



**DEPARTMENT OF BUSINESS,  
ECONOMIC DEVELOPMENT & TOURISM**  
KA 'OIHANA HO'OMOHALA PĀ'OIHANA, 'IMI WAIWAI  
A HO'OMĀKA'IKAI

JOSH GREEN, M.D.  
GOVERNOR

SYLVIA LUKE  
LT. GOVERNOR

JAMES KUNANE TOKIOKA  
DIRECTOR

DANE K. WICKER  
DEPUTY DIRECTOR

No. 1 Capitol District Building, 250 South Hotel Street, 5th Floor, Honolulu, Hawaii 96813  
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804  
Web site: [dbedt.hawaii.gov](http://dbedt.hawaii.gov)

Telephone: (808) 586-2355  
Fax: (808) 586-2377

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November 15, 2024

The Honorable Ronald D. Kouchi,  
President and Members  
of the Senate  
Thirty-Third State Legislature  
State Capitol, Room 409  
Honolulu, Hawaii 96813

The Honorable Nadine K. Nakamura,  
Speaker and Members of the  
House of Representatives  
Thirty-Third State Legislature  
State Capitol, Room 431  
Honolulu, Hawaii 96813

Dear President Kouchi, Speaker Nakamura, and Members of the Legislature:

For your information and consideration, I am transmitting a copy of the *Hawaii's Targeted & Emerging Industries, 2024 Update Report*, as required by Sections §201-16 and §201-19, Hawaii Revised Statutes. In accordance with Section 93-16, Hawaii Revised Statutes, I am also informing you that the report may be viewed electronically at: <http://dbedt.hawaii.gov/overview/annual-reports-reports-to-the-legislature/>.

Sincerely,

James Kunane Tokioka  
DBEDT Director

Enclosure

c: Legislative Reference Bureau



STATE OF HAWAII • DEPARTMENT OF BUSINESS,  
ECONOMIC DEVELOPMENT & TOURISM

# Hawai'i's Targeted & Emerging Industries

## *2024 Update Report*



November 2024  
Department of Business, Economic Development & Tourism  
Research and Economic Analysis Division

Following §201-16 and §201-19, Hawai'i Revised Statutes, this publication was produced by the Research and Economic Analysis Division (READ) of the Department of Business, Economic Development & Tourism (DBEDT), State of Hawai'i which is responsible for its content and presentation.

This report was prepared by Dr. Oscar Carvallo Valencia, Economist, under the direction of Dr. Eugene Tian, Division Administrator, and Dr. Joseph Roos, Economic Research Program Manager. Paul Migliorato and Karl Ekroth provided valuable input for this report.

**Hawai'i Department of Business, Economic Development & Tourism**  
**November 2024**

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## GLOSSARY

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**Industry:** a group of companies that operate in a similar way and produce similar goods, services, and sources of income. Industries are defined using six-digit North American Industry Classification System (NAICS Coding System).

**Industry Group:** an aggregation of closely related industries that produce similar goods and services.

**Sector:** concentrations of industry groups related by knowledge, skills, inputs, demand, and/or other inter-linkages.

**Technology Sector:** industry groups where technological change and transformation of production methods are generated at a higher pace than the rest of the regional economy.

**The Creative Sector:** industry groups where the main inputs of production are Hawai'i's unique human capital, cultural diversity, and its host culture, as brand differentiators.

**Education (Private) Sector:** where higher education institutions influence the way by which the state economy acquires, creates, disseminates, and uses knowledge.

**Agribusiness Sector:** industry groups where the main inputs of production are or are in close connection with Hawai'i's lands and bio-diversity.

**Health and Wellness Sector:** industry groups where the main economic activity is the prevention of illness, and the preservation of health of the Hawaiian population.

**Other Industry Groups:** the Apparel and Call Center industry groups, which have been the focus of state programs in the past.

**Concentration:** Proportion of jobs in an economic activity of a region compared to the proportion of the same activity nationally.

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## EXECUTIVE SUMMARY

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In 2009, DBEDT Research and Economic Analysis Division compiled and published a performance review of Hawai‘i’s targeted and emerging (or ‘targeted’) industry portfolio.<sup>1</sup> The portfolio consisted of several dozen economic industry groups that had been suggested, proposed, or actively promoted over the past several decades as potential new growth industries. The review aimed to define those industry groups for measurement purposes better and to find out which had performed best in recent years. This report is the latest update of the 2009 report and covers the 2013-2023 period.

Targeted and emerging industry groups were grouped into four performance categories. *Emerging* industry groups ranked high on performance but had not reached a level of concentration that would suggest a competitive advantage at present. *Base-growth* industry groups rated the highest based on state performance and were more concentrated in Hawai‘i’s economy than the nation overall. Industries in this category had developed a competitive national advantage with potential export capacity. *Transitioning* industry groups in the portfolio were showing growth in jobs over the measurement period (and in some cases impressive growth) but were outperformed by the same economic activity nationally, suggesting that Hawai‘i was losing competitiveness. Finally, *declining* industry groups lost jobs over the measurement period and in most cases (but not all) were less competitive than the nation’s comparable industries. This update report extends the performance measures through 2023.

Table 1 provides an overview of performance among industry groups in the Targeted Industry Portfolio over the 2013-2023 period. In the body of this report, the industry groups will be examined in detail within six major sectors: Technology, Creative, Agribusiness, Health and Wellness, Private Education, and Other Industry Groups. Performance is measured by job growth. The jobs category includes wage and salary jobs, self-employed, and proprietors. Average annual growth rates in this report were calculated mostly using the compound annual growth rate formula.

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<sup>1</sup> *Benchmarking Hawai‘i’s Emerging Industries*, DBEDT, December 2009, [http://dbedt.hawaii.gov/economic/reports\\_studies/emerging-industries/](http://dbedt.hawaii.gov/economic/reports_studies/emerging-industries/)

Table 1. Overall Performance of the Targeted Industry Portfolio

Industry Groups 2/	Jobs in Hawai'i		Avg. Annual Job Growth 2013-2023		Concentration 1/		Avg. Annual Earnings 2023	
	2023	Change 13-23	HI	U.S.	2023	Percentage Point Change 13-23	HI	U.S.
Total Civilian	881,867	62,424	0.7%	1.8%	100.0%	0%	\$69,537	\$72,640
Total Targeted without Overlap	167,423	14,656	0.9%	1.7%	83.6%	2%	\$75,216	\$90,415
<b>Base-Growth</b>								
Aquaculture	446	208	6.5%	2.9%	1422%	513%	\$59,151	\$50,300
<b>Emerging</b>								
Agric. Support Services	2,280	892	5.1%	3.4%	75%	18%	\$64,201	\$68,627
Film, TV, Video Production/Distrib, Cable & Media Streaming	2,247	427	2.1%	1.3%	87%	15%	\$95,551	\$164,200
Hospitals and Nursing Facilities	20,703	1,236	0.6%	0.4%	75%	9%	\$100,550	\$88,737
Specialty Health Care Services	13,360	4,339	4.0%	3.3%	100%	16%	\$75,237	\$59,003
Call Centers	347	76	2.5%	-1.1%	19%	7%	\$29,476	\$55,731
Technology Equipment Distribution	949	197	2.4%	1.9%	37%	5%	\$146,035	\$161,864
<b>Transitioning</b>								
Art Education	876	92	1.1%	2.7%	72%	-4%	\$24,431	\$18,306
Music	1,301	23	0.2%	1.1%	148%	1%	\$37,204	\$51,978
Performing and Creative Arts	9,336	519	0.6%	1.8%	119%	-3%	\$33,167	\$33,200
Architecture	1,964	11	0.1%	1.7%	133%	-9%	\$99,421	\$93,786
Business Consulting	7,184	2,233	3.8%	4.4%	67%	3%	\$77,474	\$101,942
Computer Services and Software Publishers	6,073	1,196	2.2%	4.3%	43%	-5%	\$125,161	\$161,834
Design Services	2,286	221	1.0%	2.3%	98%	-3%	\$38,809	\$55,454
Engineering and Research and Development	6,267	608	1.0%	2.3%	80%	-2%	\$124,486	\$136,472
Marketing, Photography and Related	12,344	1,227	1.1%	2.4%	93%	-3%	\$38,546	\$69,098
Specialty Education	6,561	1,247	2.1%	2.7%	99%	4%	\$36,110	\$35,309
Health Practitioners	26,775	4,601	1.9%	2.3%	105%	6%	\$103,339	\$93,995
Medical Labs and Imaging Centers	1,950	262	1.5%	2.4%	139%	1%	\$83,502	\$92,259
Technical Consulting Services	6,645	2,227	4.2%	4.5%	72%	5%	\$77,459	\$102,720
Computer System Design and Related services	6,792	240	0.4%	3.4%	55%	-12%	\$118,677	\$148,664
Engineering and Related Services	7,118	1,044	1.6%	1.8%	96%	8%	\$119,450	\$117,081
Information and Telecom Technology	5,505	514	1.0%	3.1%	61%	-7%	\$113,405	\$152,682
Medical Labs and Imaging Centers	1,950	262	1.5%	2.4%	139%	1%	\$83,502	\$92,259
Other Technology Mfg	492	29	0.6%	0.9%	9%	1%	\$80,815	\$133,147

Table 1. Overall Performance of the Targeted Industry Portfolio (cont'd)

