2019	8
Table 8: U of U Health Economic Contribution, FY 2019	9
Table 9: Health Indicators for Utah and the U.S.	10
Table 10: 2019 Health Sciences Degrees	11
Table 11: U of U Health Economic Impact, FY 2019	13
Table 12: U of U Health Fiscal Impact, FY 2019	14

Figures

Figure 1: University of Utah Health Affiliated Facilities	2
Figure 2: Health Awards and Recognitions	2
Figure 3: U of U Health Structure and Component Parts ...	3
Figure 4: U of U Health Affiliate Partners	4
Figure 5: U of U Health Community Clinics	4
Figure 6: U of U Health serves more than 10% of the continental U.S.	4
Figure 7: Visual Representation of Economic Contribution and Impact	6
Figure 8: Economic Flow of Direct, Indirect, and Induced Economic Impacts	7
Figure 9: Theoretical Construct for Economic Growth	10
Figure 10: Utah Healthcare Value Position	11
Figure 11: U of U Health Revenue by Origin, FY 2019	13
Figure 12: U of U Health Economic Contribution and Impact, FY 2019	13
Figure 13: U of U Health Out-of-State Revenue by Source, FY 2019	13
Figure 14: Visual Representation of Economic Contribution and Impact	15
Figure 15: Economic Flow of Direct, Indirect, and Induced Economic Impacts	15

U of U Health Overview

U of U Health serves as the only academic health care system in the Mountain West and provides patient care for the people of Utah, Idaho, Wyoming, Montana, and much of Nevada. Consistently ranked among the nation's top 10 academic medical centers in the nation, U of U Health services approximately two million patient visits annually and trains the majority of the region's physicians, nurses, pharmacists, therapists, and other health care professionals.¹

U of U Health's contribution to Utah and the region occurs in myriad ways:

- **High-value, high-quality patient care** – U of U Health received a Four-Star Quality Rating from Centers for Medicare and Medicaid Services (CMS) and ranks fourth for quality and second for ambulatory care from a group of more than 90 academic medical centers and nearly 200 affiliated hospitals.² U of U Health has maintained a top-ten ranking for quality among academic hospitals for ten consecutive years, a feat only matched by the Mayo Clinic.³ University of Utah Health is the *only* health system to receive both a top-ten quality ranking for ten consecutive years and a top five ranking in ambulatory care for five consecutive years. U of U Health has also pioneered a value-driven outcomes tool that allows providers to evaluate costs and outcomes for every patient, provider, and episode of care and has been recognized nationally by CMS for the pricing transparency tool made available to patients.⁴

U of U Health's medical group includes 1,600 physicians and other professionals who staff the clinical practices of the academic faculty, making it one of the largest academic practices in the country.⁵ In 2019, U of U Health had 748 staffed beds, admitted 33,821 patients, and had an average of 585.1 inpatient patients each day.⁶ Table 1 details U of U Health clinic visits in 2019.

- **Life-sustaining health care education** – U of U Health fulfills a vital role in training scientists and health care professionals. U of U Health trains most of the region's physicians, nurses, pharmacists, therapists, and other health care professionals. U of U Health also includes five schools and colleges, and a library – Schools of Dentistry and Medicine, Colleges of Health, Nursing, and Pharmacy, and the Eccles Health Sciences Library.

The U of U School of Medicine has been recognized among the nation's best, ranking #15 in research, #14 in primary care, and #2 for physician's assistant programs among public universities.⁷

Table 1: U of U Health Clinic Visits, 2019

	Number of Visits
Hospitals & Clinics	1,481,260
School of Medicine	424,783
Total Visits	1,906,043
Emergency Department Visits	62,345

Source: University of Utah Health Finance Department

Table 2: U of U Health Employment, 2019

	Jobs
Health Schools & Colleges	6,900
Institutes & Centers	600
Hospitals & Clinics	12,100
Component Units	4,500
Total	24,100

Source: University of Utah

Note: Component unit jobs are estimated based on total spending.

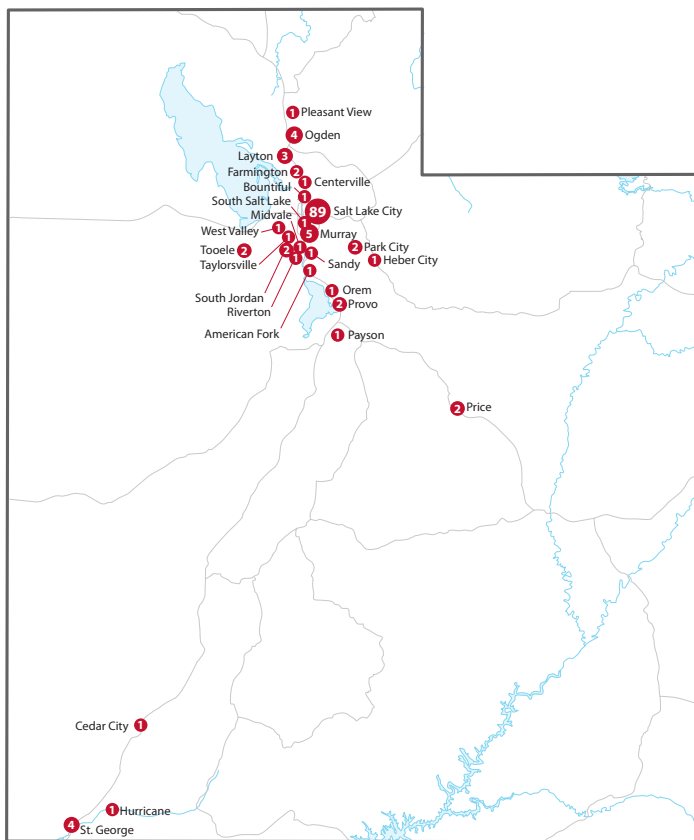
Table 3: Utah's Ten Largest Employers, 2019

Rank	Company Name	Employment Range
1	University of Utah (Including Hospital and Component Units)	39,300
2	Intermountain Healthcare	30,000 +
3	State of Utah	20,000 +
4	Brigham Young University	15,000-19,999
5	Wal-Mart Associates	15,000-19,999
6	Hill Air Force Base	10,000-14,999
7	Davis County School District	7,000-9,999
8	Utah State University	7,000-9,999
9	Smith's Food and Drug Centers	7,000-9,999
10	Granite School District	7,000-9,999

Source: Department of Workforce Services and Kem C. Gardner Policy Institute

- **Path-breaking clinical research** – In 2019, U of U Health received \$373.3 million in federal research funding and published 3,809 papers in peer-reviewed journals.^{8,9} A capstone event for U of U Health occurred in 2007 when geneticist and faculty member Mario R. Capecchi PhD, received a Nobel Prize for his seminal work in gene targeting.
- **Top employer** – The University of Utah, including U of U Health, employs the largest workforce in the state. Separately, U of U Health remains in the top five employers in Utah. U of U Health employs a total of 24,100 including health schools and colleges, institutes and centers, hospitals and clinics, and component units. (see tables X and X)
- **Market leader** – U of U Health is one of four Level 1 trauma centers in Utah and the region's only comprehensive burn center. U of U Health is also the market leader in bone mar-

Figure 1: University of Utah Health Affiliated Facilities



Source: University of Utah Office of Space Planning and Management and University of Utah Health Office of the Senior Vice President

Figure 2: U of U Health Awards and Recognitions



Sources: Vizient Inc. (2018 Vizient Ambulatory Care Quality and Accountability Award), U.S. News & World Report 2020

row transplants, burn care, dermatology, HIV, transplants, oncology, neurology, neurosurgery, ophthalmology, orthopedics, otolaryngology, plastics, psychiatry, and physical rehabilitation.

U of U Health claims many medical firsts, including the world’s first total artificial heart transplant, the nation’s first wearable artificial kidney, the world’s first comprehensive map of the retina’s neuron, the world’s first discovery of the BRCA1 gene (breast and ovarian cancer), and the nation’s first ever NIH grant.

- **Physical footprint** – U of U Health includes five hospitals, 12 community health centers (serving 26 cities and 12 counties in Utah), 83 telehealth sites, five health sciences schools and colleges, a library, and one of the nation’s largest reference laboratories (ARUP Laboratories). U of U Health also has numerous institutes and centers, reflecting strengths in oncology, cardiology, diabetes treatment, genetics, ophthalmology, orthopedics, neuroscience, psychiatry, precision medicine, population health, and global health. Eight U of U Health AirMed bases offer helicopter and airplane transportation to care facilities within a 1,700-mile radius (160 miles for helicopters). Figure 1 shows a map of the physical footprint of U of U Health affiliated facilities.

- **Service to the community** – As a public university, the U embraces a service mission to make a meaningful societal impact in the state it calls home. This includes making social, economic, and cultural contributions. This social embeddedness is why President Watkins calls the U the “University for Utah.”

