
UNIVERSITY OF COLORADO

Economic Contribution of the University of Colorado on the State and Counties of Operations

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UNIVERSITY OF COLORADO **BOULDER**

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EXECUTIVE SUMMARY

The University of Colorado is the nexus of teaching, research, and healthcare that reaches far beyond economic statistics that quantify purchases and payroll in the state of Colorado. In addition, the university's economic contributions resonate as an economic engine driven by education, clinical, and research expenditures. In FY2019, The University of Colorado and its affiliates on the CU Anschutz Medical Campus, including University of Colorado Hospital and Children's Hospital Colorado, generated a total economic impact of \$14 billion for the state of Colorado.

The University of Colorado, which directly employed 38,975 faculty, staff, and student workers in FY2019, shares the complexity of a large corporation. Funding from tuition, grants, contracts, gifts, and appropriations is turned around and spent, in large part, in private industry. These purchases, ranging from food services to energy to equipment, generated an economic impact of \$9.7 billion on the state of Colorado in FY2019 (nearly \$4.5 billion from direct university spending) and directly employed or supported 62,100 workers in the state. Of this, research expenditure activities alone had nearly a \$2.1 billion impact. State funding for the university topped \$219 million in FY2019, lending to a significant return on investment for state funding based on the economic activity generated by the university.

CU Anschutz faculty are the primary healthcare providers at the University of Colorado Hospital and Children's Hospital Colorado and maintain a clinical practice billing arm through a 501(c)(3) known as CU Medicine. The additional economic contribution of University of Colorado Hospital and Children's Hospital Colorado is estimated to be \$4.5 billion for the Colorado economy in FY2019.

TABLE 1: ECONOMIC CONTRIBUTION (DIRECT, INDIRECT, AND INDUCED), FY2019

Location	Employment (Direct and Supported)	Labor Income (In Millions)	Value Added (In Millions)	Output (In Millions)
CU Boulder	26,853	\$1,664	\$2,431	\$4,166
UCCS	4,449	\$235	\$353	\$591
CU Denver	5,901	\$334	\$500	\$823
CU Anschutz (including CU Medicine)	23,787	\$2,016	\$2,527	\$3,880
System	1,109	\$87	\$112	\$200
University of Colorado Impact (subtotal)	62,099	\$4,337	\$5,923	\$9,660
University of Colorado Hospital	14,803	\$928	\$1,294	\$2,380
Children's Hospital Colorado	12,573	\$841	\$1,173	\$2,158
Anschutz Campus Hospitals Impact (subtotal)	27,376	\$1,770	\$2,468	\$4,538
Total Impact	89,475	\$6,107	\$8,390	\$14,198

Note: Anschutz Campus hospitals are independent enterprises and not reflected on University of Colorado financial statements.

The University of Colorado comprises four campuses—the University of Colorado Boulder (CU Boulder), the University of Colorado Colorado Springs (UCCS), the University of Colorado Denver (CU Denver), and the Anschutz Medical Campus (CU Anschutz), as well as the system administration offices in Denver. This public university serves “Colorado, the nation, and the world through leadership in high-quality education and professional training, public service, advancing research and knowledge, and state-of-the-art health care.” With education as a core element of this mission, the University of Colorado enrolled 67,386 students in the fall of 2019 and awarded 16,917 degrees in FY2019. Nearly 278,000 alumni reside in the state, contributing to Colorado's economic and social fabric. Evidence of the university's educational impact can be found in the leadership of private businesses, teachers in classrooms, health care professionals, and policymakers. These alumni are an integral part of the Colorado labor force,

particularly in the high-tech workforce, and contribute to the state's rank as second in the nation for educational attainment.

The university operated on \$4.6 billion in noncapital revenues in FY2019. A significant portion of this leveraged funding was related to sponsored programs and other restricted fund activity, primarily associated with research activity. Sponsored program awards, totaling \$1.4 billion in FY2019, were concentrated on the CU Anschutz and the CU Boulder campuses. Nearly 55% of the sponsored research awards came from Federal government with the predominant funding agencies being NASA, the National Science Foundation, Health and Human Services, and the Department of Defense. Some federal research laboratories (e.g., joint institutes) are located in Colorado because of the university, which has helped create the relatively high concentration of federal research laboratories in the state. They are often located on campus, and staff may include university employees.

Administered by Venture Partners at CU Boulder and CU Innovations, technology transfer is the conduit for technology commercialization. To illustrate impact, Venture Partners' startup portfolio in FY2019 raised \$147 million, earned \$12 million in licensing revenue, recorded 144 patented inventions, and launched five startups. These companies are taking risks to create innovative technological impacts.

Student and visitor spending also have an economic impact. A survey of students found their spending totaled \$927 million in FY2019. Spending estimates are based on students who indicated they would not be in Colorado if they were not enrolled at CU. Visitor spending in Colorado related to the campuses was an estimated \$43.5 million.

The University of Colorado collaborates in a research triangle that includes universities, businesses, and federal laboratories. These concerted efforts, with support from state and federal funds, help ensure Colorado's economic vitality. From direct expenditures and spinoff technologies to collaborative research and an educated workforce, the University of Colorado strengthens Colorado's economy.

PROJECT OVERVIEW

The University of Colorado is an economic driver in the state of Colorado, employing thousands of workers, buying from local vendors, importing investment, educating the local workforce, and exporting research discoveries. Aside from the direct impact, the university facilitates company growth and job creation through research, tech transfer, and spinoff companies. This study provides a snapshot of the university's economic contribution to the state. In addition, the economic contribution of the system and the four campuses (CU Boulder, UCCS, CU Denver, and CU Anschutz) to their respective communities is detailed for fiscal year (FY) 2019.

METHODOLOGY

This study was conducted in cooperation with the University of Colorado System and the individual campuses. Economic contributions on Colorado were estimated by examining operating expenditures and capital expenditures, including employee salaries and benefits. This approach accounted for the leakage that occurs when research grants lead to a portion of purchases made outside the state. Furthermore, this study estimated the multiplicative impacts of direct expenditures on other industries in the economy through input-output modeling by using IMPLAN, a widely used economic modeling software. Additional estimates were made for student and visitor expenditures. Benefits such as community service, outreach, and fundraisers are described to illustrate additional community benefits derived from the university's presence, but were not directly quantified when determining the overall economic contribution. The study also compared CU to peer institutions through a review of comparable studies. This study did not estimate the economic contributions of alumni working in Colorado, nor did it estimate the economic impacts of spinoff companies or technologies beyond the licensing agreements.

Data requests were made to the University of Colorado System to obtain information on employment, salaries, expenditures, construction, research, and student spending for all campuses. Additional information was sourced from publicly available data on the University of Colorado website.

Employment and salary data were provided by ZIP code and by campus, allowing for the allocation of employee spending to the counties in which they reside. Employees spend their earnings on a broad range of goods and services, including housing, energy, food, clothes, etc. Employment counts and employee residence data are based on a point in time in fall for the fiscal year.

Expenditure data were provided by vendor ZIP code in order to identify (1) the in-state versus out-of-state spending (i.e., leakage), and (2) the counties/metropolitan statistical areas (MSAs) where spending occurred. Adjustments were made in instances where local companies provided services but out-of-state parent companies received payments. The "voucher" report contained all expenditures, including construction- and research-related expenditures, but excluded purchasing card transactions made by employees. Purchasing card and travel card transactions were also provided by ZIP code, representing travel and supplies, and accounted for a relatively small overall portion of spending. Given the absence of a public education category in the input-output model, operating expenditures were assigned as Private Education in the IMPLAN model, or in the industries representing purchasing vendors.

Construction projects were identified by campus. The construction expenditures were included in the vendor report with accompanying ZIP codes, and the university identified specific projects and

quantified the value of current construction by campus. Estimated construction expenditures were assigned as Nonresidential Building in the IMPLAN model.

To the extent possible, research expenditures were identified, and the resulting economic contribution was calculated for each campus and for the overall system. This was accomplished by identifying research expenditures by funding type, and apportioning research faculty and staff salaries to research functions. For full, associate, and assistant professors, 40% of salaries were assigned to research in this study; 100% of other research faculty and staff were assigned to research in this study. Research funding and employment were identified by campus, and expenditures were included in the vendor report with accompanying ZIP codes.

For student expenditures and visitation data, the research team relied on a survey conducted by the university in 2016, with the values adjusted to FY2019 based on inflation and enrollment. This survey captured student spending habits and identified the source of funds (in-state versus out-of-state). Expenditures were calculated for students who would not be in Colorado if they were not enrolled at the university. Similarly, survey data estimated Colorado visitation due to students. This information does not include visitation related to visiting professors and researchers, conventions, athletics, or collaborative research visits; thus, this a conservative estimate of visitation impacts. These expenditures were assigned by spending activity in the IMPLAN model.

This study provides an estimate of economic contributions using ZIP codes of vendors and employees in procurement and human resource databases. The research team believes this conservatively estimates the economic contribution of the University of Colorado since some vendors are located in the state, but the parent company's accounting office, where the check is mailed, is located in another state. Likewise, some faculty, staff, and students have a home of record in another state, but they are actually living and working in Colorado. Additional research could be conducted to reclassify these expenditures and residences. Furthermore, contract vendor activity was not captured in this study (e.g., football game vendors, basketball game vendors, etc.), nor did this study estimate the economic contributions of alumni living and working in the state of Colorado.

DEFINITIONS

Gross Domestic Product (GDP): A measure of economic activity, GDP is the total value added by resident producers of final goods and services.

Gross Output (Output): The total value of production is gross output. Unlike GDP, gross output includes intermediate goods and services.