Industry Groups 2/	Jobs in Hawai'i		Avg. Annual Job Growth 2013-2023		Concentration 1/		Avg. Annual Earnings 2023	
	2023	Change 13-23	HI	U.S.	2023	Percentage Point Change 13-23	HI	U.S.
<b>Declining</b>								
Agric. Inputs	402	-12	-0.3%	0.7%	37%	0%	\$71,953	\$91,187
Agric. Packaging and Warehsg.	212	-51	-2.1%	1.8%	25%	-8%	\$63,481	\$70,400
Agric. Processing	6,316	-625	-0.9%	2.1%	79%	-18%	\$58,387	\$71,314
Farm Production	13,385	-436	-0.3%	0.0%	102%	7%	\$37,448	\$43,378
Fishing, Forestry and Hunting	1,500	-222	-1.4%	-0.9%	349%	16%	\$29,079	\$35,114
Publishing and Information	1,645	-311	-1.7%	-0.5%	63%	-1%	\$71,587	\$138,896
Radio and Television Broadcasting	888	-149	-1.5%	-0.2%	126%	-4%	\$65,925	\$84,906
Cultural Activities	3,208	-131	-0.4%	1.7%	359%	-41%	\$65,423	\$73,504
Higher Education	4,264	-1,713	-3.3%	-0.6%	56%	-11%	\$47,494	\$72,699
Pharmacies	4,745	-80	-0.2%	0.3%	120%	6%	\$42,117	\$49,456
Apparel	936	-355	-3.2%	-2.5%	164%	5%	\$23,069	\$48,678
Alternative Power Generation	277	-48	-1.6%	1.9%	83%	-23%	\$149,124	\$186,027
Biotechnology	392	-216	-4.3%	7.3%	31%	-58%	\$123,214	\$226,730
Chemical and Pharmaceutical Mfg.	90	-62	-5.1%	1.8%	4%	-3%	\$110,125	\$155,916
R&D Services (except Biotechnology)	1,338	-439	-2.8%	2.7%	50%	-28%	\$110,779	\$156,762

Source: Lightcast™ and DBEDT calculation.

1/ Proportion of jobs in the industry group in the region compared to the proportion nationally.

2/ The sum of the individual industry groups is greater than Total Targeted without Overlap since overlaps exist between groups.

Key observations from the updated examination of the portfolio are:

- Hawai'i's total targeted jobs reached 167,423 jobs in 2023, an increase of 14,656 jobs or an average annual growth rate of 0.9% from 2013; Hawai'i's average annual job growth rates were lower than the nation's for both the civilian and targeted industry jobs<sup>2</sup>. The concentration of targeted industries in Hawai'i compared to the nation increased 2 percentage points to 84%. Hawai'i's average annual earnings for both civilian and targeted industries were lower than the nation's comparable industries in 2023.
- Seven Hawai'i industry groups were **high-performing, Emerging or Base-Growth**, with positive job growth combined with average annual job growth rates higher in Hawai'i than the nation for the same activities. Within these industry groups, between 2013 and 2023, Specialty Health Care Services gained the greatest number of jobs at 4,339. The two fastest-growing industry groups were Aquaculture and Agriculture Support Services, with job numbers that increased at an average annual growth rate of 6.5% and 5.1%, respectively. The industry group

<sup>2</sup> Civilian jobs are total jobs in the state or county, minus military jobs (NAICS 910200).



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with the highest concentration compared to the nation was Aquaculture at 1422%. Technology Equipment Distribution had the highest average annual earnings at \$146,035 in 2023.

- Eighteen Hawai‘i industry groups were in the **Transitioning category**. They gained jobs over the 2013-2023 period but did not keep up with national growth for the same industry groups, resulting in a loss of competitive national industry share. However, most of these industry groups still had larger job number gains as a percentage of the workforce than the civilian economy. Between 2013 and 2023, Health Practitioners gained the greatest number of jobs at 4,601; Technical Consulting Services had the highest average annual job growth rate at 4.2%; and the Music industry group concentration compared to the nation’s concentration was the highest at 148%. In 2023, Computer Services and Software Publishers had the highest average annual earnings at \$125,161.
- Fifteen Hawai‘i industry groups in the portfolio were in the **Declining category** as the result of net job losses for the 2013 to 2023 period. Higher Education jobs declined the most at 1,713, and Chemical and Pharmaceutical Manufacturing had the largest average annual job *decline* rate at 5.1%. In 2023, Alternative Power Generation had the highest average annual earnings at \$149,124.

The industry performance measures could be impacted by the period being considered. For example, some Hawai‘i industries in 2023 were still recovering from the COVID-19 pandemic, especially in the Education, Health Care, and Creative sectors. Also, the period 2012-2013 was one of economic expansion, with some sectors experiencing rapid expansion. This could create a base year effect affecting the classification of industry groups over the 2013–2023 window. These effects could be important for sectors with smaller job numbers.

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## INTRODUCTION

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In 2009, DBEDT Research and Economic Analysis Division reviewed the range of economic activities that have been suggested over the years as candidates for diversifying the state's economy. The 2009 report sought to improve the definition of the various industrial sectors that had been targeted for promotion in a way that would permit their performance to be measured. The result of the review was the construction of a targeted industry portfolio of around three dozen industry groups, and performance measures for 2002 to 2008.

These denominated targeted sectors have evolved to include at the present the technological, health and wellness, higher (private) education, agribusiness, and creative sectors. This is the 15th report that updates, which review of targeted industry performance at the state level from 2013 to 2023.

### **Defining Targeted and Emerging Industries**

Act 148 (2007) directed DBEDT to identify and measure systematically the performance of *emerging* industries in Hawai'i's economy. For the first report in 2009, more than a dozen major studies, reports, and efforts were reviewed to construct a list of sectors, industries, and industry groups that have been of interest over the last several decades. The industry groups were then defined for measurement purposes, and criteria were established to identify those that could justifiably be called *emerging* industries.

For this report, the term "targeted" simply means that at some point in the past an economic activity was of interest for its potential contribution to productivity growth and diversification by agencies, organizations, or stakeholders. These ranged from industry groups that had simply been suggested as having potential, to industries that had been actively pursued with public resources for their growth potential, like Biotechnology and the Film/TV industry.

Even if it appeared that an industry group was no longer of significant development interest, it was still included in the portfolio. The portfolio was made broadly inclusive and detailed so that many specific industry groups could be assessed for their contribution to economic growth and diversification over the years. Some industry groups in the portfolio will show exceptional performance and others will show relatively poor performance over the periods measured. This range permits us to focus on weaknesses in the portfolio as well as strengths.

We define these sectors as follows:

**Technology Sector:** industry groups where technological change and transformation of production methods are generated at a higher pace than the rest of the regional economy.

**Creative Sector:** industry groups where the main inputs of production are Hawai'i's unique human capital, cultural diversity, and its host culture, as brand differentiators.

**Education (Private) Sector:** where higher education institutions influence the way by which the state economy acquires, creates, disseminates, and uses knowledge.

**Agribusiness Sector:** industry groups where the main inputs of production are or are in close connection with Hawai'i's lands and bio-diversity.

**Health and Wellness:** industry groups where the main economic activity is the prevention of illness, and the preservation of health of the Hawaiian population.

**Other Industry Groups:** the Apparel and Call Center industry groups, have been a focus of state programs in the past.

This report's data collection starts at the level of Industries, which are a group of companies that operate in a similar way and produce similar goods, services, and sources of income. Industries are defined using six-digit North American Industry Classification System (NAICS Coding System).

Industry Groups are aggregations of closely related industries that produce similar goods and services. Sectors are concentrations of industry groups related by knowledge, skills, inputs, demand, and/or other inter-linkages. Table 2 lists our industry groups associated with each sector. Appendix A shows the complete hierarchical classification of industries into industry groups and sectors<sup>3</sup>.

Table 2. Targeted Industry Portfolio (Sectors/Industry Groups)

<b>Technology Sector</b>	<b>Agribusiness Sector</b>
Alternative Power Generation	Agriculture Inputs
Biotechnology	Agriculture Packaging and Warehousing
Chemical and Pharmaceutical Manufacturing	Agriculture Processing
Computer System Design and Related Services	Agriculture Support Services
Engineering and Related Services	Farm Production
Information and Telecom Technology	Fishing, Forestry and Hunting
Medical Labs and Imaging Centers*	Aquaculture
Other Technology Manufacturing	<b>Health and Wellness Sector</b>
R&D Services (except Biotechnology)	Health Practitioners
Technical Consulting Services	Hospitals and Nursing Facilities
Technology Equipment Distribution	Medical Labs and Imaging Centers*
<b>Creative Sector</b>	Pharmacies
Architecture	Specialty Health Care Services
Art Education	<b>Education (Private) Sector</b>
Business Consulting	Higher Education
Computer Services and Software Publishers	Specialty Education
Cultural Activities	<b>Other Targeted Activities Sector</b>
Design Services	Apparel
Engineering and Research and Development	Call Centers
Film, TV, Video Production/Distribution, Cable and Media Streaming	
Marketing, Photography and Related	
Music	
Performing and Creative Arts	
Publishing and Information	
Radio and Television Broadcasting	

\*Medical Labs and Imaging Centers industry group is fully represented in both the Technology and the Health and Wellness sectors  
Source: DBEDT.

<sup>3</sup> In Appendix A, the industry Group Abbreviations are CS - Creative sector; TS - Technology sector; AG - Agribusiness; HW - Health and Wellness; ED - Higher (Private) Education; OT - Apparel or Call Centers.