In 2019, U of U Health contributed \$190.6 million in uncompensated care, 426,987 meals to the Utah Food Bank, 24,386 patient visits to incarcerated youth, and served global health in 115 countries.^{10,11,12} There are 81 active projects in 42 countries, representing 54 specialties.¹³

The expanse and excellence of U of U Health’s contribution to the University of Utah has been recognized by the Association of American Universities (AAU). In 2019, the AAU invited the U to join its prestigious membership, which includes other well-recognized universities in North America, including Harvard University, Massachusetts Institute of Technology, Stanford University, and Yale. To understand the significance of this membership, consider that there are nearly 3,000 four-year universities in the United States. Of these, 131 are tier-one research universities, and 63 are members of the prestigious AAU. This is a tribute to the University of Utah, of which U of U Health is a part.

Functional Groups

U of U Health contributes to the broader mission of the University of Utah to serve the people of Utah and the nation as the state’s flagship institution at the forefront of scientific research, interdisciplinary collaboration, and higher education innovation. In this way, U of U Health is part of the “One U” vision to think and act as one university. U of U Health actively works with partners across the U to lead a holistic and collaborative approach to health. Figure 3 presents the U of U Health structure.

For the purposes of this report, U of U Health comprises the following categories:

Hospitals and Clinics

U of U Health hospitals and clinics include five hospitals (University of Utah Hospital, Huntsman Cancer Hospital, University Orthopaedic Center, University Neuropsychiatric Institute, and Craig H. Neilson Rehabilitation Hospital), nine urgent care locations, 12 community health clinics (see figure 5), numerous specialty centers, 83 telehealth sites, and 23 affiliate partners throughout the region (see figure 4). These facilities care for approximately two million patient visits annually.

The referral area of U of U Health’s hospitals and clinics covers more than 10% of the continental United States, including one of only four Level 1 trauma centers and the only comprehensive burn center (see figure 6). Hospitals and clinics also staff more than 5,000 practicing clinicians.

Through a joint venture, U of U Health physicians also provide care for patients at Primary Children’s Hospital, Shriners’ Hospital, and the Veteran’s Hospital (operated by Intermountain Healthcare).

Schools and Colleges

U of U Health is home to the following schools and colleges:

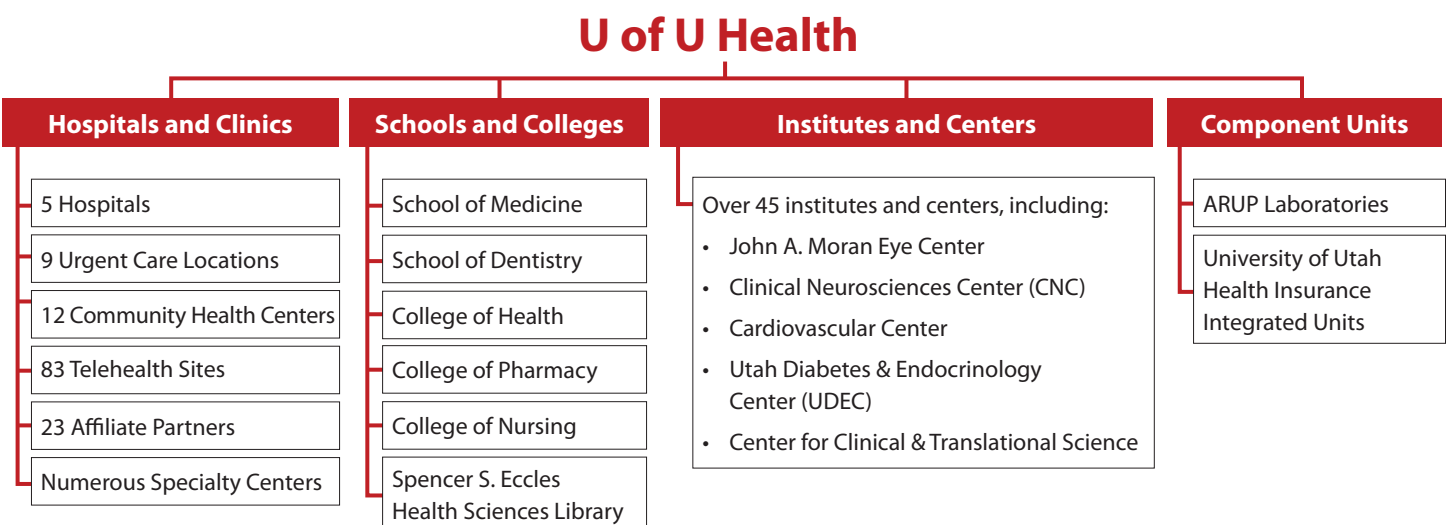
- School of Medicine – 2,058 students in 2019 including 524 MD candidates, and oversight of more than 800 trainees in more than 25 residencies and more than 75 fellowship specialties
- School of Dentistry – 175 students in 2019
- College of Health – 2,917 students in 2019, plus support of 30 laboratories and three rehabilitation clinics
- College of Nursing – 775 students in 2019
- College of Pharmacy – 324 students in 2019
- Spencer S. Eccles Health Sciences Laboratory – one of eight regional medical libraries worldwide providing online courses for 2,000 learners nationally each year

Institutes and Centers

U of U Health operates numerous institutes, centers, and programs, all of which are included in this analysis. As an example of the work of these centers, here is a brief summary of ten:

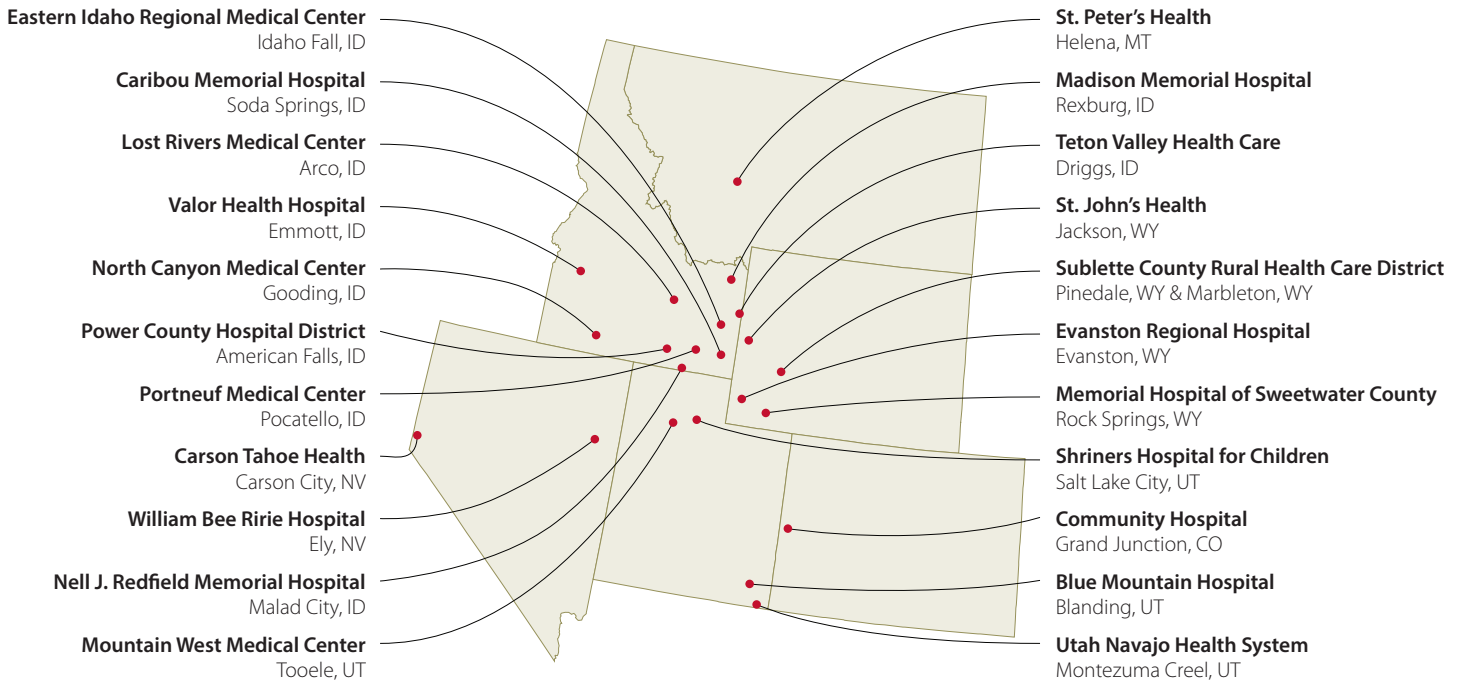
- **Huntsman Cancer Institute** is a nationally recognized research center and treatment hospital for patients with all types of cancer. Patients come from throughout the Mountain West including Utah, and areas of Idaho, Montana, Nevada, and Wyoming.
- **Nora Eccles Harrison Cardiovascular Research Training Institute (CVRTI)** focuses on research regarding cardiac function. They provide an integrated and collaborative approach to research in the chronic heart failure setting.