Value Added: The contribution of an industry or region to total GDP, value added equals gross output, net of intermediate input costs.

Colorado Springs Metropolitan Statistical Area (MSA): El Paso County and Teller County.

Boulder MSA: Boulder County.

Denver MSA: Adams, Arapahoe, Broomfield, Denver, Douglas, Jefferson, Clear Creek, Gilpin, Park, and Elbert counties.

CU Boulder: University of Colorado Boulder.

CU Denver: University of Colorado Denver.

UCCS: University of Colorado Colorado Springs.

CU Anschutz: Anschutz Medical Campus.

University of Colorado System: President's Office and administration.

System: The four university campuses and the President's Office and administration.

Fiscal Year: July 1–June 30

LITERATURE REVIEW

By their nature, universities have a profound impact on their respective communities, regions, and states, both in terms of economic contributions and in the area's cultural and social fabric. Economically, direct and indirect spending by the institution, employees, students, and visitors can often total in the billions. A review of recently conducted economic impact studies of peer universities reveals a range of impacts. Although the studies used different methodologies, thus making direct comparisons difficult, the exercise highlights the important role universities play. For a more detailed look at each report, see Appendix 1.

The impact of Pac-12 member universities on their state and local economies was examined through various economic impact studies. The total impact of each university includes both direct and indirect/induced impact. Of the four universities in California (UCLA, USC, Stanford, and UC Berkeley), the University of California, Los Angeles (UCLA) had the largest economic impact on the state. During the 2016–17 fiscal year, UCLA accounted for \$11.1 billion in total output, while directly employing over 43,000 people and generating roughly \$706.1 million in tax revenue. The University of Southern California (USC) was responsible for over \$8.1 billion in total output during the 2015–16 fiscal year and directly employed 30,900 people. Stanford had an economic impact of \$2.1 billion in Santa Clara and San Mateo Counties in 2006, with students and visitors spending a combined \$348 million in the surrounding communities. The University of California, Berkeley (UC Berkeley) generated an estimated \$4.6 billion in economic impact during the 2009–10 fiscal year, of which almost \$3.2 billion was in value added.

The four Pac-12 universities located in the Pacific Northwest (Washington, Washington State, Oregon, Oregon State) all had a substantial impact on their respective state and local economies. The University of Washington (UW) generated \$15.7 billion in economic activity during the 2018 fiscal year, including a direct impact of \$7.8 billion. UW's economic impact supported or sustained 1 out of every 37 jobs in Washington. During FY2014, Washington State University (WSU) generated almost \$19 for every dollar the state invested in the university. WSU generated a total economic impact of \$3.4 billion within the state of Washington in the 2014 fiscal year and employed almost 18,000 workers. The University of Oregon (UO) employed approximately 10,300 employees in 2013–14, while contributing \$2.3 billion to the state economy. UO's spending generated \$42.7 million in tax revenue during the fiscal year. Oregon

State University's (OSU) impact to the state economy was over \$2.3 billion in 2017 and around 30,000 jobs. Of OSU's total impact, \$989 million was direct, \$155 million was indirect, and \$1.2 billion was induced.

Universities located in the Mountain/Southwest region (Arizona, Arizona State, and Utah; excluding Colorado) create substantial output. In the 2017 fiscal year, the University of Arizona (UA) accounted for \$11.1 billion in economic impact and \$451.7 million in state and local tax revenue. Arizona State University (ASU) supported nearly 48,000 jobs, approximately 17,000 of which were directly employed by the university in the 2016 fiscal year. ASU's total economic impact in 2016 was estimated at \$3.6 billion in state GDP. The University of Utah did not provide a report detailing its economic impact; however, estimates indicate that research spending created \$525.3 million in economic impact in FY2008. Research supported 2,920 jobs at the university and resulted in tax revenue of \$31.4 million.

Additional CU peer institutions are found within the University of Massachusetts System (UMass) and University of Texas System (UTS). The University of Massachusetts System generated \$6.2 billion in economic activity in FY2015. UMass-Boston, a selected peer of CU Denver and UCCS, calculated its impact at \$1.1 billion, and UMass-Lowell, a CU Denver peer, calculated its impact at \$922 million. The University of Texas System comprises nine academic and six health-related institutions within the state of Texas, and its 2005 study estimates its annual impact at \$12.8 billion on the Texas economy and supports 215,715 jobs. CU peer institutions at UTS include the University of Texas-El Paso (UCCS), The University of Texas Health Science Center at San Antonio (CU Anschutz), and The University of Texas Health Science Center at Houston (CU Anschutz).

THE UNIVERSITY OF COLORADO

The University of Colorado is a research university that educates students, conducts research, commercializes technology, and creates companies. In fall 2019, 67,386 students were enrolled at the University of Colorado, and the institution awarded 16,917 degrees in FY2019. The university's 32,386 faculty, staff, and student employees are responsible for the teaching, research, service, and administration functions of the campuses. The university recorded operating and capital expenses totaling \$4.5 billion in FY2019.¹ The University of Colorado comprises four campuses: the Anschutz Medical Campus (CU Anschutz), the University of Colorado Boulder (CU Boulder), the University of Colorado Colorado Springs (UCCS), and the University of Colorado Denver (CU Denver). A fifth entity includes the President's Office and administration, referred to in this report as the University of Colorado System.

STUDENTS

The University of Colorado recorded 67,386 students in fall 2019, growing 0.6% year-over-year, and 12.9% higher than five years ago (fall 2014). On a full-time equivalent (FTE) basis, the university enrollment was 59,560 for FY2019, growing 2.1% year-over-year, and up 20.6% from FY2014.

Based on the FTE data, CU Boulder recorded the largest enrollment in FY2019 (31,302 students, 52.6% of the total), followed by CU Denver (19.9%), UCCS (17.4%), and CU Anschutz (10.1%). On a full-time

¹Operating and capital expenses include Education and General, Auxiliary, and Restricted funds.

basis, 78% of students were undergrads, while 22% were graduate students. More than 70% of the student body was Colorado residents. The ratio of nonresident students is limited by Colorado statute.²

In FY2019, the University of Colorado awarded 16,917 degrees (including double majors) to 16,339 recipients: 10,817 bachelor’s degrees, 4,166 master’s and specialist degrees, 37 graduate certificates, and 1,319 doctorate and professional degrees. CU Boulder accounted for half of awarded degrees, followed by CU Denver, UCCS, and CU Anschutz.

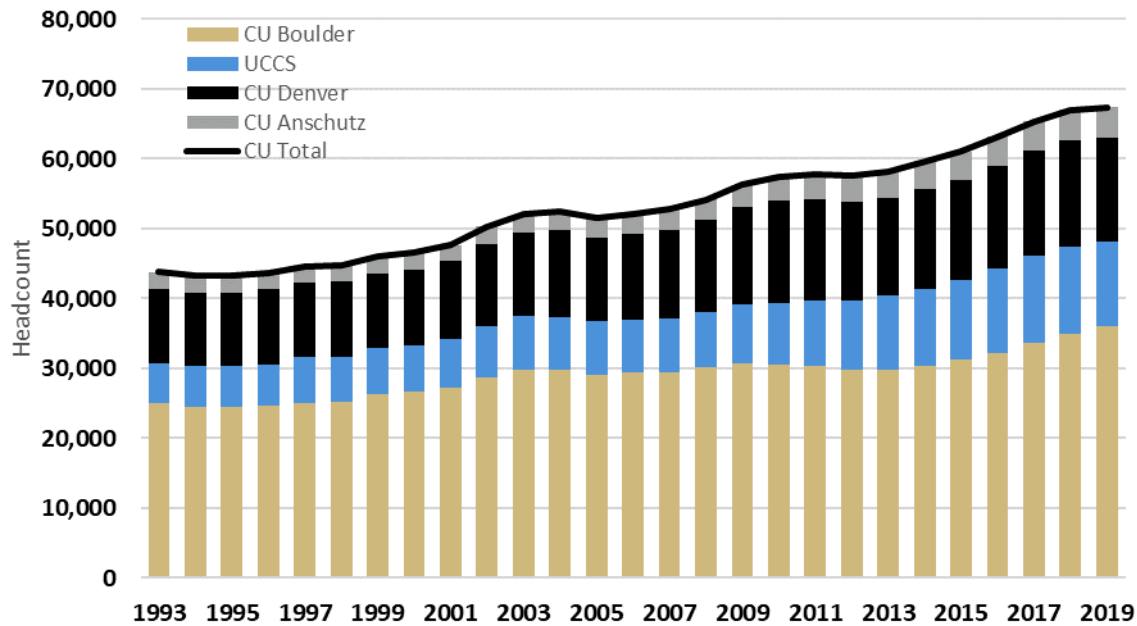
TABLE 2: ENROLLMENT BY CAMPUS, FALL 2019

Campus	CU Boulder	UCCS	CU Denver	CU Anschutz	Total
Undergraduate - resident	17,350	8,849	9,415	483	36,097
Undergraduate - nonresident	12,578	1,347	1,481	28	15,434
Graduate - resident	3,711	1,668	3,319	2,935	11,633
Graduate - nonresident	2,328	316	732	846	4,222
Total	35,967	12,180	14,947	4,292	67,386

Notes: Enrollment includes degree and nondegree students, and does not include extended studies.

Source: University of Colorado, Budget and Finance Office, Student Headcount Enrollment.

FIGURE 1: TOTAL ENROLLMENT BY CAMPUS, FALL 1993–FALL 2019



Source: University of Colorado, Budget and Finance Office.