## Measuring Targeted Industry Groups

One of the key performance measures is the change in job numbers over time. While most industries, industry groups or sectors show some decline in a recession, we would expect promising economic activities to show a net increase in jobs over the entire business cycle. The job growth rate for each portfolio economic activity, relative to the rest of the state, has important implications for diversifying the state's economy. Industry groups that grow faster than the overall state economy could help increase economic diversification.<sup>4</sup>

Another performance measure is Hawai'i's competitiveness and the concentration of industry groups or sectors compared to the nation overall. If the respective industry group or sector is growing faster in Hawai'i than in the nation, it suggests that the state has a competitive advantage in this industry group or sector. Likewise, if the industry group or sector has a greater employment concentration in the state than the nation (as measured by the percentage of total jobs), it is likely an industry group or sector in which Hawai'i has a competitive advantage. A higher concentration (as measured by the percentage of total jobs) also suggests that the economic activity has matured to the point that it has the potential for exporting a portion of its output directly or indirectly.<sup>5</sup>

The average annual earnings for workers in each industry group or sector were also examined. Higher average annual earnings generally come from high-quality jobs. A relatively higher average earning suggests that the economic activity is creating high-quality jobs that can help keep Hawai'i's highly educated youth in the state.

By combining these performance measures, we attempt to classify the portfolio's industry groups and sectors into four performance categories, as shown in Table 3. A well-known framework in economic development research is the industry life cycle model. This model breaks down industries in the economy into four generalized stages. The first stage of the life cycle is usually called the emerging stage of an industry group or sector. This characterizes relatively new and rapidly growing economic activities that usually serve new markets inside or outside the local economy.

The second stage identifies base-growth industry groups or sectors that have passed through the emerging stage and have become strong, competitive sources of economic growth in the economy.

As base-growth industry groups mature, they reach their full market potential and growth slows, this represents the transition stage. In this state, most activities are relatively healthy but have slowed and have become less competitive over time.

Declining industry groups or sectors lose jobs over time and shrink as a proportion of the economy. If an industry is unable to reinvent itself with new products and markets, it will continue to decline.

Not all industries, industry groups or sectors' evolution will fit nicely into the model, especially over short periods. Some activities may emerge but never rise to the level moving from weakly emerging to the transitioning or declining stage or moving back and forth among the different stages over time. Likewise, an activity that has slowed from a base-growth to a transitioning industry group or sector may have a revival and move back to base-growth status. In the short term, business cycle fluctuations impact the forward and backward movements of the activity life cycle. In the long term, the model should provide a fairly accurate picture of the performance of industry groups and




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<sup>4</sup> Average annual growth rates in this report were calculated using the compound annual growth rate.

<sup>5</sup> The local concentration of an industry or group compared to national concentration of the same industry or group is also known as "location quotient." However, in this report we will use the term concentration.

sectors. In 2023, Hawai‘i’s economy was still recovering from the COVID-19 pandemic, which impacted industrial performance and placement.

Table 3. Performance Map Criteria (Industry Life Cycle)

<i>Emerging Activities</i>		<i>Base-Growth Activities</i>
Positive job growth. Lower concentration in Hawai‘i than nationally. However, Increasing competitive national industry share.		Positive job growth, and Higher concentration in Hawai‘i than nationally, and Faster job growth than nationally with growing concentration.
		
<i>Declining Activities</i>		<i>Transitioning Activities</i>
Negative job growth.		Positive job growth, but Losing competitive national industry share.

## Data Sources

Jobs and earnings reported in this report include wage and salary jobs, self-employed, and proprietors. The data were obtained via a subscription to the databases of Lightcast™. This database uses data from the U.S. Bureau of Labor Statistics, the U.S. Bureau of Economic Analysis, and other data sources to construct very detailed industry data series regarding jobs, occupations, and earnings for the states and counties.

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## TECHNOLOGY SECTOR

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In 2008, DBEDT, the Hawai‘i Science and Technology Association (HiSciTech) and other stakeholders updated the definition of the technology sector for Hawai‘i and established baseline measurements.<sup>6</sup> Their common research project adopted the definition of technology established by the U.S. Bureau of Labor Statistics (BLS).<sup>7</sup> The BLS approach classifies industries as being in the technology sector based on the proportion of highly trained technical workers in the industries. Our 2022 Targeted & Emerging Industries update report adjusted the earlier definition by using the 2022 NAICS codes. In the current update report 2024, we maintain these adjusted NAICS code definitions.

### Size & Growth

The overall technology sector accounted for 31,549 jobs in 2023 or 3.6% of all civilian jobs in Hawai‘i. From 2013 to 2023, the technology sector had an average annual job growth rate of 1.3%, 0.6 of a percentage point higher than the state’s civilian economy’s rate.

Post-pandemic, the sector has shown positive annual growth rates. In 2023, the technology sector grew by 2.4%, compared with 2.5% for the state’s civilian economy rate (Figure 1). By 2023, the total number of jobs represented 114% of the total number in 2019. All industries composing the sector have similarly recovered from the 2019 levels.

For the 2013-2023 period, Technical Consulting Services had the strongest average annual job growth rate among the technology industry groups (4.2%), followed by Technology Equipment Distribution (2.4%). Other industry groups in the technology sector with positive job growth over the 2013-2023 period were Engineering and Related Services (1.6%), Medical Labs and Imaging Centers (1.5%), Information and Telecom Technology (1.0%), Other Technology and Manufacturing (0.6%), and Computer System Design and Related Services (0.4%).

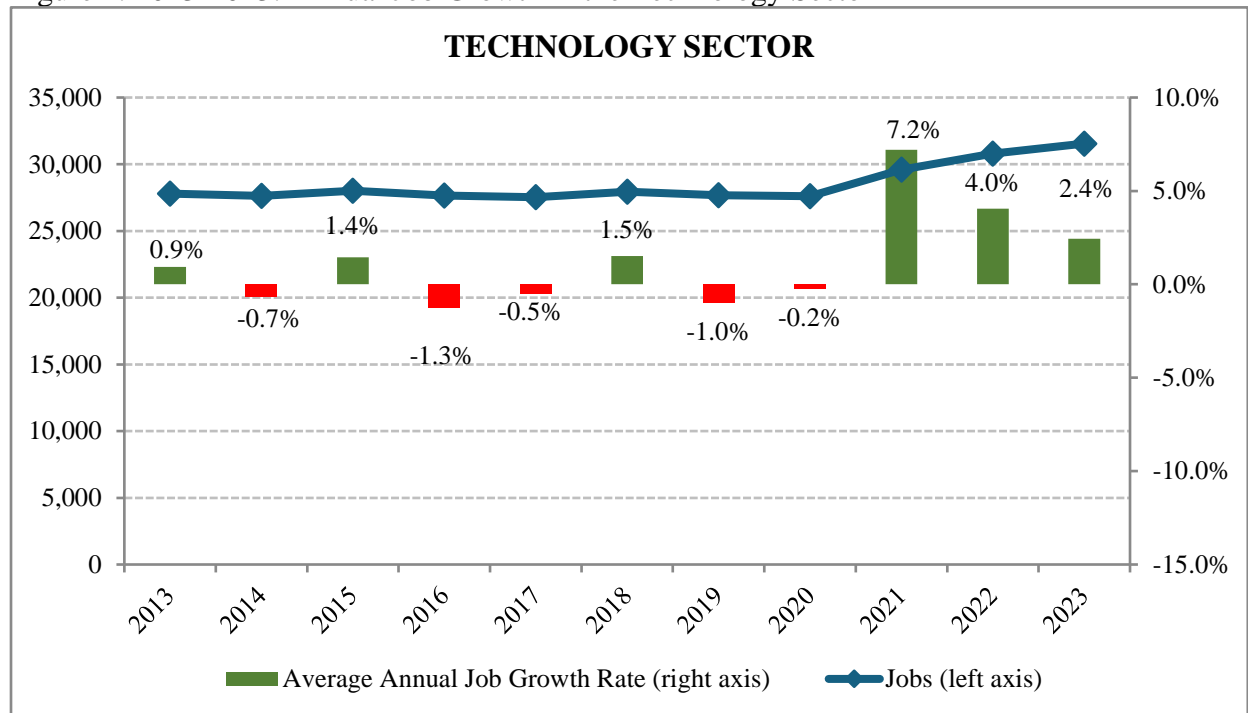
The four technology industry groups that lost jobs during the 2013-2023 period were Alternative Power Generation (-1.6%), R&D Services (except Biotechnology) (-2.8%), Biotechnology (-4.3), and Chemical and Pharmaceutical Manufacturing (-5.1%) (see Table 4).

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<sup>6</sup> Hawai‘i Science & Technology Institute, *Innovation and Technology in Hawai‘i: An Economic and Workforce Profile*, October 2008. [Innovation and Technology in Hawaii: An Economic and Workforce Profile](#).

<sup>7</sup> Currently, there is no official or universally agreed upon definition for the technology sector.