Figure 3: U of U Health Structure and Component Parts



Source: Kem C. Gardner Policy Institute

Figure 4: U of U Health Affiliate Partners



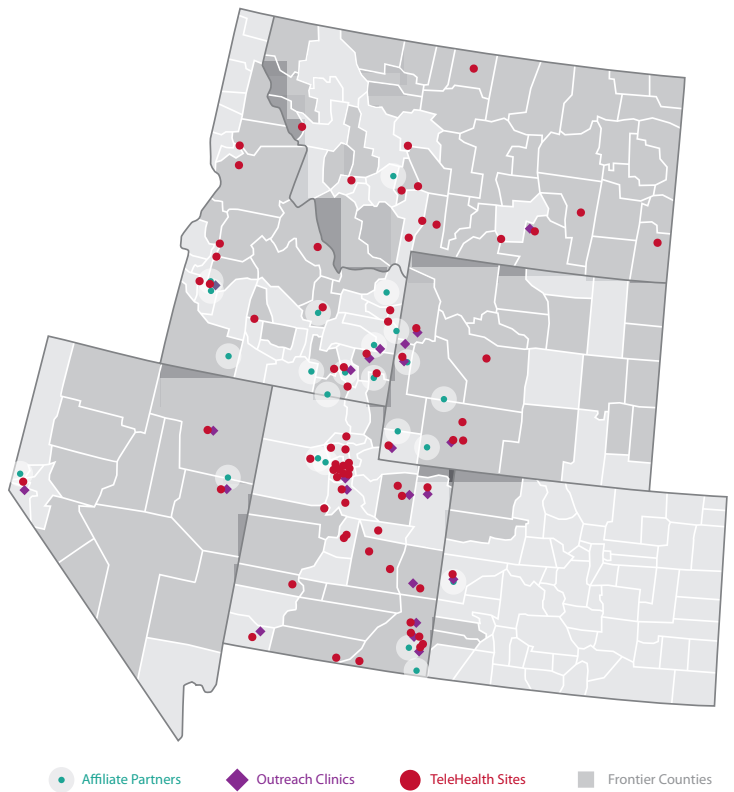
Source: University of Utah Health Marketing and Communications

Figure 5: U of U Health Community Clinics



Source: University of Utah Health Marketing and Communications

Figure 6: U of U Health serves more than 10% of the continental U.S.



Source: University of Utah Health Marketing and Communications

- **Center for Medical Innovation (CMI)** is a collaboration between U of U Health, the David Eccles School of Business, the College of Engineering, and the Technology Venture Development program. Through a combination of formal education, faculty and student project development, and support for device development and commercialization, the CMI guides faculty and students through the innovation process.
- **Center for Clinical & Translational Science (CCTS)** serves as the home for clinical and translational science in Utah and the Mountain States. CCTS translates promising bench science into practices that improve human health. Specialty areas include, but are not limited to, genetics and bioinformatics. CCTS focuses on four foundations of discovery: clinical trials support, population health, precision medicine, and workforce development.
- **Rocky Mountain Center for Occupational and Environmental Health (RMCOEH)** is supported by the National Institute for Occupational Safety and Health. They provide degree options for students, continuing education, research to improve health and safety of workers, and outreach and service to other organizations.
- **Center on Aging (CoA)** combines aging-related research, education, and clinical research. The center links faculty and programs to spur the growth of interdisciplinary research with the goal of helping people lead longer and more fulfilling lives.
- **John A Moran Eye Center** offers comprehensive ophthalmology services, with specialties in neuro-ophthalmology, uveitis, and pediatrics. The Moran Eye Center performs approximately 7,000 surgeries annually and services more than 140,000 clinic visits each year.
- **Clinical Neurosciences Center (CNC)** provides neurology, neurosurgery, and neuroradiology services and treats most neurological disorders, including headaches and more rare diseases, like ALS. The CNC specializes in custom treatment and prevention plans for patients and trains medical providers.
- **Cardiovascular Center** provides heart care, heart surgery, and treatment for all types of heart disease. Among their specialties are cardiology, cardiothoracic surgery, and vascular surgery. In 1982, the University of Utah made history when surgeons implanted the first human artificial heart.
- **Utah Diabetes & Endocrinology Center (UDEC)** improves life quality for people with diabetes and other endocrinology disorders. UDEC provides patient care, conducts research, provides tailored diabetes education, and other forms of specialty care.

Component Units

U of U Health includes the services of two component units:

- **Health Insurance Integrated Units** include Medicaid Accountable Care Organization (ACO) and Employee Assistance Coverage.
- **ARUP Laboratories (ARUP)** serves as a national clinical and anatomic pathology reference laboratory. It is a non-profit enterprise of the University of Utah and its Department of Pathology. ARUP offers more than 3,500 types of tests annually, including volumes exceeding 55,000 samples per day. As a reference laboratory, it serves over half the nation’s university medical centers and pediatric and teaching hospitals.

In addition to these component units of U of U Health, the University of Utah also operates a University of Utah Research Foundation, which is not included in this analysis.

Other institutes, centers, and programs include, but are not limited to:

AIDS Education & Training Center	Clinical Research Compliance and Education Center	Pharmacotherapy Outcomes Research Center
Anticonvulsive Drug Development Program	Global Health program	Rehabilitation Center
Center for Alzheimer’s Care, Imaging, and Research	Global Health Education program	Resiliency Center
Center for Cell and Genome Sciences	Global Public Health program	Study Design and Biostatistics Center
Center for Excellence in Women’s Health	Hartford Center of Geriatric Nursing Excellence	University of Utah Center for Community Nutrition
Center for Extreme Data Management, Analysis, and Visualization	Informatics, Decision Enhancement, and Surveillance Center	Utah Addiction Center
Center for Global Surgery	Intermountain Cystic Fibrosis Center	Utah Center for Advanced Imaging Research
Center for High Performance Computing	Molecular Medicine Program	Utah Center for Excellence in ELSI Research
Center for Human Toxicology	National Center for Voice and Speech	Utah Center for Reproductive Medicine
Center for Integrative Biomedical Computing	Nursing Research Center	Utah Genome Project
Center for Law and Biomedical Sciences	Nursing Simulation Learning Center	Utah Trial Innovation Center
Center for Neural Interfaces	Pain Research Center	
Center for Patient Simulation		

Concepts and Definitions

Economic impact studies frequently mis-specify the counterfactual by making errors such as double-counting household spending, improperly identifying “new” expenditures or sources of revenue, or inconsistently defining the local area.¹⁴ This study focuses on economic contribution and follows the guidelines identified by the Association of Public and Land-grant Universities and the Association of American Universities.¹⁵

This report includes an analysis of economic activity associated with U of U Health in two ways: economic contribution and societal benefits. In addition, Appendix A includes an economic and fiscal impact analysis for the externally-financed components of U of U Health. A related report, *Economic Contribution of the University of Utah*, includes a comprehensive analysis of the entire University of Utah enterprise.

This report includes several concepts and definitions:

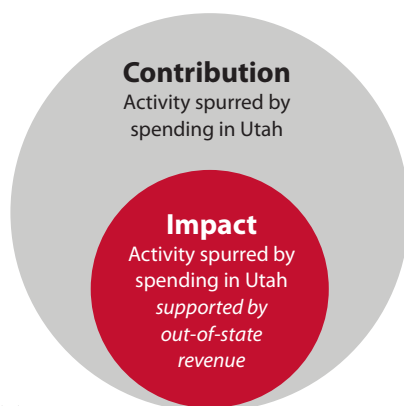
Economic Contribution

Regional economic studies make a distinction between economic contribution and economic impact. Economic contribution studies assess the economic multiplier effects associated with the current or predicted level of spending of some industry, event, or policy. According to Watson et al., “an economic contribution is defined as the gross changes in a region’s existing economy that can be attributed to a given industry, event, or policy.”¹⁶ Economic contribution captures the economic expanse of all U of U Health spending and shows the relative extent and magnitude of the operation in the Utah economy. The authors focus on economic contribution so that reasonable comparisons can be made with economic contribution studies from other institutions of higher learning.

Economic Impact

Economic impact studies measure the change in the size and structure of a region’s economy that occur when goods and services are purchased from vendors within the region

Figure 7: Visual Representation of Economic Contribution and Impact



Source: Kem C. Gardner Policy Institute

with money generated outside the region. As depicted in Figure 7, impacts represent a portion of contributions. In the strictest interpretation, economic impacts occur only when “new” money enters the regional economy and is then spent locally. Economic impacts can also be said to occur in what is called “import substitution”—a situation where residents would have to import goods and services if an industry did not exist locally. Appendix A provides an economic impact analysis of U of U Health.