²According to statute 23-1-113.5, nonresident students are limited to 45% of total enrollment. “The percentage of students enrolled at each campus of the university of Colorado system, at Colorado state university, at the university of northern Colorado, or at the Colorado school of mines who are in-state students is not less than fifty-five percent of the total student enrollment at each campus of the university of Colorado system, at Colorado state university, at the university of northern Colorado, or at the Colorado school of mines, respectively, including undergraduate and graduate students, calculated on a three-year rolling average and excluding foreign students and students enrolled solely in online courses.” <http://leg.colorado.gov/sites/default/files/images/olls/crs2018-title-23.pdf> (page 44), accessed February 10, 2020.

TABLE 3: FTE ENROLLMENT BY CAMPUS, FY2019

Campus	CU Boulder	UCCS	CU Denver	CU Anschutz	Total
Undergraduate - resident	15,787	7,930	7,978	583	32,278
Undergraduate - nonresident	11,517	1,210	1,380	62	14,169
Graduate - resident	2,413	1,004	2,047	4,074	9,539
Graduate - nonresident	1,585	200	470	1,318	3,573
Total	31,302	10,344	11,876	6,038	59,560

Notes: FTE is based on total credit hours (30=full time for undergraduate students, 24=full time for graduate students).

Totals may not sum due to rounding. Does not include extended studies.

Source: University of Colorado, Budget and Finance Office, Student Headcount Enrollment.

ALUMNI

The university has a long history of educating students and preparing them to be actively engaged, contributing members of society. Alumni records indicate that nearly 278,000 graduates reside in the state of Colorado, including business leaders, policymakers, educators, health care workers, engineers, and many others. CU Boulder has the largest number of in-state alumni, totaling 140,245, followed by CU Denver (72,706), UCCS (34,212), and CU Anschutz (29,227).

TABLE 4: ALUMNI BY CAMPUS AND LOCATION, 2019

Campus	CU Boulder	UCCS	CU Denver	CU Anschutz	Total*
Boulder MSA	44,452	456	3,966	1,895	50,931
Denver MSA	71,506	5,624	61,473	21,906	161,409
Colorado Springs MSA	5,613	25,081	1,744	1,275	33,766
Rest of Colorado	18,674	3,051	5,523	4,151	31,540
State Total	140,245	34,212	72,706	29,227	277,646

Note: An additional 1,174 alumni are counted in Colorado, but unassigned to a campus.

Source: University of Colorado, Office of Advancement.

NONEDUCATION SPENDING AND VISITATION

Student spending is similar in nature to offsite employee spending, with expenditures ranging from food and rent to clothing and entertainment. However, spending habits tend to vary from employee spending as do the sources of funds. The University of Colorado System conducts student spending surveys in order to quantify spending habits. The results are for students who would not be in Colorado if they were not enrolled at the university; thus, this is spending that otherwise would not have occurred in the state nor in the metropolitan areas. Statewide, this spending was estimated at \$927 million in 2018, with CU Boulder accounting for 66% of the total; CU Denver, 15%; CU Anschutz, 8%; and UCCS, 11%. Nearly 47% of the spending was identified as housing expenditures (an increase from 38% in 2009), followed by groceries (12%) and books (9%).

Visitors bring substantial ancillary benefit to university communities. In a survey of students, the university gained insight into the number of visitors and amount of spending related to students (e.g., parents' weekend). In 2018, visitor spending in Colorado related to the four campuses was an estimated \$43.5 million. Most of the visitor spending was related to CU Boulder (70%), followed by CU Denver

(13%), CU Anschutz (7%), and UCCS (9%).³ Other visitor impacts, including those from visiting professors and researchers, have not been quantified in this study, thus, visitor impacts are conservative at best.

TABLE 5: VISITOR SPENDING AND STUDENT SPENDING (IN MILLIONS) FOR STUDENTS ATTRACTED AND RETAINED BY CU^a

Spending	CU Boulder	UCCS	CU Denver	CU Anschutz	Total
Students					
Housing	\$295.7	\$47.0	\$63.4	\$26.0	\$432.0
Utilities	\$37.9	\$7.7	\$10.8	\$5.2	\$61.6
Groceries	\$74.0	\$9.3	\$16.4	\$10.0	\$109.8
Restaurants	\$46.0	\$6.2	\$9.7	\$5.2	\$67.0
Personal Goods	\$26.5	\$4.4	\$7.2	\$3.8	\$41.9
Personal Services	\$12.8	\$2.4	\$3.5	\$2.0	\$20.7
Transportation	\$18.6	\$5.3	\$5.6	\$3.8	\$33.4
Entertainment & Luxury Items	\$22.1	\$3.4	\$4.5	\$2.4	\$32.3
Medical Expenses	\$11.6	\$2.0	\$3.1	\$1.9	\$18.6
Hotels	\$2.6	\$0.5	\$1.0	\$0.5	\$4.6
Recreation	\$10.0	\$1.2	\$1.5	\$1.2	\$13.9
Books	\$53.3	\$9.4	\$11.2	\$5.4	\$79.3
Childcare	\$5.1	\$2.0	\$1.8	\$3.0	\$12.0
Total Student Expenditures	\$616.1	\$100.8	\$139.8	\$70.3	\$927.0
Visitors ^b					
Hotels	\$10.8	\$1.5	\$2.0	\$1.1	\$15.4
Recreation	\$9.5	\$1.3	\$1.8	\$1.1	\$13.8
Restaurants	\$10.1	\$1.2	\$1.9	\$1.0	\$14.3
Total Visitor Expenditures	\$30.4	\$4.1	\$5.7	\$3.2	\$43.5

Note: Conferences, events, and athletics not included. FY2019 values grossed up for inflation and enrollment based on 2016 survey by the University of Colorado System.

^aIncludes nonresidents and resident students who indicated that they would have left Colorado had they not attended CU (based on survey responses). ^bIncludes only students' visitors.

EMPLOYMENT

In FY2019, the University of Colorado was the fourth-largest employer in the state of Colorado,⁴ and is among the largest employers in each county of operations. Differentiating between employee work location and residence is important for assigning employee spending to home MSAs.

Together, the faculty and staff of the University of Colorado form a collaborative community that supports CU's pillars of excellence and impact—learning and teaching, discovery and innovation, community and culture, and health and wellness. A wide range of employees with a variety of skills is needed to support these pillars, including faculty researchers, scientists, and instructors; administrators; and support staff. Inherent in this range is an array of educational attainment. Most tenured/tenure-track faculty hold a doctorate or other terminal degree.

³Campus visitor spending does not sum to 100% due to rounding.

⁴Excludes student and temporary workers.

The University of Colorado employed 24,519 regular faculty and staff in 2019 and 14,456 student workers, with salaries and wages of nearly \$2.1 billion. Including student workers, average earnings were \$52,932. CU Anschutz recorded the largest number of employees and the highest total and average wages (excluding student workers), followed by CU Boulder. Fringe benefits are an additional cost of labor above the salaries paid.⁵ Fringe benefit rates depending on the employee type (e.g., 29.9% for regular faculty, 36.6% for staff and research faculty).

TABLE 6: TOTAL EMPLOYMENT, FY2019

Campus	Faculty and Staff	Student Workers	Total Employment
CU Boulder	9,697	9,385	19,082
UCCS	1,774	1,875	3,649
CU Denver	2,179	1,825	4,004
CU Anschutz	10,384	1352	11,736
System	486	20	506
Total	24,519	14,456	38,975

Note: Includes student workers, temporary workers, officer/exempt professional, classified staff, retirees, student other, research faculty, clinical faculty, other faculty, and regular faculty.

TABLE 7: TOTAL REGULAR FACULTY AND STAFF EMPLOYMENT, FALL 2018

Occupation	Fall 2018		Total
	Full-Time	Part-Time	
Faculty			
Instructional Faculty	6,282	2,132	8,414
Tenured/Tenure Track	3,924	53	3,977
Full Professor	1,218	24	1,242
Associate Professor	1,263	14	1,277
Assistant Professor	1,443	15	1,458
Non-Tenure Track	2,358	2,079	4,437
Instructor/Sr. Instructor	2,104	38	2,142
Other	254	2,041	2,295
<u>Research Faculty</u>	<u>1,730</u>	<u>307</u>	<u>2,037</u>
Total Faculty	8,012	2,439	10,451
Staff			
Officers	127	8	135
<u>Management/Other Professionals/Support Staff</u>	<u>12,077</u>	<u>1,384</u>	<u>13,461</u>
Total Staff	12,204	1,392	13,596
Total Faculty and Staff	20,216	3,831	24,047

Note: Excludes temporary workers and student employees.

Source: University of Colorado, Budget and Finance Office, Fall 2018 Faculty and Staff Headcount.

⁵Fringe benefits include dental insurance, disability insurance, FICA contribution, health insurance, life insurance, Medicare, other retirement plans, PERA, EcoPass, annuitants insurance, unemployment compensation claims, workers' compensation insurance, and termination annual and sick leave.

RESIDENT COMMUNITIES

Employees have incredible economic impacts on their local communities. Aside from where they reside—own their home or pay rents—they spend a great deal of their disposable income close to their place of residence. These purchases range from regular spending on fuel and groceries to less frequent spending on clothing, at restaurants, and on vehicles. Their activity supports local business, employment, and wages. It also funds public activities ranging from police and fire protection to schools and infrastructure through the payment of property taxes, sales taxes, income taxes, and fees.