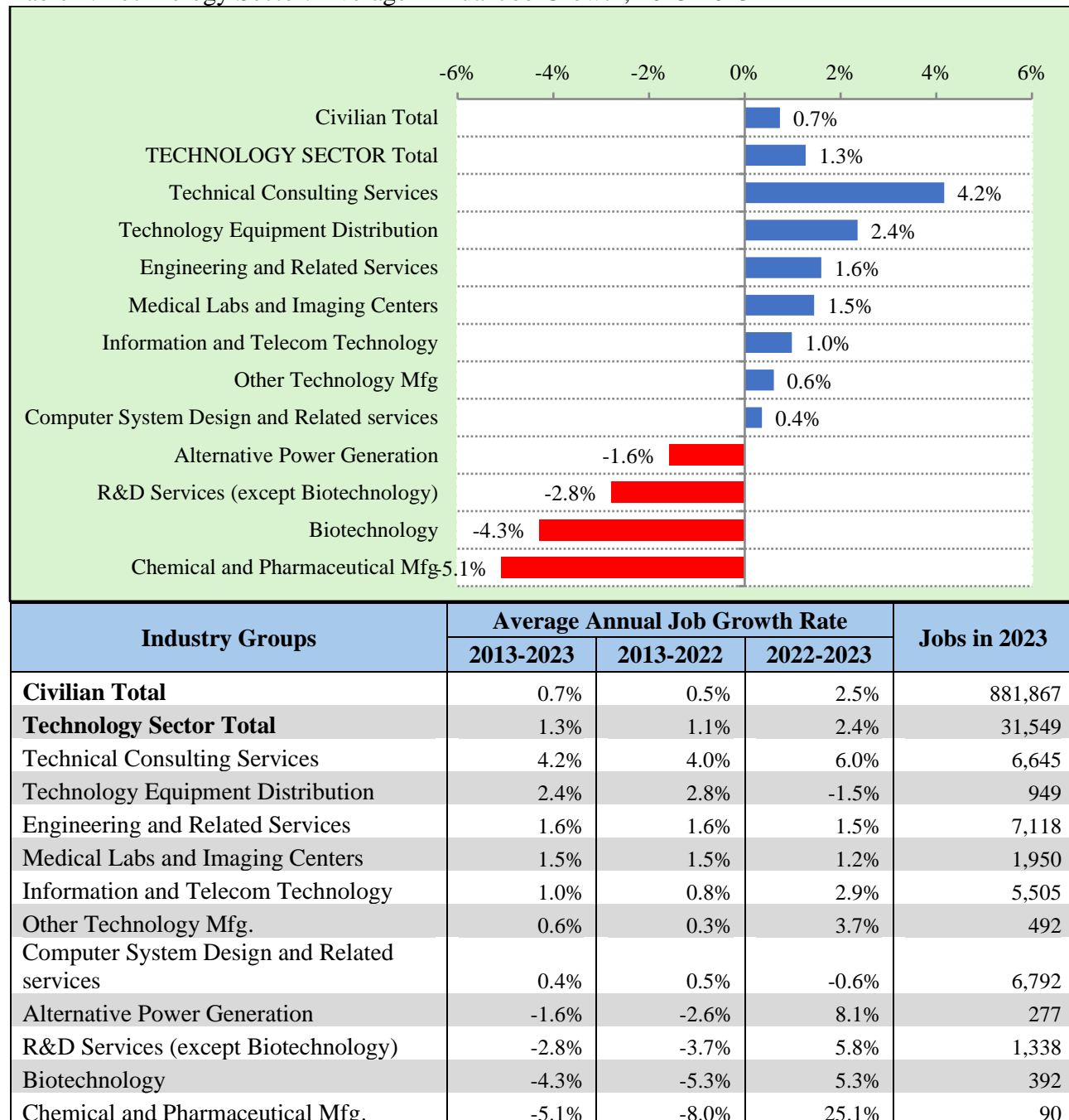
Figure 1. 2013-2023: Annual Job Growth in the Technology Sector



Source: Lightcast™ and DBEDT calculation.

The technology sector’s average annual job growth rate was 0.6 of a percentage point above the state’s civilian economy’s rate over the 2013 to 2023 period, 0.6 of a percentage point above the state’s civilian economy’s rate over the 2013 to 2022 period, and 0.1 of a percentage point below the state’s civilian economy’s rate over the 2022 to 2023 period.

Table 4. Technology Sector: Average Annual Job Growth, 2013-2023



Source: Lightcast™ and DBEDT calculation.

## Competitive Metrics

The sixth column of Table 5 shows the average annual job growth rate difference between Hawai‘i and the nation for the technology sector and its industry groups. Over the 2013-2023 period, Hawai‘i’s technology sector’s growth rate was 1.6 percentage points below the national rate. For industry groups, only the local Technology Equipment Distribution’s rate outperformed the nation’s comparable industry rate by 0.5 of a percentage point; and all other industry groups in the Technology sector lost competitive share compared to the nation, with Biotechnology at 11.6 percentage points below the national rate.



Table 5. Hawai'i Technology Sector Performance Compared with Nation

Industry Groups	Jobs 2023	Jobs per Establishment 2023	Avg. Annual Earnings 2023	Avg. Ann Job Growth		When U.S. = 100%		
				2013-2023	Above USA	Concentration 1/	Jobs per Establishment	Avg. Annual Earnings
<b>Total Civilian</b>	881,867	15.5	\$69,537	0.7%	-1.0%	100%	85%	96%
<b>Technology Sector</b>	<b>31,549</b>	<b>7.2</b>	<b>\$107,272</b>	<b>1.3%</b>	<b>-1.6%</b>	<b>58%</b>	<b>63%</b>	<b>78%</b>
Alternative Power Generation	277	8.7	\$149,124	-1.6%	-3.5%	83%	46%	80%
Technical Consulting Services	6,645	9.9	\$77,459	4.2%	-0.3%	72%	110%	75%
Technology Equipment Distribution	949	4.7	\$146,035	2.4%	0.5%	37%	43%	90%
Biotechnology	392	5.8	\$123,214	-4.3%	-11.6%	31%	38%	54%
Chemical and Pharmaceutical Mfg.	90	7.0	\$110,125	-5.1%	-6.9%	4%	15%	71%
Computer System Design and Related services	6,792	5.1	\$118,677	0.4%	-3.0%	55%	68%	80%
Engineering and Related Services	7,118	8.7	\$119,450	1.6%	-0.2%	96%	69%	102%
Information and Telecom Technology	5,505	5.8	\$113,405	1.0%	-2.1%	61%	45%	74%
Medical Labs and Imaging Centers	1,950	27.9	\$83,502	1.5%	-0.9%	139%	242%	91%
Other Technology Mfg.	492	12.5	\$80,815	0.6%	-0.2%	9%	28%	61%
R&D Services (except Biotechnology)	1,338	7.4	\$110,779	-2.8%	-5.5%	50%	35%	71%

1/ Proportion of jobs in the industry groups in the region compared to the proportion nationally.

Source: Lightcast™ and DBEDT calculation.

In terms of concentration, most of Hawai'i's technology industry groups are still a relatively small percentage of Hawai'i's total economy, compared with the nation's technology industry groups. In 2023, Hawai'i's concentration of the state's workforce in technology was 58% compared to the concentration nationally. One noteworthy exception is Medical Labs and Imaging Centers, which was 39% more concentrated in Hawai'i than the nation overall.

In 2023, Hawai'i's technology sector average annual earnings of \$107,272 were 54% higher than Hawai'i's civilian economy average of \$69,537. The average annual earnings of all eleven technology industry groups exceeded the average for Hawai'i's civilian economy. Engineering and Related Services average annual earnings exceeded the nation's comparable industry average by 2 percentage points. However, workers in most Hawai'i technology sector groups were not paid as much as the U.S. average for the same industry groups. The average annual earnings in Hawai'i's technology sector were only 78% of the average paid nationally. The largest earnings gaps between Hawai'i and the U.S. were found in Biotechnology and Other Technology Manufacturing.

## Overall Performance

By combining the growth and competitive measures, the technology industry groups can be placed in performance categories, as seen in Table 6.

Only one technology industry group, Technology Equipment Distribution, was in the high-performing Base-Growth or Emerging categories, by showing job growth and outperforming its national comparable industry. The only difference between the Base-Growth and Emerging categories is their level of concentration in the state's economy. Base-Growth industry groups have reached or exceeded national concentrations, while the Emerging industry groups have yet to reach national concentration levels. Beyond that, both categories are defined by positive and competitive growth in jobs.

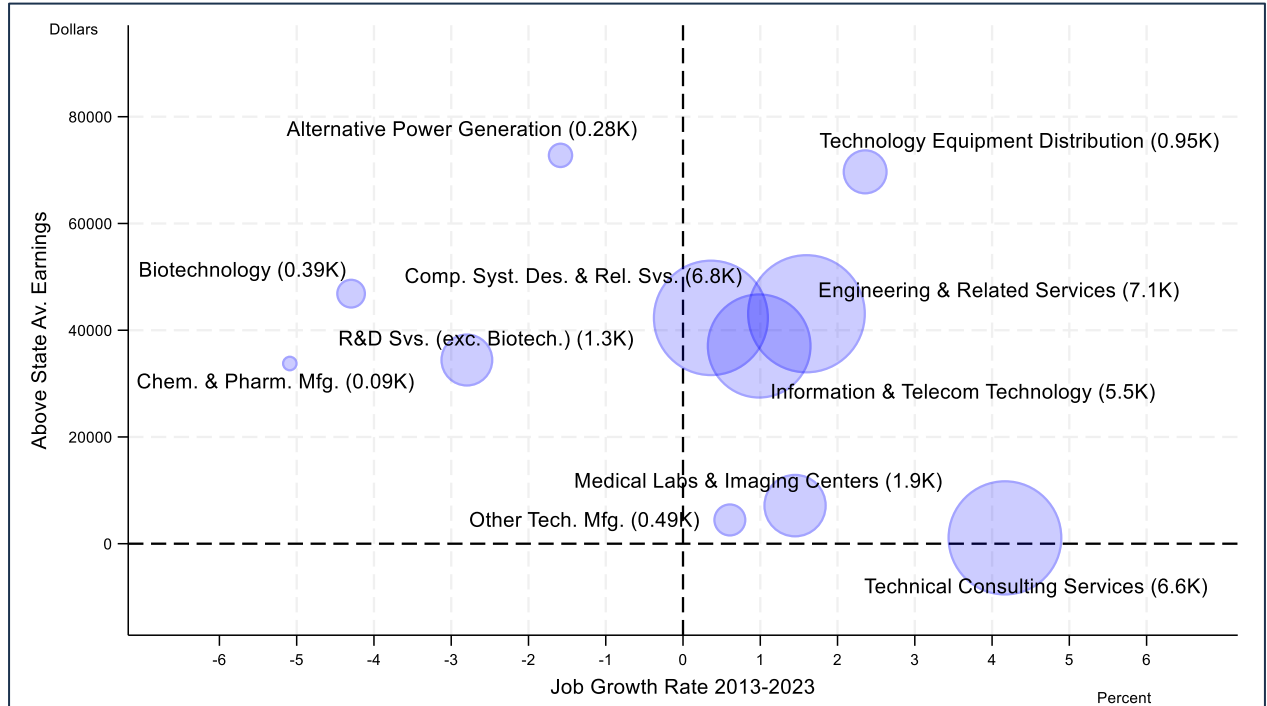
Six groups in the technology sector were in the Transitioning category for the 2013-2023 period: Technical Consulting Services, Computer System Design and Related Services, Engineering and Related Services, Other Technology Manufacturing, Information and Telecom Technology, and Medical Labs and Imaging Centers. While job growth was positive in these industry groups, they still lost some competitive share to the national industry groups.