This analysis includes documentation for both “economic contribution” and “economic impact” and always makes clear which measure is being reported. The authors recommend using economic contribution when comparing with other economic contribution studies and economic impact when referencing the net new activity credited to U of U Health.

Fiscal Impact

The Gardner Institute State Fiscal Impact Model uses effective tax rates and collections and per capita government spending to estimate net fiscal impacts, i.e. new revenue less new public expense, associated with the combined direct, indirect, and induced economic effects of U of U Health during 2019.

Fiscal impacts reported here should be viewed as approximate measures of state revenue generation associated with the operation of U of U Health. The underlying analysis relies on historical data and assumes a linear relationship between state revenue and expenditures and personal income, earnings, industry output, employment, and population. The impacts in this report represent a small portion of U of U Health’s benefit on the Utah budget. The U both generates revenue and reduces demand for public service through its support of workforce health and productivity, innovation, technology commercialization, and public service; these effects are beyond the scope of this analysis. Appendix A provides a fiscal impact analysis of U of U Health.

Societal Impact

In addition to economic and fiscal impacts, the authors briefly summarize the societal impact of U of U Health on the state. While difficult to quantify, the analysis of U of U Health’s economic contributions would be incomplete without sharing data and research on U of U Health’s contribution to maintaining a healthy workforce, training and educating the health workforce, providing health care accessibility, and charitable care.

Direct, Indirect, and Induced Effects

U of U Health generates economic effects (contributions and impacts) through its spending on wages and purchases from Utah-based vendors (direct effects) and the rippling effect of

Statement of Methods

University economic impact and contribution studies have been criticized for failing to properly identify the scope, models, and multipliers at the *beginning* of the report. Accordingly, the authors share the following statement and clarifications. The methodology in Appendix B provides additional details.

Geographic scope

This study includes impacts for the state of Utah.

Year of Analysis

This study analyzes activity taking place in U of U Health's fiscal year 2019, running from July 1, 2018 – June 30, 2019. The fiscal year is reported as "2019" for simplicity.

Model and multipliers

This study utilizes the 2017 version of IMPLAN for the state of Utah, the most recent version available at the time of analysis.

Units of analysis

This study analyzes the economic activity for five major categories:

1. Hospitals and Clinics – The operations and capital investment associated with patient services at University of Utah Health.
2. Schools and Colleges – The operations and capital investment associated with the provision of educational and student services of health related schools and colleges. This category includes both the academic and patient service activities of the School of Medicine.
3. Institutes and Centers – The operations of numerous institutes and centers such as the John A. Moran Eye Center and Clinical Neurosciences Center.
4. Construction – The average annual construction expenditures of hospitals and clinics.
5. Component Units – The operations and capital investments of U of U Health component units: ARUP and Health Insurance Integrated Units.

First-round expenditures

U of U Health spent over \$3.0 billion in 2019. Between employee payrolls and in-state supplier purchases, an estimated 91% of this spending occurred within Utah. Table 4 details these first-round expenditures.

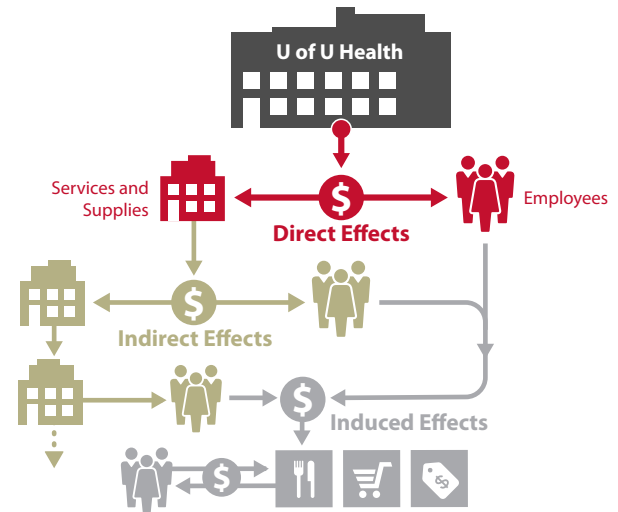
Table 4: Total U of U Health Operations and Capital Expenditures, FY 2019

(\$ millions)

Category	Personnel	Non-personnel	Total
Hospitals and Clinics	\$915	\$685	\$1,600
Schools and Colleges	\$716	\$81	\$797
Institutes and Centers	\$23	\$12	\$35
Construction	\$0	\$129	\$129
Component Units	\$324	\$181	\$505
U of U Health Total	\$1,978	\$1,088	\$3,066

Notes: Construction spending is the 5-year average. The allocation of component unit's personnel and non-personnel expenditures is estimated. Source: Kem C. Gardner Policy Institute analysis of University of Utah data

Figure 8: Economic Flow of Direct, Indirect, and Induced Economic Impacts



Source: Kem C. Gardner Policy Institute

this spending through the economy (indirect and induced effects). U of U Health's spending produces indirect effects when its local suppliers hire employees and make purchases from other local vendors. Finally, induced effects occur when the employees of U of U Health and its suppliers spend their wages in the Utah economy.

Figure 8 provides a visual representation of direct, indirect, and induced effects.

Jobs, Earnings, GDP, and Output

Economic effects are measured in four ways: jobs, earnings, Gross Domestic Product (GDP), and output. These measures reflect different parts of the economy and, therefore, are not summable.

Jobs are the annual average of both full-time and part-time jobs (not workers) counted equally. Both wage and salary positions and the self-employed are included.

Earnings are the sum of wages and salary disbursements, employer-paid benefits and payroll taxes, and the income of the self-employed.

GDP is the most commonly used measure of total economic activity in a region, reflecting the market value of all goods and services produced in Utah. GDP avoids double counting of intermediate sales and captures only the "value added" to final products by capital and labor. GDP is equal to total output less the value of intermediate inputs purchased to produce that output.

Output is a comprehensive measure of economic activity that represents the gross value of every transaction in the economy. It is equal to total industry sales, reflecting the sum of the final purchases and intermediate inputs. Thus, output double counts intermediate purchases.

Economic Analysis

See Appendix B, Research Methods, for more details on the derivation of results presented in this section.

U of U Health's economic contribution includes two main drivers – operations and capital purchases and construction expenditures. As shown in Table 5, together, these drivers create an economic contribution of more than 2% of Utah jobs, GDP, and output and more than 3% of total state earnings.

Note that due to rounding and other adjustments, to avoid double-counting, numbers presented throughout this document may not add up precisely to the totals provided in other reports and percentages may not precisely reflect the absolute values.

Operations and Capital Expenditures

Operations and capital expenditures are responsible for over 90% of U of U Health's total economic contribution. In 2019, U of U Health spent a total of \$3 billion—\$2 billion on payroll and \$1 billion on goods, services, and non-construction capital—to provide instruction, research, student services, public services, operations and maintenance, academic and institutional support, insurance, and patient services. Non-construction capital investments, which accounted for under 2% of expenditures, included purchases of buildings, land, and medical and other equipment.

An estimated 91% of U of U Health's expenditures occur in Utah, which constitute a direct contribution of 24,100 jobs, \$2.0 billion in earnings, \$2.0 billion in GDP, and \$2.7 billion in output. As detailed in Table 6, indirect and induced contributions bring total contributions to 46,100 jobs, \$3.0 billion in earnings, \$3.8 billion in GDP, and \$5.9 billion in output.

Construction

U of U Health's spending on the construction of buildings and infrastructure is another driver of economic contribution. Examples of major projects completed within the last five years and currently underway include additions to the Huntsman Cancer Institute and the Medical Education and Discovery Complex. Because construction projects often span years and the level of total activity varies from year to year, the analysis uses a 5-year average of annual expenditures.

Over the last five years, U of U Health spent, on average, \$129 million a year. Table 7 details the total contributions associated with these expenditures—1,400 jobs, \$75 million in earnings, \$118 million in GDP, and \$231 million in output.

Table 5: U of U Health Economic Contribution Summary, FY 2019

(\$ Billions)

	Contribution	Percent of Utah Total
Jobs	47,500	2.4
Earnings	\$3.0 B	3.1
GDP	\$3.9 B	2.3
Output	\$6.0 B	2.0

Source: Kem C. Gardner Policy Institute analysis of University of Utah data using IMPLAN 2017

Table 6: U of U Health Operations and Capital Investment Economic Contribution, FY 2019

(\$ millions)

	Jobs	Earnings	GDP	Output
Hospitals and Clinics	23,800	\$1,437	\$1,848	\$3,031
Direct	12,100	\$915	\$915	\$1,341
Indirect and Induced	11,700	\$522	\$933	\$1,690
Schools and Colleges	12,200	\$944	\$1,141	\$1,534
Direct	6,900	\$716	\$716	\$773
Indirect and Induced	5,300	\$228	\$425	\$761
Institutes and Centers	900	\$36	\$45	\$72
Direct	600	\$23	\$23	\$33
Indirect and Induced	300	\$13	\$22	\$39
Component Units	9,200	\$545	\$714	\$1,219
Direct	4,500	\$324	\$324	\$505
Indirect and Induced	4,700	\$221	\$390	\$714
All U of U Health	46,100	\$2,962	\$3,748	\$5,856
Direct	24,100	\$1,978	\$1,978	\$2,652
Indirect and Induced	22,000	\$984	\$1,770	\$3,204

Source: Kem C. Gardner Policy Institute analysis of University of Utah data using IMPLAN 2017

Table 7: U of U Health Construction Economic Contribution, FY 2019

(\$ millions)

	Jobs	Earnings	GDP	Output
U of U Health	1,400	\$75	\$118	\$231
Direct	-	\$0	\$0	\$129
Indirect and Induced	1,400	\$75	\$118	\$102

Note: Construction contribution is the 5-year average.