Additionally, employees make important community contributions through volunteerism and charitable giving. They are generally economic and societal stewards who positively impact the communities in which they reside and in which they work. The university’s employees are dispersed across the state, but concentrated in the metropolitan areas where they work. The CU System provided employee counts by ZIP code in Colorado in order to assign off-site economic benefits to their respective metropolitan areas. The data, which include student employees, show that 50% of CU employees live in the Denver Metro region, 28.6% reside in the Boulder MSA, and 8.7% live in the Colorado Springs MSA.⁶

TABLE 8: RESIDENCE OF EMPLOYEES (INCLUDING STUDENTS), FY2019

Campus	Boulder MSA	Colorado Springs MSA	Denver MSA	All Other	Total
CU Boulder	10,470	297	4,980	3,336	19,082
UCCS	30	2,880	332	408	3,649
CU Denver	213	43	3,463	285	4,004
CU Anschutz	385	170	10,360	822	11,736
System	70	7	371	59	506
Total	11,166	3,396	19,505	4,908	38,975

Notes: Number of employees based on fall snapshot. Some “All Other” home of record addresses, notably for students, refer to an out-of-state residence.

Most University of Colorado employees (excluding students) live in the same metropolitan area in which they work (77%); however, given the proximity and integration of communities and economies within the state, 23% live and work in two different places. Of the Colorado-based employees, most University of Colorado employees (58%) live in the Denver MSA, and 26% live in the Boulder MSA.

TABLE 9: RESIDENCE OF EMPLOYEES BY MSA, FY2019

Campus	Boulder MSA	Colorado Springs MSA	Denver MSA	All Other	Total
CU Boulder	5,857	27	2,677	1,136	9,697
UCCS	7	1,555	97	116	1,774
CU Denver	172	15	1,836	156	2,179
CU Anschutz	335	148	9,203	699	10,384
System	69	7	354	57	486
Total	6,439	1,750	14,167	2,163	24,519

Notes: Number of employees based on fall snapshot. Some “All Other” home of record addresses refer to an out-of-state residence. Employee residence data based on a point in time in fall 2019.

Salaries, like employment, were concentrated in the metropolitan areas where the university has a presence. Of the \$2.1 billion in salaries, an estimated \$1.3 billion in salaries were paid to employees

⁶Some home of record addresses, notably for students, refer to an out-of-state residence.

living in the Denver MSA, \$515 million to workers residing in the Boulder MSA, and \$107 million to employees in the Colorado Springs MSA.

TABLE 10: TOTAL SALARIES BY MSA, FY2019 (IN MILLIONS)

Campus	Boulder MSA	Colorado Springs MSA	Denver MSA	All Other	Total
CU Boulder	\$461	\$2	\$166	\$80	\$709
UCCS	\$11	\$1	\$111	\$7	\$130
CU Denver	\$0	\$84	\$12	\$5	\$101
CU Anschutz System	\$35	\$20	\$967	\$56	\$1,077
	\$7	\$1	\$33	\$6	\$46
Total	\$515	\$107	\$1,289	\$153	\$2,063

Note: Excludes benefits.

CONSTRUCTION

As of June 30, 2019, the University of Colorado continued progress on construction projects valued at \$683 million. More than 48% of this activity was related to CU Boulder. The two largest projects systemwide included the Anschutz Health Sciences Building and the Aerospace Engineering Sciences Building at CU Boulder. External construction outlays (performed by in-state and out-of-state companies) were estimated at \$192 million and are nested in the vendor procurement data. About 40% of construction expenditures were to Colorado companies.

TABLE 11: CURRENT CONSTRUCTION PROJECTS AS OF JUNE 30, 2019 (IN THOUSANDS)

Campus/Project Description	Financing Sources	Value ^a
University of Colorado Boulder		
Aerospace Engineering Sciences Building	Campus cash resources, commercial paper, and bond proceeds	82,546
19th Street bridge and trail	Campus cash and DRCOG grant	5,998
Koelbel Business and Engineering School expansion	Campus cash resources and gift	45,000
Ramaley Biology Addition	Campus cash resources	21,801
Williams Village East Residence Hall	Campus cash resources, commercial paper, and bond proceeds	96,700
Music-IMIGaddition	Campus cash resources, commercial paper, gift, and bond proceeds	57,000
Fleming Tower renovation and system upgrades	Campus cash resources and bond proceeds	13,719
23rd Street Bridge	Campus cash resources and FEMA grant	4,031
University of Colorado Denver and the Anschutz Medical Campus		
Fitzsimons Building - 4th floor renovation	Campus cash resources	5,624
Business School infill	Campus cash resources and gift	11,044
Central Utility Plant boiler and chiller	Bond proceeds	33,399
Anschutz Health Sciences Building	State, campus cash resources, gift, commercial paper, and debt	242,041
North Classroom	Campus and system cash resources	38,401
Anschutz Academic Office Building 1 Renovation	Campus cash resources	3,917
University of Colorado Colorado Springs		
Hybl Sports Medicine and Performance Center	Bond proceeds and gift	61,425
North Nevada Infrastructure	Campus cash resources, gift, and bond proceeds	20,000

Sources: University of Colorado 2019 Annual Financial Report (page 19) and the CU System Office of the Vice President for Budget and Finance.

OPERATIONS

The University of Colorado recorded operating and nonoperating revenues of \$4.6 billion in FY2019. More than 71% of these noncapital revenues are generated from health services (24.4%), tuition and fees (23.9%), and grants and contracts (22.8%). State general fund appropriations totaled \$218.5 million in FY2019.⁷

The university recorded \$4.1 billion in operating expenditures in FY2019, though some of this included noncash activity (e.g., depreciation) or activities related to health care enterprises, which were not included in the scope of work.

**TABLE 12: OPERATING AND NONOPERATING REVENUES
(EXCLUDING CAPITAL), FY2019 (IN THOUSANDS)**

Revenues (in thousands)	FY2019
Operating Revenues	
Student tuition and fees, net	\$1,096,060
Fee-for-service	143,443
Grants and contracts	1,046,672
Sales and services of educational departments	244,912
Auxiliary enterprises, net	299,259
Health services	1,118,365
<u>Other operating</u>	<u>149,098</u>
Total Operating Revenues	4,097,809
Nonoperating Revenues	
Federal Pell Grant	58,681
State appropriations	15,950
State support for PERA pension	8,585
Gifts	206,733
Investment income (loss), net	163,344
<u>Other nonoperating, net</u>	<u>32,324</u>
Total Nonoperating Revenues	485,617
Total Noncapital Revenues	\$4,583,426

Source: University of Colorado Financial and Compliance Audit
June 30, 2019 and 2018 (page 18).

⁷ Joint Budget Committee. *Appropriations Report, Fiscal Year 2018-19*.
https://leg.colorado.gov/sites/default/files/fy18-19apprept_0.pdf (page 72), accessed February 12, 2020.

TABLE 13: EXCERPT FROM STATEMENTS OF REVENUES, EXPENSES, AND CHANGES IN NET POSITION, FY2019 (IN THOUSANDS)

	FY2019	
	University	Component Units
Operating Expenses		
Education and general		
Instruction	\$1,098,320	\$-
Research	672,006	-
Public service	157,077	-
Academic support	206,049	-
Student services	123,377	-
Institutional support	250,564	190,759
Operation and maintenance of plant	139,988	-
Student aid	22,785	-
Total Education and General Expenses	2,670,166	190,759
Depreciation	215,348	123
Auxiliary enterprises	240,062	-
Health services	1,001,822	-
Total Operating Expenses	4,127,398	190,882

Source: Excerpt from University of Colorado Financial and Compliance Audit June 30, 2019 and 2018 (page 28).

The university’s nonlabor expenditures occur primarily through vendor purchases and through university travel and procurement cards. Combined, nonlabor expenditures totaled \$1.1 billion in FY2019. More than 43% of FY2019 expenditures were in-state purchases. While this leakage includes the purchase of some supplies and equipment out-of-state, it also includes payments to partnering research institutions that contribute unique capabilities to research projects—collaboration that runs both directions in research. Without these collaborations, many of the grants would otherwise not be awarded to the University of Colorado. Vendor purchases recorded a higher rate of in-state transactions than purchases made on travel and procurement cards.⁸

CU Boulder accounted for 45.7% of nonlabor expenditures in FY2019, totaling \$835.3 million. CU Anschutz vendor spending accounted for 39.2%, or \$715.5 million, followed by CU Denver, UCCS, and the CU System.

TABLE 14: TOTAL VENDOR, PROCUREMENT CARD, AND TRAVEL CARD SPENDING, FY2019 (IN MILLIONS)

Campus	Boulder	Colorado	Denver	All	CO	Total
	MSA	Springs MSA	MSA	Other	Total	
CU Boulder	\$94.1	\$3.3	\$208.0	\$12.2	\$317.6	\$835.3
UCCS	\$0.5	\$30.4	\$20.5	\$1.2	\$52.7	\$95.7
CU Denver	\$1.7	\$1.3	\$78.8	\$1.7	\$83.5	\$143.1
CU Anschutz	\$6.0	\$2.4	\$270.8	\$25.5	\$304.7	\$715.5
System	\$3.1	\$0.2	\$21.9	\$0.8	\$26.0	\$38.0
Total	\$105.4	\$37.6	\$600.0	\$41.5	\$784.4	\$1,827.6

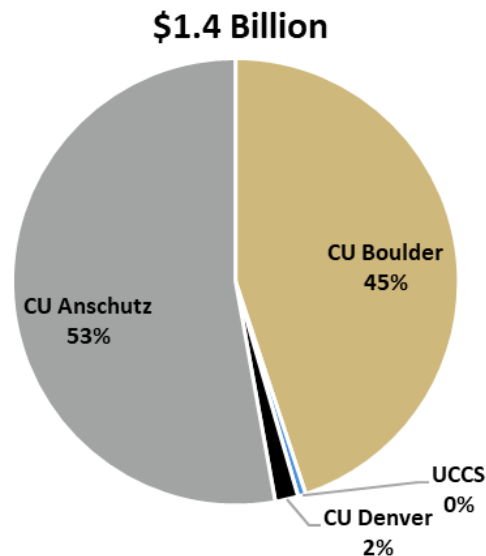
⁸Procurement card purchases are made by university staff, faculty, and students to purchase items up to \$5,000.