Alternative Power Generation, Biotechnology, Chemical and Pharmaceutical Manufacturing, and R&D Services (except Biotechnology) were in the Declining category due to job losses during the period. These industry groups also lost more jobs proportionately than the same activity nationally, resulting in the loss of competitive share to the U.S. economy.

Table 6 also shows the relative importance of different industries in terms of size (job numbers) and earnings. Technology Equipment Distribution is an emerging industry group within the sector, with above-state-average earnings. However, it is less important in terms of size. Three transitioning industry groups are important in terms of size and earnings: Computer System Design and Related Services, Engineering and Related Services, and Information and Telecom Technology.

Two relatively important sectors in terms of job growth and relative size are Technical Consulting Services and Medical Labs & Imaging Centers. But average earnings in these two industry groups are among the lowest in the sector.

Table 6. Performance Map Criteria for the Technology Sector



Note: Bubble sizes are a relative comparison of the number of jobs within the sector.

Emerging Industry Groups	Base-Growth Industry Groups
Technology Equipment Distribution	
Declining Industry Groups	Transitioning Industry Groups
Alternative Power Generation	Technical Consulting Services
Biotechnology	Computer System Design and Related Services
R&D Services (except Biotechnology)	Engineering and Related Services
Chemical and Pharmaceutical Manufacturing	Information and Telecom Technology
	Medical Labs and Imaging Centers
	Other Technology Manufacturing

Source: Lightcast™ and DBEDT calculation.

## CREATIVE SECTOR

The DBEDT Research and Economic Analysis, and Creative Industries Divisions collaborated on an update of data and industry definitions for the Creative Sector, based on a review of models nationally.<sup>8</sup>

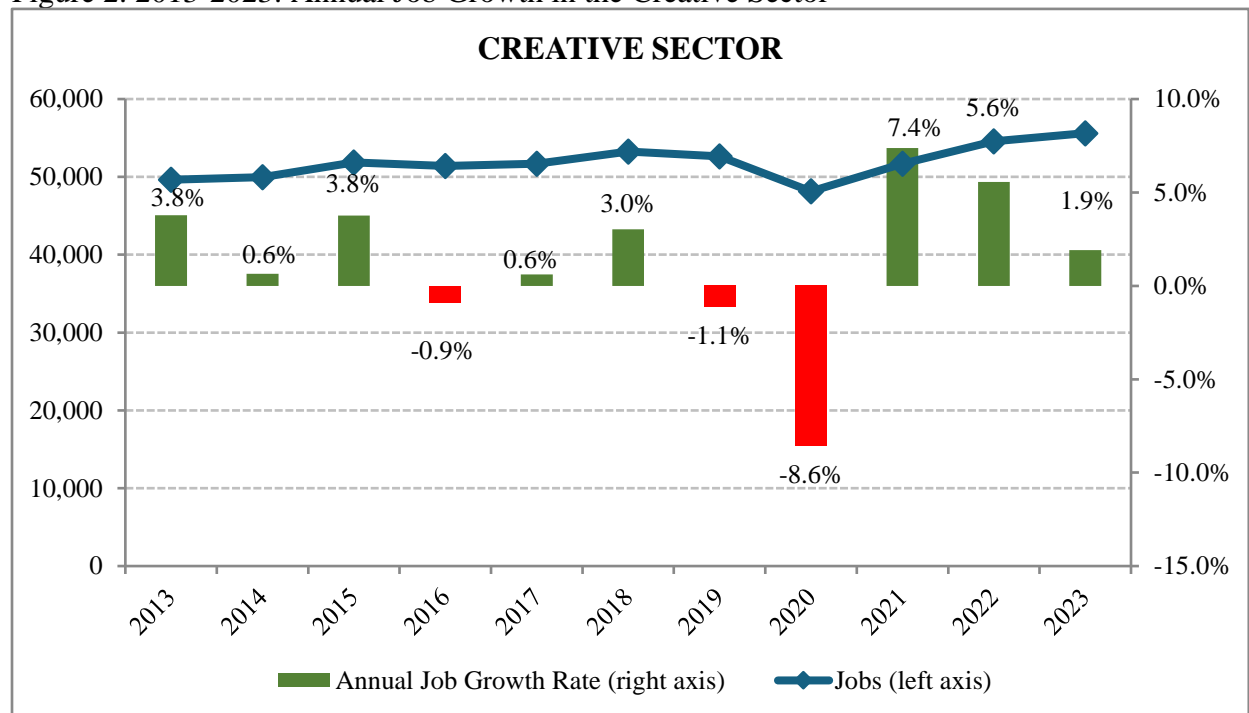
### Size & Growth

The thirteen creative industry groups accounted for an estimated 55,619 jobs in 2023, about 6.3% of all civilian jobs in Hawai‘i. Marketing, Photography and Related, Performing and Creative Arts, and Business Consulting were the three largest industry groups in the sector and together accounted for about 52% of jobs in the sector in 2023. The remaining ten industry groups accounted for 26,755 jobs.

From 2013 to 2023, the creative sector had an average annual job growth rate of 1.1%, 0.4 percentage point higher than the state’s civilian economy’s rate.

In the post-pandemic period, the sector has shown positive annual growth rates (Figure 2). By 2023, the total number of jobs represented 105.6% of the total number in 2019. In 2023, the creative sector grew by 1.9%, compared with 2.5% for the state’s civilian economy rate. The recovery performance of all industries constituting the sector has been uneven. The seven industry groups Film, TV, Video Production/Distribution, Cable & Media Streaming, Art Education, Music, Performing and Creative Arts, Cultural Activities, and Radio and Television Broadcasting have not recovered to their 2019 levels.

Figure 2. 2013-2023: Annual Job Growth in the Creative Sector



Source: Lightcast™ and DBEDT calculation.

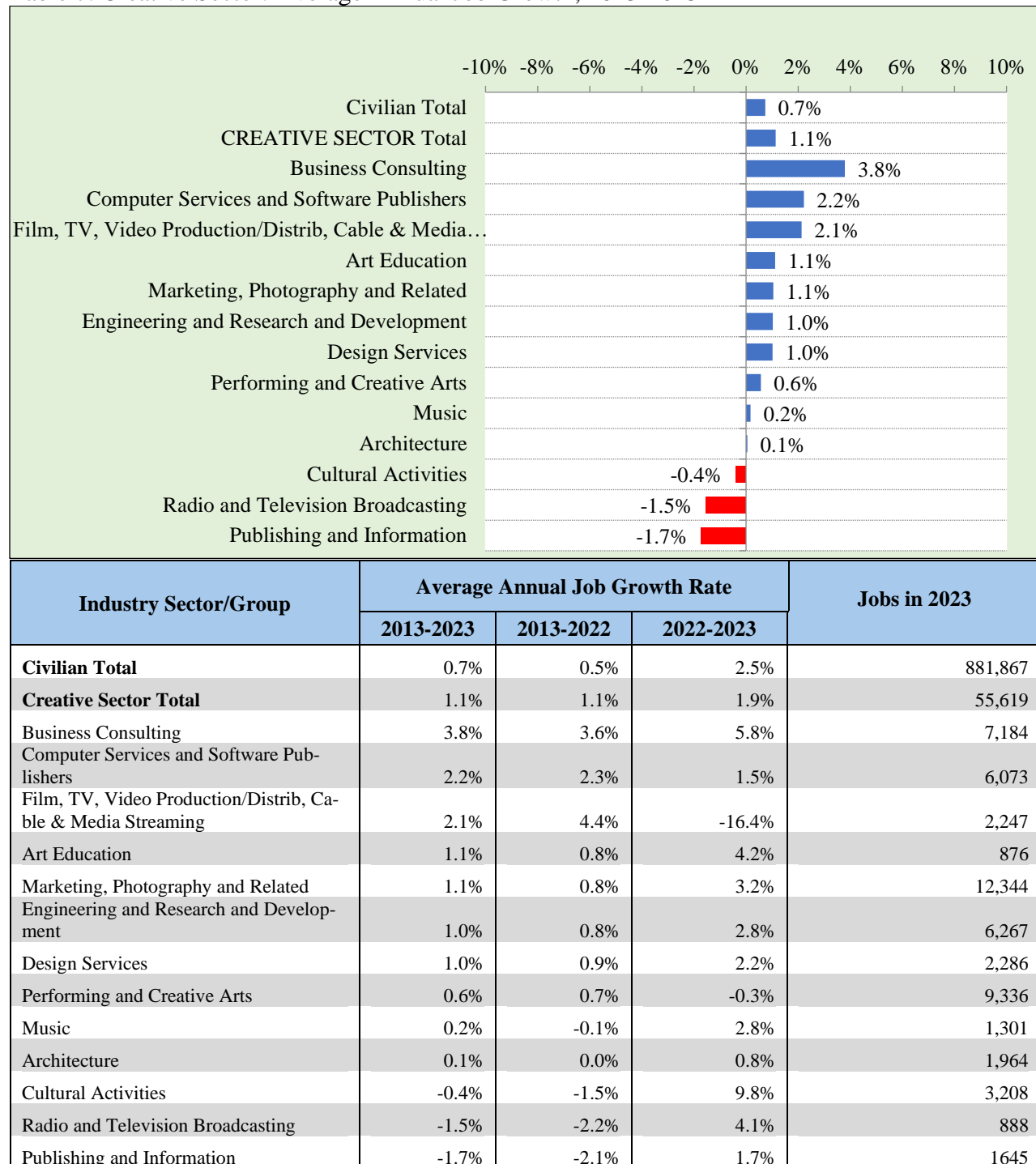
<sup>8</sup> DBEDT, *Hawai‘i’s Creative Industries: Update Report 2010*, June 2010. [http://dbedt.hawaii.gov/economic/reports\\_studies/hawaii-creative-report/](http://dbedt.hawaii.gov/economic/reports_studies/hawaii-creative-report/)