Source: Kem C. Gardner Policy Institute analysis of University of Utah data using IMPLAN 2017

Visitor Spending

U of U Health serviced approximately two million patient visits in 2019, with a staff of more than 1,600 physicians. U of U Health is the state's only academic medical center and provides patient care for the people of Utah, Idaho, Wyoming, Montana, and much of Nevada. These out-of-state patients and their visitors, bring out-of-state dollars to Utah's economy. They spend money on lodging, food, and other activities. Because the economic contribution and impact estimates in this report do not include the effects of visitor spending, they are likely conservative.

Summary of Economic Contributions

Table 8 details U of U Health's total economic contribution. Accounting for operations and capital expenditures and construction activity U of U Health's footprint on the Utah economy, (i.e. economic contribution), is substantial:

- 47,500 jobs, 2.4% of all Utah jobs
- \$3.0 billion in earnings, 3.1% of all Utah earnings
- \$3.9 billion in GDP, 2.3% of all Utah GDP
- \$6.0 billion in output, 2.0% of all Utah output

Table 8: U of U Health Economic Contribution, FY 2019

(\$ millions)

	Jobs	Earnings	GDP	Output
Hospitals and Clinics	23,800	\$1,437	\$1,848	\$3,031
Direct	12,100	\$915	\$915	\$1,341
Indirect and Induced	11,700	\$522	\$933	\$1,690
Schools and Colleges	12,200	\$944	\$1,141	\$1,534
Direct	6,900	\$716	\$716	\$773
Indirect and Induced	5,300	\$228	\$425	\$761
Institutes and Centers	900	\$36	\$45	\$72
Direct	600	\$23	\$23	\$33
Indirect and Induced	300	\$13	\$22	\$39
Construction	1,400	\$75	\$118	\$231
Direct	-	\$0	\$0	\$129
Indirect and Induced	1,400	\$75	\$118	\$102
Component Units	9,200	\$545	\$714	\$1,219
Direct	4,500	\$324	\$324	\$505
Indirect and Induced	4,700	\$221	\$390	\$714
All U of U Health	47,500	\$3,037	\$3,866	\$6,087
Direct	24,100	\$1,978	\$1,978	\$2,781
Indirect and Induced	23,400	\$1,059	\$1,888	\$3,306

Note: Construction contribution is the 5-year average.

Source: Kem C. Gardner Policy Institute analysis of University of Utah data using IMPLAN 2017

Summary Societal Analysis

Utah derives significant societal benefits from U of U Health that extend beyond quantifiable economic contributions. While these intangible contributions can be difficult to quantify, they are important to describe, even in summary form, because they comprise an important component of the U of U Health mission and contribution to the state of Utah.

The authors examined four categories of societal impact:

- Healthy workforce
- Access to care
- Training the health workforce
- Charitable care

Healthy Workforce

Economies grow when a lower value input is transformed into a higher value output. This occurs through what economists refer to as factor accumulation (which includes capital and labor, or factors of production) and productivity (which measures the rate at which an economy transforms inputs into outputs). Factor accumulation and productivity are referred to as the

“proximate causes of growth.”¹⁷ Figure 9 provides a summary of this theoretical construct.

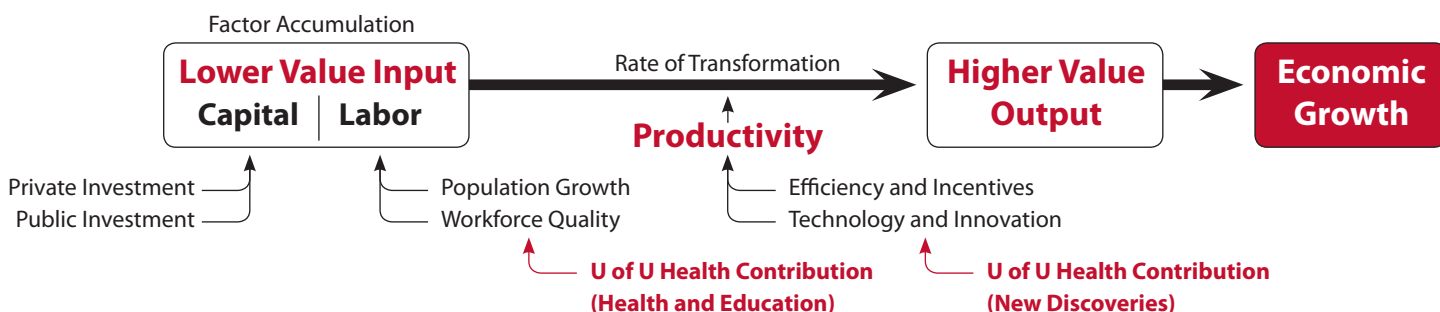
Within this theoretical construct, labor, also called human capital, plays a vital role as one of the factors of production. The amount of labor in the Utah economy is determined by population growth. The quality of labor in the Utah economy is determined by education and health. Utah’s economic output will be higher when the state’s labor force is better educated and healthier. Healthy people have the ability to work harder and longer, and think more clearly. Utah’s economic output will also be higher when productivity improves because of health innovation.

U of U Health contributes to the health of Utah’s workforce by providing medical care to Utahns and by conducting research that leads to new health discoveries.

By many measures, Utah’s population is healthier than the U.S. average.

Figure 9: Theoretical Construct for Economic Growth

What makes an economy grow?



Source: Scott Schaefer, David Eccles School of Business, University of Utah and Kem C. Gardner Policy Institute

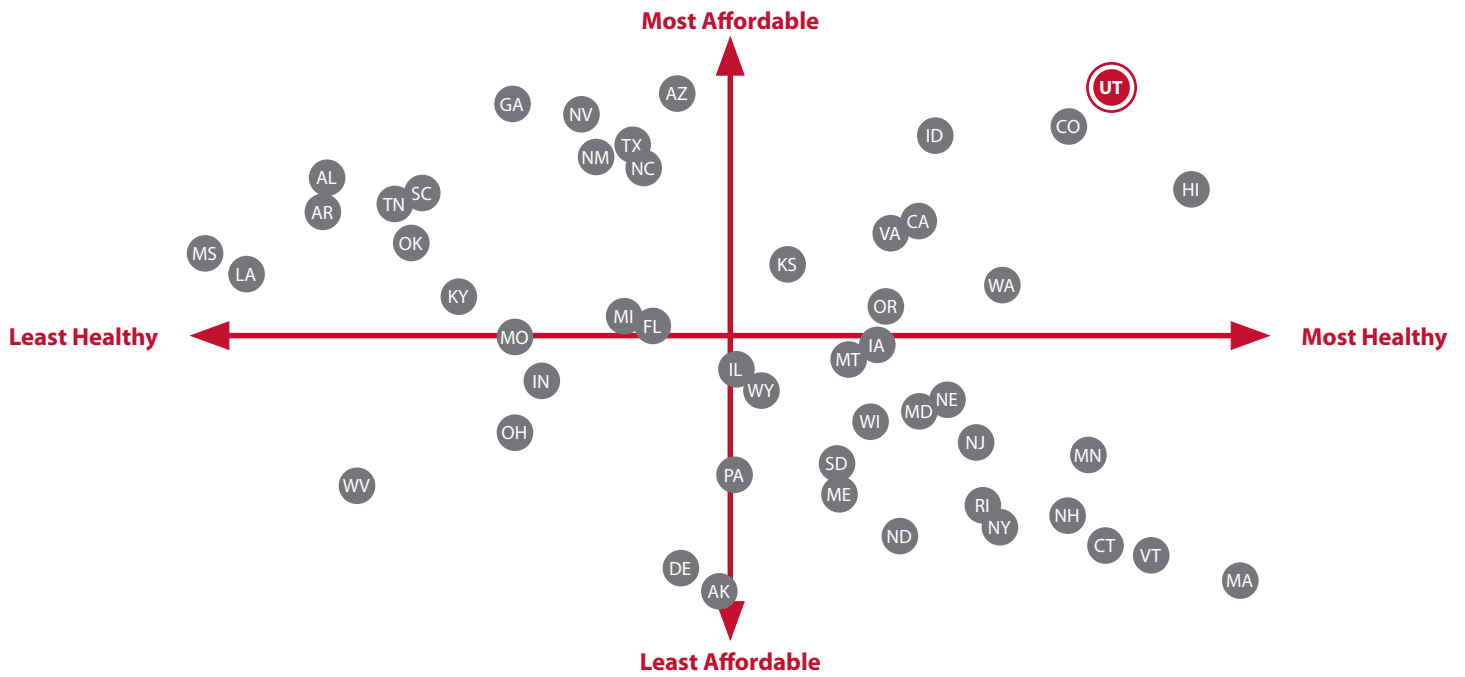
Table 9: Health Indicators for Utah and the U.S.