SPONSORED PROGRAMS

Each campus has an office that reviews, negotiates, and administers externally funded sponsored research for its respective campus. Responsibilities also include ensuring campus, university, and sponsor policies are being followed; providing award management assistance; preparing subcontracts; and managing government property. These services are provided by the Office of Contracts and Grants for CU Boulder, by the Office of Grants and Contracts for CU Denver and CU Anschutz, and by the Office of Sponsored Programs for UCCS.

In FY2019, of the \$1.4 billion in sponsored research, 97.8% of sponsored research was conducted on two University of Colorado campuses: CU Anschutz and CU Boulder. Excluding the CU Foundation research funding, sponsored research increased 10.1% across the System in FY2019 and 34.3% over the past five years (FY2014-FY2019).

FIGURE 2: SPONSORED RESEARCH, BY CAMPUS, FY2019



Source: University of Colorado, <http://www.cu.edu/sponsored-research>.

TABLE 15: UNIVERSITY OF COLORADO SPONSORED RESEARCH, BY CAMPUS, IN MILLIONS

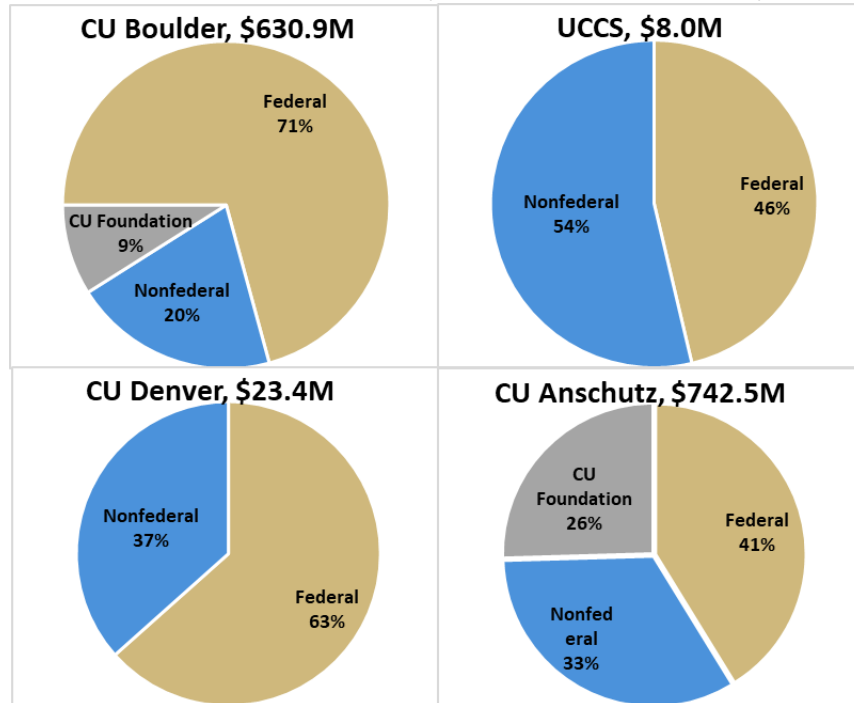
Fiscal Year	CU Boulder	UCCS	CU Denver	CU Anschutz	Total
2000	\$214.2	\$3.0	\$18.7	\$224.0	\$459.9
2001	\$219.0	\$2.8	\$16.7	\$260.1	\$498.6
2002	\$229.0	\$1.9	\$20.3	\$294.6	\$545.9
2003	\$250.4	\$5.2	\$19.1	\$286.1	\$560.9
2004	\$259.7	\$6.3	\$22.9	\$299.8	\$588.7
2005	\$257.6	\$8.7	\$18.6	\$332.2	\$617.0
2006	\$256.5	\$10.3	\$23.5	\$349.8	\$640.0
2007	\$266.1	\$7.9	\$19.8	\$343.6	\$637.4
2008	\$280.0	\$9.2	\$17.9	\$353.6	\$660.7
2009	\$339.7	\$8.7	\$22.8	\$342.4	\$713.5
2010	\$454.4	\$8.3	\$22.2	\$399.2	\$884.1
2011	\$359.1	\$12.4	\$21.8	\$400.1	\$793.5
2012	\$380.7	\$5.0	\$22.4	\$411.7	\$819.8
2013	\$351.9	\$7.8	\$20.1	\$390.8	\$770.5
2014	\$412.1	\$9.4	\$18.5	\$423.3	\$863.3
2015	\$425.6	\$10.3	\$22.2	\$420.3	\$878.3
2016	\$436.8	\$8.0	\$25.0	\$454.1	\$923.9
2017	\$507.9	\$10.2	\$25.9	\$490.3	\$1,034.3
2018	\$511.1	\$6.9	\$18.8	\$516.2	\$1,053.1
2019 ^a	\$630.9	\$8.0	\$23.4	\$742.5	\$1,404.9

Source: University of Colorado, <http://www.cu.edu/sponsored-research> and the Office of the Vice President for Budget and Finance.

Note: Values are in nominal dollars, and are not adjusted for inflation.

^a2019 figures include foundation funding at CU Boulder and CU Anschutz. Anschutz foundation research, while included here, is not included in other published sponsored research totals.

FIGURE 3: SPONSORED RESEARCH, BY SOURCE AND CAMPUS, FY2019



Source: University of Colorado, <http://www.cu.edu/sponsored-research> and the Office of the Vice President for Budget and Finance.

TECHNOLOGY TRANSFER

Technology transfer works to assist with the commercialization of university technology. University of Colorado activity is decentralized between Venture Partners at CU Boulder and CU Innovations.⁹

To illustrate impact, according to Venture Partners at CU Boulder, in FY2019, Venture Partners' startup portfolio raised \$147 million, earned \$12 million in licensing revenue, recorded 144 patented inventions, and launched five startups.¹⁰ According to the FY2015 Tech Transfer Annual Report, TTO provides the following services:

- Advises faculty on intellectual property issues
- Supports intellectual property management and commercialization planning for major federal grant proposals
- Advises campus researchers about the technology transfer process through a variety of means including seminars, newsletters, and special events
- Solicits and analyzes invention disclosures from faculty, students, and staff
- Engages students and commercialization partners in market assessment
- Prepares and manages the transfer of "tangible research property" such as biological materials
- Licenses patents and copyrights for commercial use and manages those licenses

CU FOUNDATION

Created in 1967 by volunteers and community leaders, the University of Colorado Foundation raises, manages, and invests private support for the benefit of the university. Fundraising efforts supplement state funding, tuition, and other revenue sources by funding student scholarships, faculty support, academic programs, and building improvements. In 2019, the University of Colorado Foundation recorded \$566 million in gifts from nearly 36,810 donors; and \$301.6 million in revenue, gains, and other support. Most of the revenue was derived from contributions and grants (\$196.3 million) and investment income (\$97.2 million). The impact of these gifts touches all four campuses in the areas of learning and teaching, discovery and innovation, community and culture, and health and wellness.

⁹ Venture Partners at CU Boulder includes all CU Boulder innovations, all CU Colorado Springs innovations non-medical CU Denver innovations; CU innovations includes Anschutz Medical Campus innovations and Medical CU Denver innovations.

¹⁰ <https://www.colorado.edu/venturepartners/about-us>, retrieved February 1, 2020.

ECONOMIC CONTRIBUTION

The University of Colorado’s direct expenditures led to \$9.7 billion in economic activity in the state of Colorado in FY2019, resulting from the work of 20,519 regular faculty and staff. These faculty and staff participate in activities ranging from teaching and research to administrative and support, operating one of the largest institutions in the state of Colorado. The majority of economic activity is, in fact, driven off employee compensation (salaries and benefits). Sliced by function, sponsored programs expenditures (i.e., research) accounted for more than \$2.1 billion in total economic activity (\$1.1 billion in direct activity) in Colorado, excluding the long-term benefits of scientific discoveries and technology commercialization via licenses, patents, and spinoff companies.

TABLE 16: UNIVERSITY OF COLORADO ECONOMIC CONTRIBUTION, FY2019

Impact	Employment	Labor Income (In Millions)	Value Added (In Millions)	Output (In Millions)
Direct Effect	24,519	\$2,533	\$2,533	\$3,850
Indirect Effect	18,494	\$838	\$1,632	\$2,774
Induced Effect	19,086	\$966	\$1,758	\$3,036
Total Effect	62,099	\$4,337	\$5,923	\$9,660

TABLE 17: SUMMARY OF RESEARCH EXPENDITURE CONTRIBUTIONS, FY2019

Impact	Employment	Labor Income (In Millions)	Value Added (In Millions)	Output (In Millions)
Direct Effect	9,463	\$872	\$872	\$1,076
Indirect Effect	1,110	\$73	\$104	\$195
Induced Effect	5,456	\$276	\$503	\$868
Total Effect	16,029	\$1,221	\$1,479	\$2,139

Note: Many employees participating in research activities are also involved in teaching activities.

CONCLUSION

The University of Colorado remains an economic engine in the state of Colorado through educational, research, operational, and ancillary activities. Students enroll at the university to earn an education, many of whom will enter the Colorado workforce. This labor force not only fills local employment and entrepreneurial needs, but also becomes a draw for businesses looking to locate in Colorado. Likewise, while research is driven off the interests and expertise of faculty, it also provides competitive economic attributes that differentiate Colorado from other states—as seen in such industry concentrations as the Professional, Scientific, and Technical Services Sector; the Information Sector; and in aerospace, cleantech, and biotechnology clusters. This research activity exists in a collaborative triangle of universities, businesses, and federal research facilities in the state, occasionally resulting in the creation of companies and the licensing of technologies from the university.