As seen in Table 7, the creative sector's average annual job growth rate was 0.4 of a percentage point above the state's civilian economy's rate over the 2013-2023 period, 0.6 of a percentage point above the state's civilian economy's rate over the 2013- 2022 period, and 0.6 of a percentage point below the state's civilian economy's rate over the 2022- 2023 period.

Business Consulting, Computer Services and Software Publishing, and Film, TV, Video Production/Distribution had the highest average annual job growth rate over the 2013-2023 period, at 3.8%, 2.2%, and 2.1%, respectively.

Three industry groups in the sector, Publishing and Information, Radio/TV Broadcasting, and Cultural Activities, failed to gain jobs over the 2013-2023 period, with job declines of 1.7%, 1.5%, and 0.4%, respectively.

Table 7. Creative Sector: Average Annual Job Growth, 2013-2023



Source: Lightcast™ and DBEDT calculation.

## Competitive Metrics

As shown in Table 8, all but one industry group in the creative sector lost competitive share to the U.S. economy over the 2013- 2023 period. The industry group Film, TV, Video Production/Distribution, Cable and Media Streaming outperformed its national comparable industry during this period.

Several creative industry groups have levels of concentration in the state's economy that exceed national levels. Cultural Activities are more than three times as concentrated in Hawai'i than nationally. Music, Architecture, Performing and Creative Arts, and Radio and Television Broadcasting also exceed national concentrations. In contrast, some business and technology-oriented industry groups in the sector, such as Business Consulting, Computer Services and Software Publishers, and Publishing and Information, show a much lower concentration in Hawai'i than in the same industries nationally.

In 2023, Hawai'i's creative sector average annual earnings, at \$68,987, were lower than the state's civilian economy's, at \$69,537. Also, the sector's average annual earnings were only 67% of the national average for the same industry groups. The lower average annual earnings in Hawai'i were found in both technology-oriented and artistic-oriented industry groups in the sector. Among the thirteen industry groups in the creative sector, only workers in Architecture and Art Education were paid more on average in Hawai'i than the nation overall. The industry groups that showed significant earnings gaps between Hawai'i and the U.S. included Publishing and Information, Marketing/Photography and Related, and Film, TV, Video Production/Distribution, Cable and Media Streaming.

Table 8. Hawai'i's Creative Sector Performance Compared with the Nation

Industry Groups	Jobs 2023	Jobs per Estab-lish-ments 2023	Avg. Annual Earnings 2023	Avg. Ann Job Growth		When U.S. = 100%		
				2013-2023	Above USA	Con-centration 1/	Jobs per Estab-lishment	Avg. Annual Earn-ings
<b>Total Civilian</b>	881,867	15.5	\$69,537	0.7%	-1.0%	100%	85%	96%
<b>Creative Sector</b>	<b>55,619</b>	<b>10.4</b>	<b>\$68,987</b>	<b>1.1%</b>	<b>-1.6%</b>	<b>84%</b>	<b>92%</b>	<b>67%</b>
Art Education	876	11.0	\$24,431	1.1%	-1.6%	72%	57%	133%
Music	1,301	17.7	\$37,204	0.2%	-1.0%	148%	122%	72%
Performing and Creative Arts	9,336	25.4	\$33,167	0.6%	-1.2%	119%	89%	100%
Publishing and Information	1,645	10.6	\$71,587	-1.7%	-1.2%	63%	75%	52%
Radio and Television Broad-casting	888	22.8	\$65,925	-1.5%	-1.3%	126%	78%	78%
Architecture	1,964	8.6	\$99,421	0.1%	-1.7%	133%	86%	106%
Business Consulting	7,184	9.3	\$77,474	3.8%	-0.6%	67%	107%	76%
Computer Services and Soft-ware Publishers	6,073	3.9	\$125,161	2.2%	-2.1%	43%	52%	77%
Cultural Activities	3,208	28.0	\$65,423	-0.4%	-2.1%	359%	233%	89%
Design Services	2,286	11.8	\$38,809	1.0%	-1.3%	98%	105%	70%
Engineering and Research and Development	6,267	8.6	\$124,486	1.0%	-1.2%	80%	57%	91%
Film, TV, Video Produc-tion/Distrib, Cable & Media Streaming	2,247	9.6	\$95,551	2.1%	0.9%	87%	70%	58%
Marketing, Photography and Related	12,344	14.9	\$38,546	1.1%	-1.4%	93%	117%	56%

1/ Proportion of jobs in the industry groups in the region compared to the proportion nationally.

Source: Lightcast™ and DBEDT calculation.

## Overall Performance

As seen in the performance categories in Table 9, only one industry group (Film, TV, Video Production/Distribution, Cable and Media Streaming) was rated as emerging for growth and competitiveness.

Nine other industry groups (Marketing, Photography and Related, Performing and Creative Arts, Business Consulting, Engineering and Research and Development, Computer Services and Software Publishers, Design Services, Music, Architecture, and Art Education) increased jobs over the period. However, these groups lost competitive share compared to the performance of the same industry groups nationally over the 2013- 2023 period. Therefore, those industry groups are classified as Transitioning industry groups.

Cultural Activities, Radio and Television Broadcasting, and Publishing and Information were in the Declining performance group. All lost jobs over the 2013-2023 period.

Two industry groups, Engineering and Research and Development and Computer Services and Software Publishers, are important in terms of both size and earnings. On the other hand, the two largest industry groups in the creative sector, Marketing, Photography and Related, Performing and Creative Arts, have average earnings below the State average earnings.



Table 9. Performance Map Criteria for the Creative Sector



Emerging Industry Groups	Base-Growth Industry Groups
Film, TV, Video Production/Distribution, Cable and Media Streaming	
Declining Industry Groups	Transitioning Industry Groups
Cultural Activities Publishing and Information Radio and Television Broadcasting	Marketing, Photography and Related Performing and Creative Arts Business Consulting Engineering and Research and Development Computer Services and Software Publishers Design Services Music Art Education Architecture

Source: Lightcast™ and DBEDT calculation.

## AGRIBUSINESS SECTOR

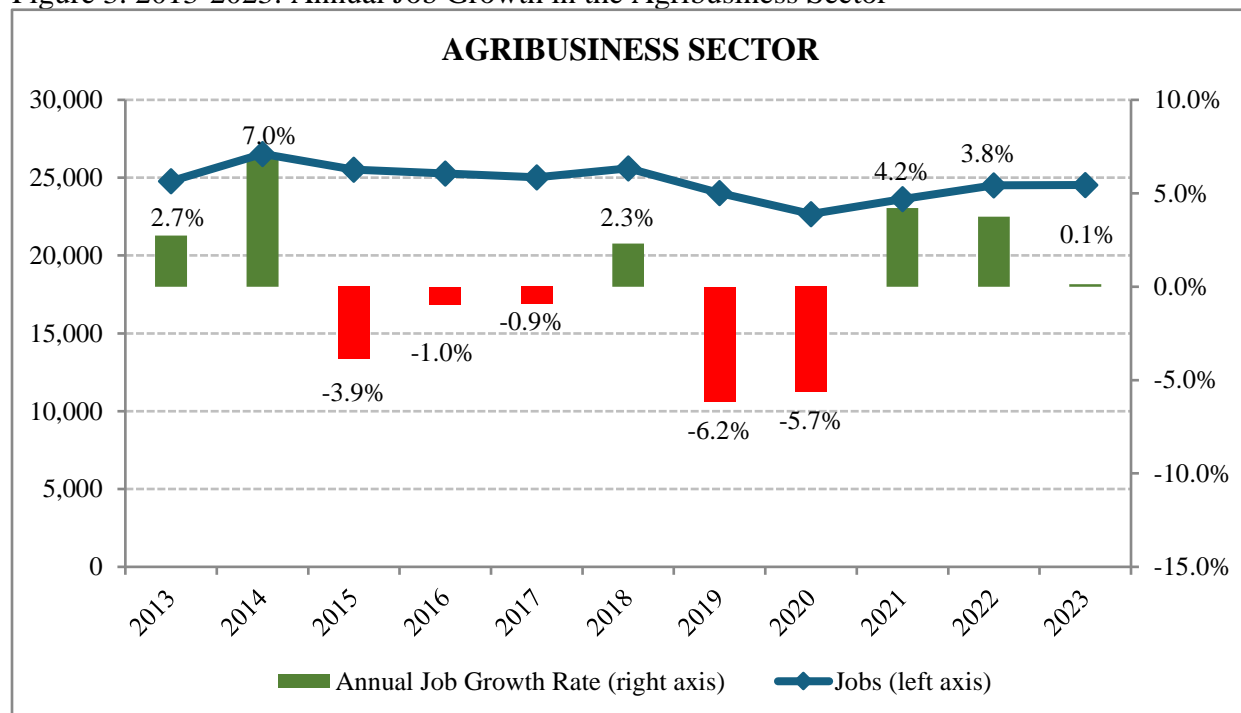
In 2023, 24,542 Agribusiness jobs were found in a range of inter-related industry groups that support the core farm sector. Most of the agribusiness jobs are in Farm Production (56%). The second largest industry group in the sector was Agricultural Processing, accounting for 27% of the sector's jobs.