	Utah	U.S.	Year	Notes
Breast Cancer Death Rate	20.2	19.9	2017	Age-adjusted death rate per 100,000 women
All Cancer Death Rate	120.8	152.5	2017	Age-adjusted death rate per 100,000 population
Diabetes	8.2	10.4	2017-2018	Age-adjusted percentage of adults with diabetes
Obesity	28.4	31.1	2018	Age-adjusted percentage of adults with obesity (defined as a body mass index (BMI) of 30 or more)
Opioid abuse	15.5	14.9	2017	Age-adjusted death rate per 100,000 population
Life expectancy (males)	78.0	76.1	2017	Age in years
Life expectancy (females)	81.8	81.1	2017	Age in years
Health insurance costs*	\$4,594	\$5,431	2018	Average Employee Premium Contribution for Family Coverage, by State
Asthma	9.3	9.3	2018	Age-adjusted percentage of adults with asthma
Coronary Heart Disease Death Rate	66.8	92.9	2017	Age-adjusted death rate per 100,000 population
Depression	22.5	19.3	2017	Age-adjusted percentage of adults with depression
Poor Mental Health	18.2	18.8	2018	Age-adjusted percentage of adults with poor mental health (seven or more days of poor mental health in past 30 days)
Smoking	9.2	16.1	2018	Age-adjusted percentage of adults that smoke

Source: Utah Department of Health. (Unless noted otherwise)

* Source: Medical Expenditure Panel Survey–Insurance Component (MEPS–IC), 2018.

Figure 10: Utah Health Care Value Position



Source: United Health Foundation, America's Health Rankings Annual Report, 2017, Centers for Medicare and Medicaid Services State Health Expenditure Accounts, 2014

Utah has a lower cancer death rate, a lower diabetes rate, lower rate of coronary heart disease deaths, lower level of obesity, and a longer life expectancy (for both males and females). The U.S. Employee health insurance costs for family coverage are also lower in Utah than the U.S. average. While U of U Health is not exclusively responsible for these outcomes, the services provided by U of U Health certainly help. Table 9 provides the data and sources for these indicators, as well as a few indicators where Utah performs worse than the U.S.

Training the Health Workforce

The training mission of U of U Health also contributes to the quality of labor in the Utah economy. Utah's economic output will be higher when the state's labor force is better educated. Moreover, education and training in health occupations fulfills the dual role of improving the state's human capital and contributing to a healthier population.

Table 10: 2019 Health Sciences Degrees

	Bachelor's Degrees	Master's Degrees	Doctorate Degrees	Total Degrees
School of Medicine	28	161	159	348
School of Dentistry	0	0	27	27
College of Health	469	149	85	703
College of Nursing	194	100	18	312
College of Pharmacy	0	1	69	70
Total	691	411	358	1,460

Source: Office of Budget & Institutional Analysis

The U is home to the state's only Medical Doctor Program. It is also the only public university in the state offering paths to become dentists, pharmacists, physical therapists, and physician's assistants. In addition, it trains and educates many other health care professionals. In 2019, 1,460 degrees were granted in health sciences. Table 10 shows the breakdown of these degrees.¹⁸

Access to Care

Access to health care fulfills a vital role in population health. Financial constraints create a challenge for socio-economically disadvantaged families and individuals. Remote locations, such as many places in the rural West and Utah, lack access to health care facilities and providers.

U of U Health prioritizes access to health care through various means, including virtual urgent care, a wellness bus, and critical care for underserved families and individuals.

Virtual Urgent Care

U of U Health's virtual urgent care provides medical consultation via a live video chat seven days a week, 365 days a year. Patients use a computer's camera and microphone to speak with a provider online. Patients can use the service for all non-life-threatening conditions. Physicians can prescribe many medications via virtual urgent care. Audio and video footage is private and secure, meeting all federal patient privacy requirements. University of Utah Health Plan members and University of Utah employees receive the service for no cost; for others the virtual visit costs \$49.

Wellness Bus

U of U Health's Wellness Bus provides preventative health services to people in medically underserved populations. A specially designed 40-foot RV offers a convenient and confidential place for health consultations, screening, and education. The bus includes two private counseling rooms, two screening stations, and a waiting/education area. Services include health and wellness counseling, chronic disease screening, nutrition education, and referrals to social services. A primary focus of the Wellness Bus is to reduce the burden of diabetes and other chronic diseases. Patients who do not have health insurance receive services at no or low cost.

Care for the Underserved

U of U Health's South Main Clinic provides primary care services, including comprehensive obstetric, pediatric, family medicine, and dental care for underserved populations. Through a collaboration between multi-disciplinary care teams, and partners in government, non-profit, and community organizations, care is provided for more than 5,000 patients annually, speaking more than 30 languages.

In addition, in 2019 the School of Dentistry opened a dental clinic at a local community learning center. This clinic serves adults and students from four nearby elementary schools. These types of efforts increase the accessibility of health care and improve the health of Utah communities.

Charitable Care

U of U Health offers financial assistance for those who are unable to cover the full cost of their care. As a result of these programs, U of U Health offers a significant amount of charitable care. In 2019, U of U Health contributed \$190.6 million in uncompensated care.¹⁹

In addition to uncompensated care, U of U Health provides additional services to the community. In 2019, these services included the delivery of 426,987 meals to the Utah Food Bank and 24,386 patient visits to incarcerated youth.^{20,21} One-hundred and twenty-three people received Global Health experience in 115 countries. There are 81 active projects in 42 countries, representing 54 specialties.²²

In 2019, College of Health faculty and students made 44,788 community contacts through a variety of community engagement programs including but not limited to, University of Utah Center for Community and Nutrition, Speech-Language-Hearing Clinic, and the Life Skills Clinic.²³

Appendix A: Impact Analysis

Economic Impact

Many university “economic impact studies” capture activity beyond a true economic impact; that is, these studies often call economic contributions economic impacts.²⁴ Because of this, the results of the economic contribution analysis presented in this report will often be best suited for comparison with other studies. The authors recommend using the economic impact analysis results given here to understand the actual net-new economic activity credited to the U of U Health system.

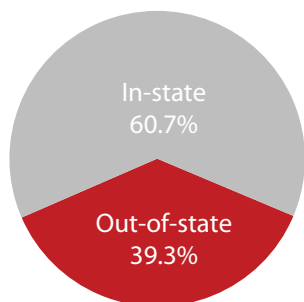
The economic impact of some firm, industry, event, or policy is the portion of its economic contribution that is financed with out-of-region revenue. Put another way, economic impacts occur when “new money” from outside of the regional economy is spent within the regional economy. Therefore, U of U Health’s economic impact represents the piece of the Utah economy that would not exist if U of U Health did not exist; absent the operation of U of U Health, the revenue it currently brings in from outside of Utah’s borders would not be a part of the Utah economy.

Over a third of U of U Health revenue represents new money in Utah’s economy. Figure 13 details the sources of this revenue. Nonresident patient service payments make up the system’s largest single source of out-of-state revenue. Between Medicaid and Medicare payments and federal funds for research and other activities, approximately half of U of U Health revenue comes from Washington, DC (this analysis assumes that other universities and hospitals in the state would not supplant the level of U of U Health activity that is financed with federal funds).