The economic impacts of the university are ultimately driven by the education and research missions of the university, which result in both operating and capital expenditures in the state of Colorado. The \$4.6 billion in direct spending related to the university operations and capital projects, in addition to student spending, resulted in economic activity of \$9.7 billion. Comparatively, state funding for the university topped \$218.5 million in FY2019, lending to the substantial economic activity generated by the university. This is not to say that additional dollars invested by the state will result in similar returns on investment. While state funding is often times a match for federal dollars, the amount of additional federal funding is limited, and may even decline in coming years.

This operating and capital spending occurs primarily with private companies in the state, ranging from utilities to food suppliers. The 24,519 faculty and staff and the 14,456 student workers accounted for more than 62,100 workers in the state related to the supplier companies and household spending of employees.

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APPENDIX 1: LITERATURE REVIEW OF UNIVERSITY ECONOMIC IMPACT STUDIES

Arizona State University (Center for Competitiveness and Prosperity Research 2017)

Arizona State University (ASU) directly employed 16,767 faculty, students, and staff in FY2016 and accounted for a total of 47,650 Arizona jobs. The university also generated \$2.4 billion in labor income. ASU accounted for \$3.6 billion in state GDP, with \$1.3 billion attributed to university payroll and employment and \$1.2 billion attributed to student spending. ASU spending generated \$207 million in state and local government tax revenues in FY2016, and student spending accounted for \$85 million of total tax revenues.

Oregon State University (Oregon State Leadership 2018)

Oregon State University (OSU) economic impact in the state of Oregon in 2017 was over \$2.3 billion and 30,452 jobs. OSU directly accounted for \$989 million to the Oregon economy as well as \$155 million in indirect and \$1.2 billion in induced impacts. The economic impact for Benton and Linn counties was \$1.6 billion and 20,691 jobs. The university accounted for \$281.8 million and 3,884 jobs in Portland alone.

Stanford (The Pacific Partners Consulting Group, Inc. 2008)

Stanford University, which consists of seven schools, employed 1,807 faculty and over 20,000 total employees in 2006, making it the largest employer in the region. The university also brought in revenue of \$4.5 billion and spent more than \$1.6 billion the local area in 2006 according to the economic impact study conducted in 2008. The study estimated that Stanford employees spent \$1.2 billion in the surrounding communities. Stanford University contributed \$2.1 billion in direct expenditures to Santa Clara and San Mateo counties, \$609 million of which was from Stanford hospitals. Students and visitors spent a combined \$348 million in the surrounding communities as well.

University of Arizona (Elliot D. Pollack & Company and The Maguire Company 2019)

The University of Arizona (UA) accounted for a total economic output of \$11.1 billion through its employees, students, and visitors according to a study based on FY2017. The university employed 36,725 people, and it is estimated that the university created an additional 47,630 jobs in the Arizona economy. A total of \$4.6 billion in labor income and \$6.0 billion in value added was generated by the university. It is also estimated that the Arizona Public University Enterprise provides \$180.8 million in primary fiscal impacts and \$270.8 million in secondary fiscal impacts. This amounts to a total of \$451.7 million in state, county, city, and other local taxes from these primary and secondary sources.

University of California Berkeley (UC Berkeley News 2007; Economic & Planning Systems, Inc. 2011)

The University of California, Berkeley employed 21,229 people on the general campus in 2010 according to a 2011 study conducted by the Economic & Planning Systems, Inc. Berkeley's main campus accounted for 43,576 jobs in the 2009–10 fiscal year. The total economic impact was over \$4.6 billion, adding about \$3.2 billion in value added. An earlier study, using 2005–06 data, found that the university had \$1.4 billion in revenue and spent over \$800 million on salaries. The local economy also benefited from the roughly 1 million visitors to UC Berkeley, who contribute about \$30 million annually to the local economy.

University of California Los Angeles (Beacon Economies 2018)

The University of California Los Angeles (UCLA) had a total impact of \$11.1 billion on the California economy during the 2016-2017 fiscal year according to a study conducted in 2018 by Beacon Economies. UCLA's output is composed of \$5.9 billion in direct effects, \$2.4 billion in indirect effects, and \$2.8 billion in induced effects. The total impact in the city of Los Angeles alone is just over \$4 billion. Over 72,700 full-time jobs are supported throughout California as a result of UCLA spending, and 43,000 people are employed directly by the university. UCLA was the fourth largest employer in Los Angeles County in 2016. UCLA also generated \$4.15 billion in labor income, \$5.9 billion in direct spending, and \$706.1 million in tax revenue.

University of Massachusetts (UMass Donahue Institute Economic and Public Policy Research 2015)

The University of Massachusetts (UMass) system generated \$6.2 billion in economic activity in FY 2015. This includes one-time building and infrastructure project expenditures consisting of \$502 million in direct expenses and over \$421 million in additional economic activity, as well as 5,013 jobs supported. In FY 2015, the State of Massachusetts invested \$621 million in the UMass system, which led to \$6.2 billion of in-state economic activity. The UMass system consists of UMass Amherst, UMass Boston, UMass Dartmouth, UMass Lowell, and UMass Medical School. These generated economic activity of \$2.1 billion, \$1.1 billion, \$466 million, \$922 million, and \$1.6 billion, respectively. UMass System revenues are 79% operating revenues and 21% state revenues.

University of Oregon (Duy 2015)

The University of Oregon (UO) contributed \$2.3 billion to Oregon's economy in 2013–14 according to a study conducted by UO economics professor, Tim Duy. A total of \$1.3 billion of this amount was new economic activity that would not have happened without the university. In 2013, UO directly employed approximately 10,300 employees, and the university's direct and indirect spending supported more than 24,500 jobs in Oregon. The total amount of spending associated with the university grew by 16.5% year-over-year. The household earnings generated from the UO's payroll and spending generated \$42.7 million in tax revenue.

University of Southern California (Beacon Economies 2016)

The University of Southern California (USC) was responsible for about \$8.1 billion in total output in California in the 2015-2016 fiscal year. Direct effects amounted to \$4.2 billion, \$1.9 billion were indirect effects, and \$2.0 billion were induced effects. USC also generated \$455 million in tax revenues for local and state governments according to the economic impact study conducted in 2016 by Beacon Economies. The university employed 30,907 people directly, equating to \$2.9 billion in payroll. A total of 53,425 jobs are supported through USC. Direct spending in the state of California provided by USC totaled over \$3.7 billion in the 2015-2016 fiscal year.

University of Texas (Institute for Economic Development 2005)

The University of Texas System (UTS) comprises nine academic and six health-related institutions within the state of Texas. In the 2004 fiscal year, UTS had a total economic impact of \$12.8 billion, consisting of \$8.7 billion in direct spending and \$4.1 billion in indirect spending. UTS accounts for total student enrollment of 177,676, and 88,035 faculty and staff. Through its total economic activity, UTS supports 215,715 total jobs, and for every on-campus job, and additional 1.5 jobs are added.

University of Utah (University of Utah News Center 2010)

Because no public reports that examine the University of Utah's economic impact are available, the following information is the economic impact created by sponsored research at the University of Utah.

In FY2009, the University of Utah collected a record \$354.7 million in research funding according to the university's vice president for research. The study calculated that the economic impact to Utah from university's research spending in FY2008 totaled \$525.3 million in gross state product (GSP). Research supported 2,920 jobs at the university and 4,380 jobs not directly connected to campus, with wages totaling \$310 million and resulting tax revenue of \$31.4 million. The study estimated that every \$1 million spent on research supports 20 jobs in Utah, generates approximately \$849,450 in earnings from Utah workers, contributes \$1.4 million in GSP, and provides \$86,135 in state and local tax revenue.

University of Washington (Parker Philips and University of Washington 2019)

The University of Washington (UW) generated \$15.7 billion in FY2018 according to an economic impact study conducted by Parker Philips. The direct impact of UW in the state of Washington was \$7.8 billion while the indirect/induced impact was \$7.9 billion. The university directly employed 43,536 people, making UW the fifth-largest employer in the state. Overall, UW was responsible for supporting 100,520 jobs across the state, or roughly 2.7% of total jobs in Washington, which equates to 1 of every 37 jobs in the state. UW accounted for \$249.4 million in direct tax revenue and \$503.3 million in indirect/induced tax revenue to state and local governments.

Washington State University (CAI Community Attributes 2015)

In FY2014, Washington State University (WSU) employed 17,970 workers, with an average annual employment of 11,900 direct jobs. There are economic impacts through all major sectors of Washington's economy. Producer and transport services received the largest labor income impact, and consumer services was impacted mainly through employment. In FY2014, WSU employee compensation totaled \$598 million, including both wage and salary, and employer contributions to benefits. Through indirect impacts, the university supported an additional 8,700 jobs and \$101 million in labor income. Another \$311 million was generated in induced effects. WSU generated almost \$19 for every \$1 the state invested in the university. WSU generated a total economic impact of \$3.4 billion within the state of Washington in FY2014.

APPENDIX 2: UNIVERSITY OF COLORADO IMPACT ON THE BOULDER MSA

The Boulder Metropolitan Statistical Area (MSA) recorded 199,800 employees in 2019 and \$27.5 billion in total output in 2018 (most current data). Funding for university operations and capital spending is by and large nonlocal, resulting in an infusion of investment into the local economy.