### Size & Growth

The agribusiness sector had an average annual job *decline* rate of 0.1% from 2013 to 2023. Five of the seven Agribusiness industry groups lost jobs over the period, whereas job gains were recorded in the Aquaculture and Agricultural Support Services groups. The largest industry group in the agribusiness sector, Farm Production, had an average annual job *decline* rate of 0.3% over the period.

In the post-pandemic period, the sector has shown positive annual growth rates. In 2023, the Agribusiness sector grew by 0.1%, compared with 2.5% for the state's civilian economy rate (Figure 3). By 2023, the total number of jobs represented 102.1% of the total number in 2019. The recovery performance of all industry groups composing the sector has been uneven. The industry groups Agricultural Processing and Agricultural Processing have not recovered to 2019 levels.

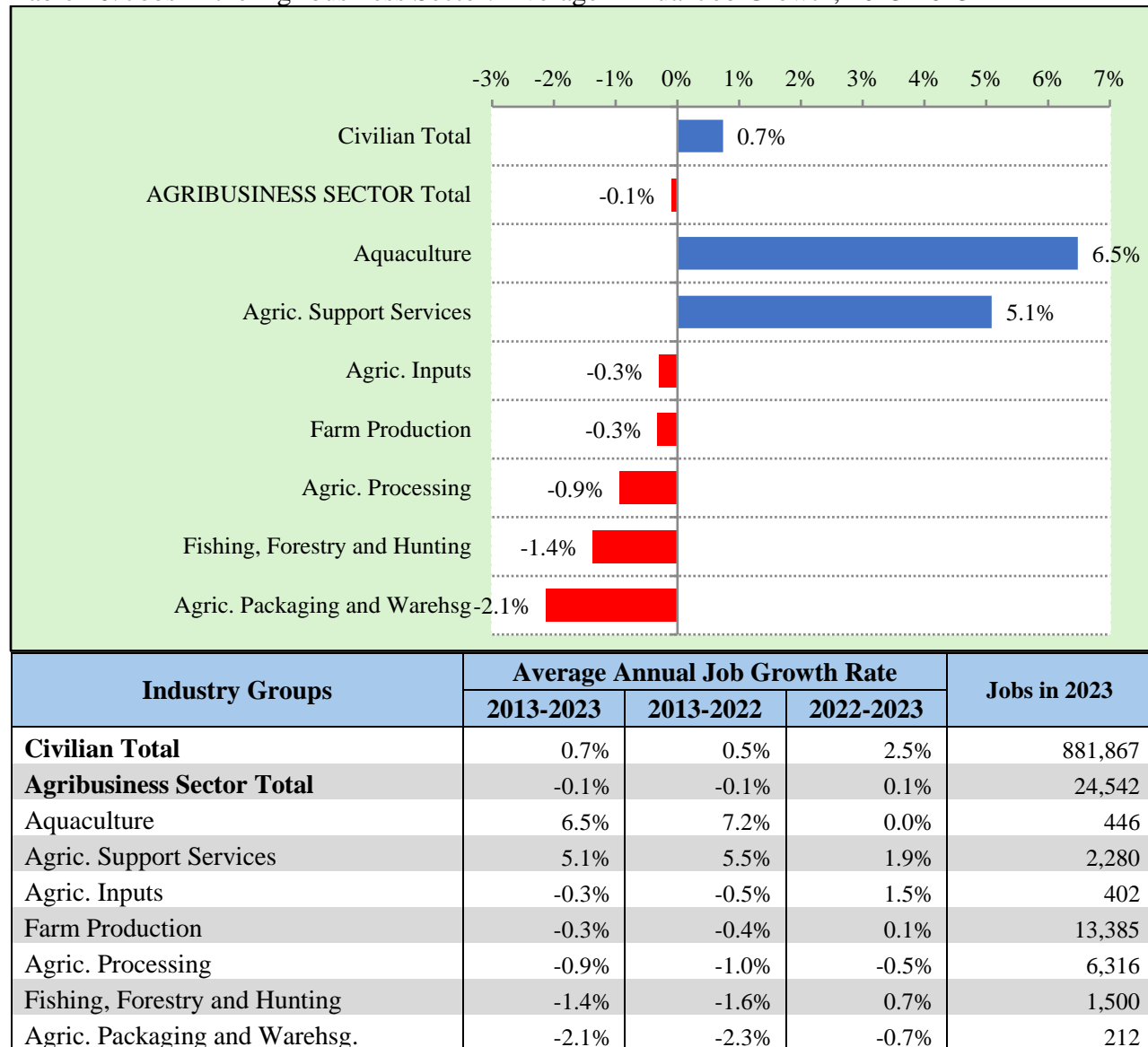
Figure 3. 2013-2023: Annual Job Growth in the Agribusiness Sector



Source: Lightcast™ and DBEDT calculation.

The best-performing agribusiness industry groups from 2013 to 2023 were Aquaculture and the Agricultural Support Services, recording 6.5% and 5.1% average annual job growth rates.

Table 10. Jobs in the Agribusiness Sector: Average Annual Job Growth, 2013-2023



Industry Groups	Average Annual Job Growth Rate			Jobs in 2023
	2013-2023	2013-2022	2022-2023	
<b>Civilian Total</b>	0.7%	0.5%	2.5%	881,867
<b>Agribusiness Sector Total</b>	-0.1%	-0.1%	0.1%	24,542
Aquaculture	6.5%	7.2%	0.0%	446
Agric. Support Services	5.1%	5.5%	1.9%	2,280
Agric. Inputs	-0.3%	-0.5%	1.5%	402
Farm Production	-0.3%	-0.4%	0.1%	13,385
Agric. Processing	-0.9%	-1.0%	-0.5%	6,316
Fishing, Forestry and Hunting	-1.4%	-1.6%	0.7%	1,500
Agric. Packaging and Warehsg.	-2.1%	-2.3%	-0.7%	212

Source: Lightcast™ and DBEDT calculation.

## Competitive Metrics

Table 11 shows the average annual job growth rate difference between Hawai‘i and the nation for the agribusiness sector and its industry groups. Over the 2013-2023 period, Hawai‘i’s agribusiness sector’s growth rate was 1.1 percentage points below the national rate. Two groups, Aquaculture and Agricultural Support Services, outperformed the same industry groups for the nation by 3.6 and 1.7 percentage points, respectively.

Table 11. Hawai‘i Agribusiness Sector Performance Compared with Nation

Industry Sector/Group	Jobs 2023	Jobs per Estab- lish- ments 2023	Avg. Annual Earn- ings 2023	Avg. Ann Job Growth		When U.S. = 100%		
				2013- 2023	Above USA	Concen- tration 1/	Jobs per Estab- lish- ment	Avg. Annual Earn- ings
<b>Total Civilian</b>	881,867	15.5	\$69,537	0.7%	-1.0%	100%	85%	96%
<b>Agribusiness Sector</b>	<b>24,542</b>	<b>22.3</b>	<b>\$45,996</b>	<b>-0.1%</b>	<b>-1.1%</b>	<b>92%</b>	<b>73%</b>	<b>80%</b>
Agric. Inputs	402	10.7	\$71,953	-0.3%	-1.0%	37%	77%	79%
Agric. Packaging and Warehsg	212	26.5	\$63,481	-2.1%	-3.9%	25%	72%	90%
Agric. Processing	6,316	17.3	\$58,387	-0.9%	-3.0%	79%	40%	82%
Agric. Support Services	2,280	15.5	\$64,201	5.1%	1.7%	75%	99%	94%
Farm Production	13,385	30.1	\$37,448	-0.3%	-0.3%	102%	85%	86%
Fishing, Forestry and Hunting	1,500	21.7	\$29,079	-1.4%	-0.5%	349%	76%	83%
Aquaculture	446	14.4	\$59,151	6.5%	3.6%	1422%	194%	118%

1/ Proportion of jobs in the industry groups in the region compared to the proportion nationally.

Source: Lightcast™ and DBEDT calculation.

Agribusiness had a lower concentration level in Hawai‘i than the nation for most industry groups. Clear exceptions were Aquaculture and Fishing, Forestry and Hunting, which were significantly more concentrated in Hawai‘i than the nation.