U of U Health’s total economic impact is comprised of its out-of-region-financed operations and non-construction capital expenditures and construction activity. Figure 12 and Table 11 summarize this economic impact, which, by definition, is a portion of U of U Health’s economic contribution. Still, the impact results illustrate that the U of U Health system is a significant generator of economic activity in the state, accounting for:

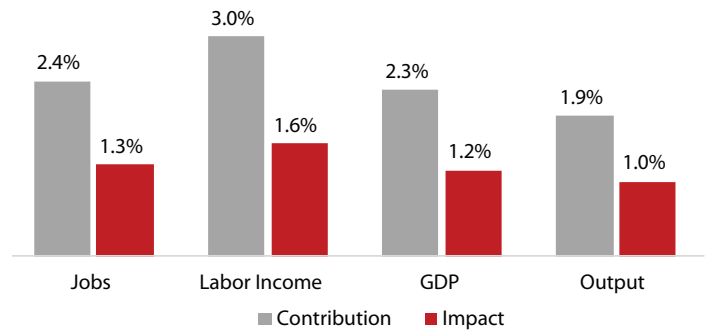
- 22,500 jobs
- \$1.8 billion in GDP
- \$1.4 billion in earnings
- \$2.9 billion in output

Figure 11: U of U Health Revenue by Origin, FY2019



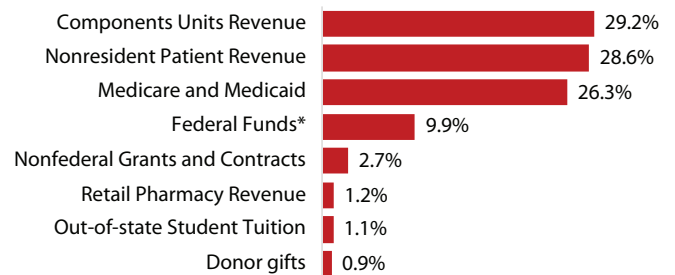
Source: Kem C. Gardner Policy Institute analysis of University of Utah data

Figure 12: U of U Health Economic Contribution and Impact, FY 2019



Source: Kem C. Gardner Policy Institute analysis of University of Utah data using IMPLAN 2017

Figure 13: U of U Health Out-of-state Revenue by source, FY2019



*Including grants and contracts

Source: Kem C. Gardner Policy Institute analysis of University of Utah data

Table 11: U of U Health Economic Impact, FY 2019

(\$ millions)

	Jobs	Earnings	GDP	Output
Hospitals and Clinics Operations	10,800	\$650	\$836	\$1,372
Direct	5,500	\$414	\$414	\$607
Indirect and Induced	5,300	\$236	\$422	\$765
Schools and Colleges Operations	4,900	\$366	\$442	\$593
Direct	2,800	\$278	\$278	\$299
Indirect and Induced	2,100	\$88	\$164	\$294
Institutes and Centers Operations	300	\$11	\$14	\$22
Direct	200	\$7	\$7	\$10
Indirect and Induced	100	\$4	\$7	\$12
Construction	1,400	\$75	\$118	\$231
Direct	-	\$0	\$0	\$129
Indirect and Induced	1,400	\$75	\$118	\$102
Component Units	5,100	\$296	\$387	\$661
Direct	2,500	\$177	\$177	\$276
Indirect and Induced	2,600	\$119	\$210	\$385
All U of U Health	22,500	\$1,398	\$1,797	\$2,879
Direct	11,000	\$876	\$876	\$1,321
Indirect and Induced	11,500	\$522	\$921	\$1,558

Notes: Construction impact is the 5-year average; component units have essentially no out-of-state revenue and therefore do not generate an impact.

Source: Kem C. Gardner Policy Institute analysis of University of Utah data using IMPLAN 2017

Fiscal Impact

Fiscal impact estimates are based on economic impacts and thus represent net new revenue associated with \$1.8 billion in net-new GDP.

The combined direct, indirect, and induced impacts of U of U Health produced about \$52 million in net revenue for state General Fund and Education Fund coffers in 2019. This estimate was derived using the Gardner Institute State Fiscal Impact Model, which makes use of effective tax rates and collections and per capita government spending to estimate net fiscal impacts.

The net new economic activity of U of U Health in 2019 generated Education Fund revenue through income tax and corporate income tax collections and General Fund revenue through sources including sales taxes, liquor profits, insurance premium taxes, and beer, cigarette, and tobacco taxes.

The economic activity also increases demand for government services funded by the Education and General Funds. An estimated 22,500 jobs would not exist if U of U Health did not exist. These jobs are filled by otherwise unemployed Utahns and migrants from other states. All else equal, Utah's population includes 19,700 more people than it would if University of Utah Health did not exist, and therefore the state spent an additional estimated \$42.5 million on public education, higher education, and other government services in 2019.

Table 12: U of U Health Fiscal Impact, FY 2019
(\$ thousands)

Impact	Amount
Total state revenue	\$94,250
Personal income tax	\$49,510
Corporate income taxes	\$3,934
Sales tax and other General Fund	\$40,806
Total state expenditures	(\$42,532)
Public education	(\$20,815)
High education	(\$6,810)
All other	(\$14,907)
Net Fiscal Impact	\$51,718

Source: Kem C. Gardner Policy Institute

Table 12 details the net fiscal impacts generated by U of U Health in 2019. Net new revenue of \$51.7 million represents a small portion of U of U Health's benefit to the Utah budget. U of U Health both generates revenue and reduces demand for government services through its support of workforce health and productivity, innovation, technology commercialization, and public service; these effects are beyond the scope of this analysis.

Appendix B: Research Methods

Key Concepts

Economic Contribution and Impact

Regional economic studies make a distinction between economic contribution and economic impact. Economic contribution studies assess the economic multiplier effects associated with the current or predicted level of spending of some industry, event, or policy. According to Watson et al., “an economic contribution is defined as the gross changes in a region’s existing economy that can be attributed to a given industry, event, or policy.”²⁵ Economic contribution captures the economic expanse of all U of U Health spending and shows the relative reach and magnitude of the operation in the Utah economy. Economic impact studies measure the changes in the size and structure of a region’s economy that occur when goods and services are purchased from vendors within the region with money generated outside the region.

Direct, Indirect, and Induced Effects

U of U Health generates economic effects (contributions and impacts) through its spending on wages and purchases from Utah-based vendors (direct effects) and the rippling effect of this spending through the economy (indirect and induced effects). U of U Health’s spending produces indirect effects when its local suppliers hire employees and make purchases from other local vendors. Finally, induced effects occur when the employees of U of U Health and its suppliers spend their wages in the Utah economy.

Modeling Economic Contributions

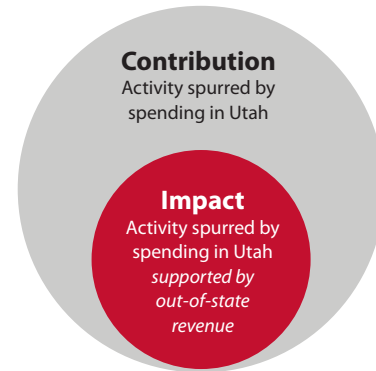
Model Construction

The analysis uses a custom, single-region 536-sector economic model for the state of Utah that the authors constructed using the IMPLAN system and its 2017 database. The model uses input-output (I-O) and social account matrix (SAM) frameworks to estimate how activity in one industry affects the entire economy.

IMPLAN, REMI PI+, and RIMS II are all widely used for economic impact and contribution analysis and, dependent on calibration, produce similar results. The authors chose to use IMPLAN because it is most commonly used to estimate university contributions and impacts. Other benefits of using IMPLAN include timely underlying data, the ability to isolate the value of retail and wholesale purchases that is created in the region of analysis, and—with 536 sectors—a lower probability of aggregation bias.

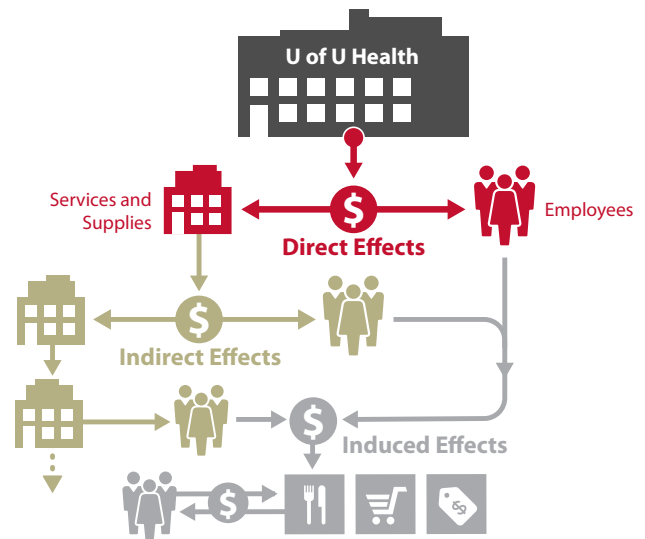
Like any economic model, IMPLAN-derived results are dependent on the fidelity of model assumptions and the quality of input data.

Figure 14: Visual Representation of Economic Contribution and Impact



Source: Kem C. Gardner Policy Institute

Figure 15: Economic Flow of Direct, Indirect, and Induced Economic Impacts



Source: Kem C. Gardner Policy Institute

The IMPLAN model is underpinned by traditional I-O model assumptions, which the authors believe are reasonable for this analysis.²⁶

1. **Constant returns to scale** – the amount of inputs per unit of output does not vary
2. **Zero supply constraints** – access to in-region and out-of-region raw materials and labor is unlimited
3. **Fixed input demand mix and technology**– the mix of inputs and technology necessary to produce a unit of output does not vary
4. **Fixed output mix** – an industry will produce the same mix of outputs at any level of production
5. **Static model** – prices and industry relationships do not change

Input Data and Geographic Scope

The economic contribution and impact analyses in this report use FY 2019 revenue and expenditure data from the U's Office of Budget and Institutional Analysis, the University of Utah Hospitals and Clinics Controller's Office, and the 2019 Annual Financial Report of the University of Utah. The authors adjusted revenues and expenditures to eliminate double counting. For example, insurance reimbursements from health insurance integrated units are a source of revenue for and support additional expenditures of the hospital; the authors eliminated this activity from the health insurance integrated units budgets.