Enrollment

In fall 2019, CU Boulder enrolled 35,967 students (headcount), 58.6% of whom were Colorado residents and 83.2% of whom were undergraduate students. On a full-time equivalent (FTE) basis, CU Boulder enrolled 31,302 students in FY2019.

Alumni

CU Boulder accounts for nearly 146,500 alumni living in the state of Colorado, including business leaders, policymakers, educators, health care workers, engineers, and others. Nearly 52,400 alumni from University of Colorado campuses live in the Boulder MSA.

Employment and Wages

CU Boulder employed 19,082 faculty, staff, and students in FY2019. Based on employment records, 16,942 (88.8%) of these employees live in Colorado, with some of the nonresident employment attributable to student workers citing their parents' out-of-state home address. CU Boulder employees living and working in the Boulder MSA totaled 10,470 in FY2019, with an additional 697 individuals living in the Boulder MSA, but working on other campuses. Excluding the number of student workers (e.g., work-study recipients), CU Boulder was estimated to employ 9,697 individuals in FY2019. Employment totals are based on a snapshot in the fall.

Nonlabor Operating and Capital Spending

Direct nonlabor spending by the University of Colorado in the Boulder MSA totaled \$105.4 million in FY2019, with \$94.1 million attributable to CU Boulder. CU Boulder made \$835.3 million in purchases (including construction) in FY2019, 38% of which occurred in Colorado.

TABLE 18: UNIVERSITY OF COLORADO SYSTEM VENDOR AND PURCHASING CARD EXPENDITURES, BOULDER MSA, FY2019 (IN MILLIONS)

Campus	Boulder MSA
CU Boulder	\$94.1
UCCS	\$0.5
CU Denver	\$1.7
CU Anschutz	\$6.0
System	\$3.1
Total	\$105.4

**TABLE 19: CU BOULDER VENDOR AND PURCHASING
CARD EXPENDITURES, BY LOCATION,
FY2019 (IN MILLIONS)**

MSA	Spending
Boulder MSA	\$94.1
Colorado Springs MSA	\$3.3
Denver MSA	\$208.0
All Other	\$529.9
Total	\$835.3

Note: Total and All Other includes out-of-state and other in-state purchases.

Construction

Budgeted costs for construction projects as of the end of FY2019 for CU Boulder were estimated at \$329.1 million. FY2019 construction expenditures for CU Boulder totaled \$137.3 million, but only a portion of this was sourced locally in the Boulder MSA due to the in-flow of labor and materials for construction. The Boulder MSA benefits from regional construction spending by the other campuses.

TABLE 20: CU BOULDER CURRENT CONSTRUCTION PROJECTS AS OF JUNE 30, 2019 (IN THOUSANDS)

Project Description	Financing Sources	Value ^a
HVAC upgrades and controls, Electrical Engineering Center	State Senate Bill 19-267 COP Funding	\$6,312
Aerospace Engineering Sciences Building	Campus cash resources and commercial paper	82,546
19th Street bridge and trail	Campus cash & FEMA	5,998
Koelbel Business and Engineering School expansion	Campus cash resources	45,000
Ramaley Biology Addition	Campus cash resources	21,801
Williams Village East Residence Hall	Campus cash resources and commercial paper	96,700
Music-IMIGaddition	Campus cash resources and commercial paper	57,000
Fleming Tower renovation and system upgrades	Campus cash resources and commercial paper	13,719

^aValue represents budgeted costs for project in thousands.

Source: University of Colorado Financial and Compliance Audit June 30, 2019 (page 19).

Student Spending and Visitors

Based on a biannual survey of students, CU Boulder recorded \$646.5 million in nonlocal student and visitor spending in Colorado. This includes nonresident and resident students who indicated that they would have left Colorado had they not attended CU, as well as students’ visitors. Spending included rents, groceries, transportation, child care, recreation, health care, and other.

Economic Contribution

CU Boulder had the largest economic contribution on the Boulder MSA, but businesses in the metropolitan area also supply goods and services to the other University of Colorado campuses. Additionally, some employees live in the Boulder MSA but work on another campus, which creates an economic boost from their household spending. Through research, teaching, operations, construction, student spending, and visitation, the University of Colorado is an economic driver in the Boulder MSA, contributing \$3.4 billion in local economic activity in FY2019. The economic contribution of CU Boulder on the state of Colorado totaled \$4.2 billion in FY2019. This includes \$138 million in construction activity for the year.

**TABLE 21: UNIVERSITY OF COLORADO SYSTEM,
IMPACT ON BOULDER MSA, FY2019**

Impact	Employment	Labor Income (In Millions)	Value Added (In Millions)	Output (In Millions)
Direct Effect	9,697	\$921	\$921	\$1,894
Indirect Effect	7,372	\$289	\$642	\$976
Induced Effect	3,601	\$170	\$314	\$529
Total Effect	20,669	\$1,380	\$1,877	\$3,400

**TABLE 22: CU BOULDER,
IMPACT ON COLORADO, FY2019**

Impact	Employment	Labor Income (In Millions)	Value Added (In Millions)	Output (In Millions)
Direct Effect	9,697	\$870	\$870	\$1,568
Indirect Effect	10,035	\$434	\$905	\$1,465
Induced Effect	7,122	\$360	\$656	\$1,133
Total Effect	26,853	\$1,664	\$2,431	\$4,166

Research

Research draws federal, state, and private funding. University research leads to immeasurable scientific discoveries and societal benefits that range from medicine and energy to space and weather. To understand just a slice of the benefits, one could look to licensed technologies in the Venture Partners portfolio, or to the spinoff companies that dot the Colorado landscape. However, by the nature of the work, research begets research, and is thus a perpetual building block of knowledge that propels the next scientific discovery. CU Boulder research expenditures (including equipment, operations, and labor) were estimated at \$495.5 million in FY2019. The economic contribution of these research activities totaled \$800 million on the Colorado economy in 2019.

APPENDIX 3: UNIVERSITY OF COLORADO IMPACT ON THE COLORADO SPRINGS MSA

The Colorado Springs Metropolitan Statistical Area (MSA) recorded 299,700 employees in 2019 and \$37.9 billion in total output in 2018 (most current data). Funding for university operations and capital spending is by and large nonlocal, resulting in an infusion of investment into the local economy.

Enrollment

In fall 2015, UCCS enrolled 12,180 students (headcount), 86.3% of whom were Colorado residents and 83.7% of whom were undergraduate students. On a full-time equivalent (FTE) basis, UCCS enrolled 10,344 students in FY2019.

Alumni

UCCS accounts for 34,800 alumni living in the state of Colorado, including business leaders, policymakers, educators, health care workers, engineers, and others. More than 34,700 alumni from University of Colorado campuses live in the Colorado Springs MSA.

Employment and Wages

UCCS employed 3,649 faculty, staff, and students in FY2019. Based on employment records, 3,425 (93.9%) of these employees live in Colorado, with some of the nonresident employment attributable to student workers citing their parents' out-of-state home address. UCCS employees living and working in the Colorado Springs MSA totaled nearly 2,880 in FY2019; an additional 769 individuals lived in the Colorado Springs MSA, but worked on other campuses. Excluding the number of student workers (e.g., work-study recipients), UCCS was estimated to employ 1,774 individuals. Employment totals are based on a snapshot in the fall.

Nonlabor Operating and Capital Spending

Direct nonlabor operations spending by the University of Colorado in the Colorado Springs MSA totaled \$37.6 million in FY2019, with \$30.4 million attributable to the Colorado Springs campus. UCCS made \$61.3 million in purchases in FY2019, 55.1% of which occurred in Colorado.

TABLE 23: UNIVERSITY OF COLORADO SYSTEM VOUCHER AND PURCHASING CARD EXPENDITURES, COLORADO SPRINGS MSA, FY2019 (IN MILLIONS)

Campus	Colorado Springs
	MSA
CU Boulder	\$3.3
UCCS	\$30.4
CU Denver	\$1.3
CU Anschutz	\$2.4
System	\$0.2
Total	\$37.6

TABLE 24: UCCS VENDOR AND PURCHASING CARD EXPENDITURES, BY LOCATION, FY2019 (IN MILLIONS)

MSA	Spending
Boulder MSA	\$0.5
Colorado Springs MSA	\$30.4
Denver MSA	\$20.5
All Other	\$44.2
Total	\$95.7

Note: Total and All Other includes out-of-state and other in-state purchases.

Construction

Budgeted costs for construction projects as of the end of FY2019 for UCCS were estimated at \$61.4 million. Only a portion of this was sourced locally in the Colorado Springs MSA.

TABLE 25: UCCS CURRENT CONSTRUCTION PROJECTS AS OF JUNE 30, 2019 (IN THOUSANDS)

Project Description	Financing Sources	Value ^a
Hybl Sports Medicine and Performance Center	Bond proceeds	\$61,425

^aValue represents budgeted costs for project in thousands.

Student Spending and Visitors

Based on a biannual survey of students, UCCS recorded \$104.9 million in nonlocal student and visitor spending in Colorado. This includes nonresident and resident students who indicated that they would have left Colorado had they not attended CU, as well as students’ visitors. Spending included rents, groceries, transportation, child care, recreation, health care, and other.

Economic Contribution

UCCS had the largest economic contribution on the Colorado Springs MSA, but businesses in the metropolitan area also supply goods and services to the other University of Colorado campuses. Additionally, some employees live in the Colorado Springs MSA but work on another campus, which creates an economic boost from their household spending. Through research, teaching, operations, construction, student spending, and visitation, the University of Colorado is an economic driver in the Colorado Springs MSA, contributing \$517 million to the local economy. Much of this funding is nonlocal, thus leveraging outside investment for the local economy. The economic contribution of UCCS on the state of Colorado totaled \$591 million in FY2019. This includes \$17.6 million in construction expenditures.