In order to capture the full significance of U of U Health, this study's reference region is the state of Utah.

Identifying First-Round Expenditures and Direct Contributions

The analysis employs an analysis-by-parts (ABP) technique, also known as a bill-of-goods approach. In ABP, analysts isolate and model the economic ripple effects of the subject's purchases of goods and services (intermediate demand) and labor, that is, its first-round expenditures. The alternative to ABP is to model the ripple effects based on final demand (sales) for the subject's output. When detailed expenditure data are available, the ABP approach can allow for better model customization, and therefore more reliable results.²⁷

The subject's direct contributions are the jobs, earnings, GDP, and output associated with its in-region, first-round expenditures. Direct jobs are the subject's average annual jobs; direct earnings are the subject's total payroll expenditures—wages and salary disbursements and employer-paid benefits and payroll taxes. Direct GDP, or value-added, is the sum of the subject's payroll, profit, other property income, and taxes on production. Direct output is the sum of the subject's GDP and in-region intermediate demand.

Based on conversations with U of U Health finance staff, the authors assume all payroll is paid in Utah; direct contributions may be overstated if a significant portion of payroll goes out-of-state. Because the University of Utah is a component unit of the State of Utah, the authors exclude profit, property, income, and taxes from direct GDP and output. Assessing the profit, property income, and business taxes of ARUP and Health Insurance Integrated Units is outside the scope of this analysis and therefore, direct economic contribution estimates may be conservative.

In addition to the direct contributions associated with U of U Health's operating budget, the authors count a five-year average of construction expenditures and in-state capital expenditures as direct contributions. Because of this, payments for debt are excluded from the analysis.

Estimating Indirect and Induced Contributions

In ABP, the subject's direct payroll is used to model a change in labor income that results in induced effects and the subject's direct non-labor expenses are used to model intermediate demand changes that spur additional induced and indirect effects.

The authors used the payroll figures provided by the U for this step; because the authors did not have full payroll data for component units, the authors used the IMPLAN model's earnings-to-output ratios to derive payroll inputs for this portion of the enterprise.

After examining the U's individual transaction data, the authors determined that it was appropriate to use the IMPLAN model's industry spending patterns to categorize operational expenditures into intermediate demand for 536 sectors. The authors modeled a total of seven industry spending patterns to estimate indirect and induced contributions associated with U of U Health operations:

1. Insurance Carriers, IMPLAN 437
2. Colleges, Universities, and Professional Schools, IMPLAN 473
3. Scientific Research and Development Services, IMPLAN 456
4. Medical and Diagnostic Laboratories, IMPLAN 479
5. Medical and Surgical Hospitals, IMPLAN 482

A benefit of using industry spending patterns is that they more comprehensively capture the activity associated with retail and wholesale purchases. If the authors were to just model the value of these purchases, the authors only capture the margins—the difference between price and cost of goods sold; with the spending pattern approach, the authors also capture activity associated with in-state production of these goods. For example, in addition to capturing the retail margin of the subject's retail gasoline purchases, the authors also capture the value of in-region crude oil production and refining.

The authors used the IMPLAN model's capital investment spending pattern, adjusted to reflect actual expenditures on buildings, land, and equipment, to assess the indirect and induced contributions supported by U of U Health's capital purchases. Using the default spending pattern without adjustments could overstate results as universities and hospitals often have a greater concentration of spending on specialized equipment, which is often imported from outside of the region.

Finally, the authors modeled the indirect and induced contributions of construction expenditures as changes to final demand in IMPLAN's construction sectors for new health care buildings (IMPLAN 52).

Modeling Economic Impacts

Identifying Counterfactual

When the authors model economic impacts, the authors are essentially estimating the economic activity that would not exist if the subject did not exist. To do this, the authors must

establish a counterfactual. The analysis assumes that the portion of economic activity generated by U of U Health supported with revenue coming from outside Utah's borders would not exist if U of U Health did not exist. The authors assume that other universities and hospitals would not supplant this activity. With the exception of the tuition payments of medical, dental, and pharmacy students, the enterprise's in-state revenue would circulate in other places of the economy and therefore the associated activity is not part of the economic impact.

Identifying First Round Expenditures and Direct Impacts

The authors used the same ABP technique used to identify economic contributions to identify economic impacts. The authors estimated direct impacts by scaling the first round of in-state operations and capital expenditures to reflect the portion of U of U Health revenues that come from out-of-state. These out-of-state revenue sources are discussed in Appendix A, Impact Analysis, and include:

1. Nonresident patient revenue,
2. Medicare and Medicaid payments,
3. Federal funds, including grants and contracts,
4. Out-of-state student tuition, including all medical, dental, and pharmacy student tuition,
5. Nonfederal, out-of-state grants and contracts,
6. Out-of-state donor gifts,
7. Resident student federal aid,
8. Out-of-state patient retail pharmacy revenue, and
9. ARUP revenues from outside of Utah.

The authors count all construction expenditures as direct impacts, assuming they are largely financed with donor gifts that could be allocated out-of-state and bond proceeds that accelerate and concentrate spending activity.

Estimating Indirect and Induced Impacts

The authors carried out the ABP analysis for estimating indirect and induced impacts just as the authors did for economic contributions, using the scaled direct spending as inputs to the IMPLAN model.

Modeling Fiscal Impact

The Gardner Institute Fiscal Impact Model uses effective tax rates and per capita government spending to estimate the net state revenue, or fiscal impact, associated with the economic impacts of some firm, industry, event, or policy. The fiscal impact estimates in this report reflect the net-new General Fund and Education Fund revenue attributable to U of U Health in FY 2019. The estimates should be viewed as broad (as opposed to precise) measures; the underlying analysis relies on historical data and assumes a linear relationship between revenue and expenditure and economic activity.

The fiscal impacts in this report represent a small portion of U of U Health's benefit to the Utah budget. U of U Health both generates revenue and reduces demand for public service through its support of workforce health and productivity, innovation, technology commercialization, and public service; these effects are beyond the scope of this analysis.

The fiscal impact analysis encompasses three steps: estimation of gross state revenue, estimation of additional state expenditures, and identification of net revenue impact.

Estimating Gross State Revenue Impact

The authors estimated gross state revenue impacts for income taxes, corporate income taxes, and earnings-driven general fund revenue (all general fund revenue, excluding severance taxes). The authors used the tax collection data from the 2020 Economic Report to the Governor and earnings and GDP data from the Bureau of Economic Analysis to derive historical relationships. The authors then used these relationships to model income tax impacts as a function of earnings impacts, general fund revenues as a function of earnings impacts, and corporate income tax impacts as a function of GDP impacts.

Estimating State Expenditure Impact

All else equal, Utah's population is larger than it would be if U of U Health did not exist. The jobs impact generated by U of U Health spurs an additional population impact by drawing new workers and their dependents into the state. This additional population increases demand for government services and, therefore, increases state expenditures.

Using population data from the Gardner Institute's Utah Population Committee and jobs data from the Bureau of Economic Analysis, the authors derived a ratio of new population to new jobs. The authors applied this ratio to U of U Health's total jobs impact to estimate the total population impact. The authors then used age distributions from the Utah Population Committee to estimate school-age (5-17) and college-age (18-29) population impacts.

After identifying population impacts, the authors used Utah Population Committee estimates and state appropriations data from the Office of the Legislative Fiscal Analyst to establish real, annual public education expenditures per school-age capita, higher education expenditures per college-age capita, and non-education expenditures per capita. The authors applied these per capita figures to the population impacts to arrive at a total state expenditure input.

Total Fiscal Impact

U of U Health's total fiscal impact is the net state revenue associated with its total economic impacts—that is, the difference between its gross state revenue and state expenditure impacts.

Endnotes

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14. For an instructive analysis of the common pitfalls in college and university impact analyses, see Association of Public Land Grant Universities, 2014-2015
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25. Watson, P., Wilson, J., Thilmany, D., & Winter, S., 2007
26. See Key Assumptions of IMPLAN & Input-Output Analysis, <https://implanhelp.zendesk.com/hc/en-us/articles/115009505587-Key-Assumptions-of-IMPLAN-Input-Output-Analysis> for further discussion.
27. See ABP: Introduction to Analysis-by-Parts, <https://implanhelp.zendesk.com/hc/en-us/articles/360013968053-ABP-Introduction-to-Analysis-By-Parts> for further discussion.

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