TABLE 26: UNIVERSITY OF COLORADO SYSTEM, IMPACT ON COLORADO SPRINGS MSA, FY2019

Impact	Employment	Labor Income (In Millions)	Value Added (In Millions)	Output (In Millions)
Direct Effect	1,774	\$121	\$121	\$235
Indirect Effect	1,280	\$46	\$95	\$159
Induced Effect	888	\$37	\$71	\$124
Total Effect	3,942	\$205	\$288	\$517

**TABLE 27: UCCS,
IMPACT ON COLORADO, FY2019**

Impact	Employment	Labor Income (In Millions)	Value Added (In Millions)	Output (In Millions)
Direct Effect	1,774	\$115	\$115	\$194
Indirect Effect	1,653	\$69	\$144	\$235
Induced Effect	1,022	\$52	\$94	\$163
Total Effect	4,449	\$235	\$353	\$591

Research

Research draws federal, state, and private funding. University research leads to immeasurable scientific discoveries and societal benefits that range from medicine and energy to space and weather. To understand just a slice of the benefits, one could look to licensed technologies in the Venture Partners portfolio, or to the spinoff companies that dot the Colorado landscape. Research expenditures at UCCS in FY2019 totaled \$31.8 million, including faculty and other operating expenditures. These research activities had a \$46 million economic contribution on the state in 2019.

APPENDIX 4: UNIVERSITY OF COLORADO IMPACT ON THE DENVER MSA

The Denver Metropolitan Statistical Area (MSA) recorded 1.5 million employees in 2019 and \$214.2 billion in total output in 2018 (most current data). Funding for university operations and capital spending is by and large nonlocal, resulting in an infusion of investment into the local economy.

Enrollment

In fall 2019, CU Denver enrolled 14,947 students (headcount), 85.2% of whom were Colorado residents and 72.9% of whom were undergraduate students. On a full-time equivalent (FTE) basis, CU Denver enrolled 11,876 students. CU Anschutz enrolled 4,292 students (headcount), 79.6% of whom were Colorado residents and 11.9% of whom were undergraduate students. On an FTE basis, CU Anschutz enrolled 6,038 students.

Alumni

CU Denver (73,786) and CU Anschutz (30,302) accounted for more than 104,000 alumni living in the state of Colorado, including business leaders, policymakers, educators, health care workers, engineers, and others. More than 166,000 alumni from University of Colorado campuses live in the Denver MSA.

Employment and Wages

CU Denver, CU Anschutz, and the system administration employed nearly 16,245 faculty, staff, and students in FY2019. Based on employment records, 95.6% of these employees live in Colorado, with some of the nonresident employment attributable to student workers citing their parents' out-of-state home address. CU Denver, CU Anschutz, and System employees living and working in the Denver MSA totaled 14,194 in FY2019, with an additional 5,311 individuals living in the Denver MSA, but working on other campuses.

Excluding the number of student workers (e.g., work-study recipients), CU Denver, CU Anschutz, and system administration were estimated to employ 13,058 individuals in FY2019. CU Denver had 2,185 employees, CU Anschutz had 10,387 employees, and the system offices accounted for 486 workers. Employment totals are based on a snapshot in the fall.

Nonlabor Operating and Capital Spending

Direct spending (including construction) by the University of Colorado in the Denver MSA totaled \$600 million in FY2019, with \$78.8 million attributable to CU Denver, \$270.8 million to CU Anschutz. University of Colorado System offices are also located in the Denver MSA, recording \$21.9 million in expenditures in the Denver metropolitan region. CU Denver, CU Anschutz, and the system administration made \$896.6 million in purchases in FY2019, 46.2% of which occurred in Colorado.

TABLE 28: UNIVERSITY OF COLORADO SYSTEM VOUCHER AND PURCHASING CARD EXPENDITURES, DENVER MSA, FY2019 (IN MILLIONS)

Campus	Denver MSA
CU Boulder	\$208.0
UCCS	\$20.5
CU Denver	\$78.8
CU Anschutz	\$270.8
System	\$21.9
Total	\$600.0

TABLE 29: CU DENVER, CU ANSCHUTZ, AND SYSTEM VENDOR AND PURCHASING CARD EXPENDITURES, BY LOCATION, FY2019 (IN MILLIONS)

MSA	Spending
Boulder MSA	\$10.8
Colorado Springs MSA	\$3.9
Denver MSA	\$371.5
All Other	\$510.5
Total	\$896.6

Note: Total and All Other includes out-of-state and other in-state purchases.

Construction

Budgeted costs for construction projects as of the end of FY2019 for the Denver campuses were estimated at \$292.2 million in FY2019. The Denver MSA benefits from regional construction spending by the other campuses.

TABLE 30: CU DENVER CURRENT CONSTRUCTION PROJECTS AS OF JUNE 30, 2019 (IN THOUSANDS)

Campus/Project Description	Financing Sources	Value ^a
Fitzsimons Building - 4th floor renovation	Campus cash resources	\$5,624
Business School infill	Campus cash resources and gift	11,179
Central Utility Plant boiler and chiller	Bond proceeds	33,399
Anschutz Health Sciences Building	State, campus cash resources, gift, and debt	242,041

^aValue represents budgeted costs for project in thousands.

Source: University of Colorado 2019 Annual Financial Report (page 19).

Student Spending and Visitors

Based on a biannual survey of students, CU Denver and CU Anschutz recorded \$145.5 million and \$76.3 million, respectively, in nonlocal student and visitor spending in Colorado. This includes nonresident and resident students who indicated that they would have left Colorado had they not attended CU, as well as students' visitors. Spending included rents, groceries, transportation, child care, recreation, health care, and other.

Economic Contribution

CU Denver and the Anschutz Medical Campus had the largest economic contribution on the Denver MSA, but businesses in the metropolitan area also supply goods and services to the other University of Colorado campuses. Additionally, some employees live in the Denver MSA but work on another campus, which creates an economic boost from their household spending. Through research, teaching, operations, construction, student spending, and visitation, the University of Colorado is an economic driver in the Denver MSA, contributing \$5.6 billion to the local economy. The economic contribution of CU Denver on the state of Colorado totaled \$823 million in FY2019, and CU Anschutz's calculated impact was \$3.9 billion.

**TABLE 31: UNIVERSITY OF COLORADO SYSTEM,
IMPACT ON DENVER MSA, FY2019**

Impact	Employment	Labor Income (In Millions)	Value Added (In Millions)	Output (In Millions)
Direct Effect	13,049	\$1,639	\$1,639	\$2,573
Indirect Effect	7,205	\$375	\$687	\$1,234
Induced Effect	10,737	\$591	\$1,063	\$1,778
Total Effect	30,991	\$2,606	\$3,390	\$5,585

**TABLE 32: CU DENVER,
IMPACT ON COLORADO, FY2019**

Impact	Employment	Labor Income (In Millions)	Value Added (In Millions)	Output (In Millions)
Direct Effect	2,179	\$169	\$169	\$264
Indirect Effect	2,219	\$89	\$193	\$321
Induced Effect	1,504	\$76	\$138	\$239
Total Effect	5,901	\$334	\$500	\$823

**TABLE 33: CU ANSCHUTZ,
IMPACT ON COLORADO, FY2019**

Impact	Employment	Labor Income (In Millions)	Value Added (In Millions)	Output (In Millions)
Direct Effect	10,384	\$1,323	\$1,323	\$1,730
Indirect Effect	4,355	\$235	\$371	\$711
Induced Effect	9,048	\$458	\$833	\$1,439
Total Effect	23,787	\$2,016	\$2,527	\$3,880

Research

Research draws federal, state, and private funding. University research leads to immeasurable scientific discoveries and societal benefits that range from medicine and energy to space and weather. To understand just a slice of the benefits, one could look to licensed technologies in the CU Innovations and Venture Partners portfolios, or to the spinoff companies that dot the Colorado landscape. Research expenditures for CU Anschutz and CU Denver in FY2019 totaled \$700.9 million and \$43.4 million, respectively. The economic contribution of these activities on the Colorado economy totaled \$1.2 billion and \$89 million, respectively, from CU Anschutz and CU Denver.

Additional Economic Impacts from the Anschutz Medical Campus

University of Colorado Medicine (CU Medicine) provides administrative and business operations support for clinical healthcare provided at the University of Colorado School of Medicine. CU Medicine reported \$76.9 million in operating expenditures, including \$35.6 million on salaries paid to the 539 employees in FY2019.

The Anschutz Medical Campus is also the location of University of Colorado Hospital (UCH) and Children’s Hospital Colorado (CHCO) with CU Anschutz faculty providing patient care at these facilities. While operations are concentrated on the Anschutz Medical Campus, the economic contribution extends well beyond the Denver MSA and across Colorado. These hospitals on the CU Anschutz Campus collectively reported \$2.1 billion in direct spending in the state, nearly 13,000 employees, and \$775 million in salaries. The economic contribution of these entities is estimated to be \$4.5 billion to the Colorado economy in FY2019.

**TABLE 34: UCH AND CHCO
IMPACT ON COLORADO (DIRECT, INDIRECT, AND INDUCED), FY2019**

Impact	Employment (Direct and Supported)	Labor Income (In Millions)	Value Added (In Millions)	Output (In Millions)
University of Colorado Hospital	14,803	\$928	\$1,294	\$2,380
Children’s Hospital Colorado	12,573	\$841	\$1,173	\$2,158
Anschutz Campus Hospitals Impact	27,376	\$1,770	\$2,468	\$4,538