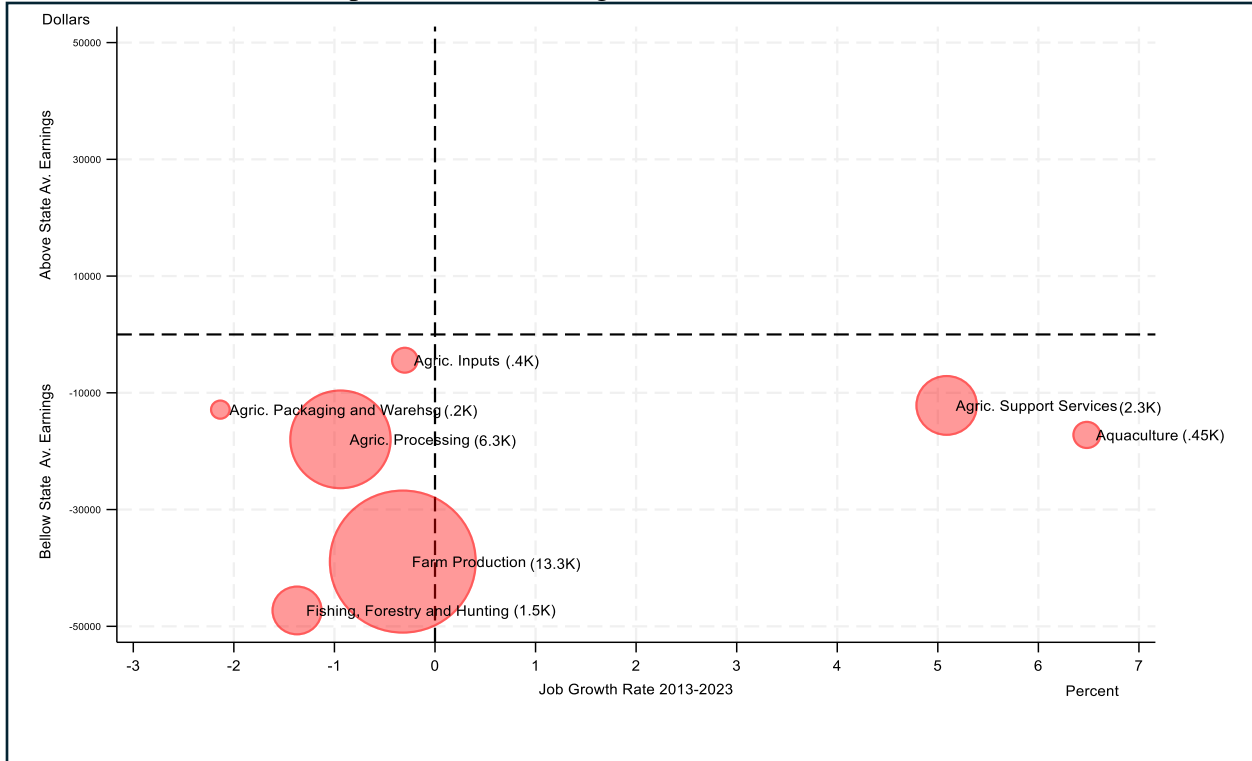
In 2023, Hawai‘i’s Agribusiness sector average annual earnings, at \$45,996, were lower than the state’s civilian economy’s, at \$69,537. Also, the sector’s average annual earnings were 80% of the national average for the same industry groups. The lower average annual earnings in Hawai‘i were found in all sectors, except for Aquaculture.

## Overall Performance

From an overall performance standpoint, only Aquaculture was in the Base-Growth category for the 2013- 2023 period. At the same time, Agricultural Support Services was classified in the Emerging category. The remaining five groups were in the Declining category over the same period.

Regardless of size, all industry groups in this sector had average earnings below the state’s level in 2023.

Table 12. Performance Map Criteria for the Agribusiness Sector



Emerging Industry Groups	Base-Growth Industry Groups
Agriculture Support Services	Aquaculture
Declining Industry Groups	Transitioning Industry Groups
Agriculture Inputs Agriculture Packaging and Warehousing Agriculture Processing Farm Production Fishing, Forestry and Hunting	

Source: Lightcast™ and DBEDT calculation.

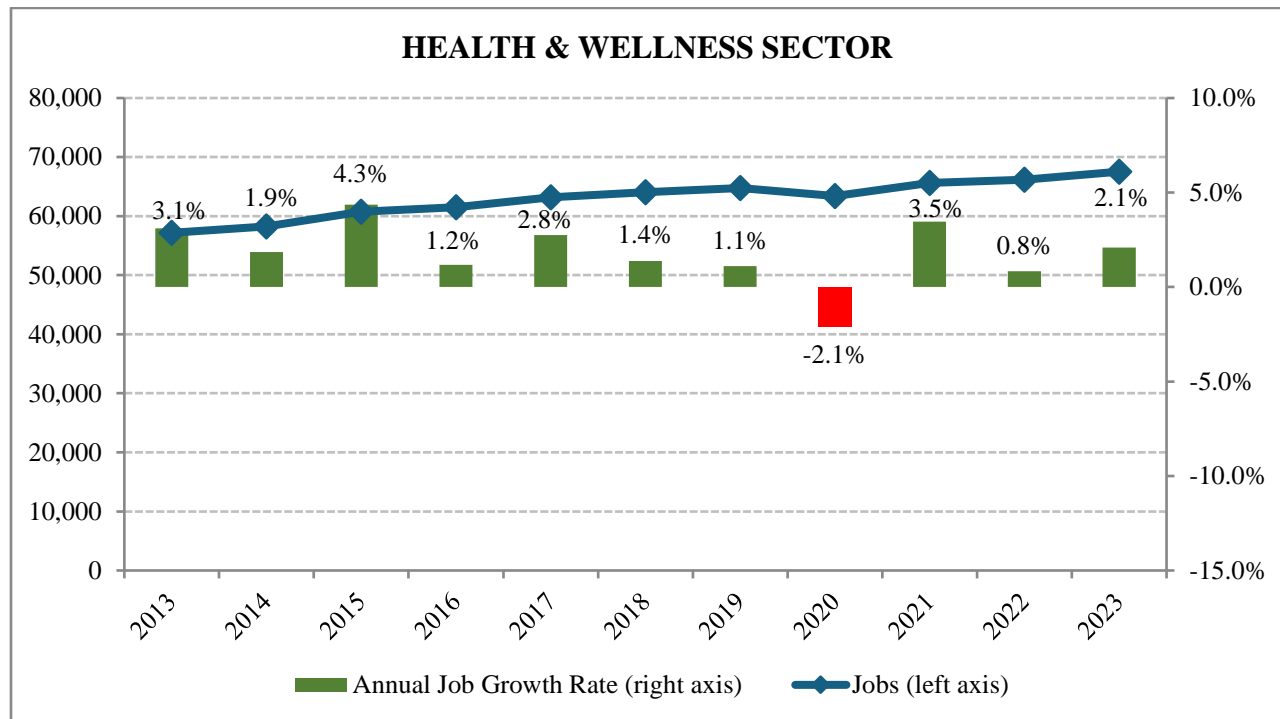
## HEALTH AND WELLNESS SECTOR

To provide some underlying data to support future discussions on the topic of the Health and Wellness sector, DBEDT used a definition for Health and Wellness developed by researchers on Kaua'i for that county's Comprehensive Economic Development Strategy in 2005.<sup>9</sup> This definition identifies the major industry groups of Hawai'i's healthcare sector.

### Size & Growth

The Hawai'i Health and Wellness Sector accounted for an estimated 67,352 jobs in 2023. About 70% of the jobs were among Health Practitioners and Hospital & Nursing Facilities. Except for the Pharmacy sector, all the other industry groups in Health and Wellness increased jobs over the 2013- 2023 period.

Figure 4. 2013-2023: Annual Job Growth in the Health and Wellness Sector



Source: Lightcast™ and DBEDT calculation.

In the post-pandemic period, the sector has shown positive annual growth rates. In 2023, the Health and Wellness Sector grew by 2.1%, compared with 2.5% for the state's civilian economy rate (Figure 4). By 2023, the total number of jobs represented 104.2% of the total number in 2019. The recovery performance of all industry groups composing the sector has been uneven. Health Practitioners and Medical Labs and Imaging Centers groups have recovered to 2019 levels. However, Specialty Health Care Services, Hospitals and Nursing Facilities, and Pharmacies groups have yet not recovered.

<sup>9</sup> Hawai'i Office of Planning, *Hawai'i Statewide Comprehensive Economic Development Strategy (CEDS)*, 2005. Modifications included translating from the 1997 to the 2002 NAICS industry codes. Report is at <http://hawaii.gov/dbedt/op/projects.htm>.

For Hawai'i overall, the Health and Wellness sector increased jobs faster than the rest of the economy during the 2013-2023 period. This sector had an average annual job growth rate of 1.6% from 2013 to 2022 and 2.1% from 2022 to 2023.

The highest average annual job growth rate was observed in Specialty Health Care Services, a relatively small industry group, at 4.0% over the 2013-2023 period. Hawai'i Health Practitioners showed an average annual growth rate of 1.9% for the 2013- 2023 period. Medical Labs and Imaging Centers had an average annual job growth rate of 1.5%.

Table 13. Jobs in the Health and Wellness Sector: Average Annual Job Growth, 2013-2023

Industry Groups	Average Annual Job Growth Rate			Jobs in 2023
	2013-2023	2013-2022	2022-2023	
<b>Civilian Total</b>	0.7%	0.5%	2.5%	881,867
<b>Health &amp; Wellness Sector Total</b>	1.7%	1.6%	2.1%	67,532
Specialty Health Care Services	4.0%	4.3%	1.5%	13,360
Health Practitioners	1.9%	1.7%	3.9%	26,775
Medical Labs and Imaging Centers	1.5%	1.5%	1.2%	1,950
Hospitals and Nursing Facilities	0.6%	0.5%	1.2%	20,703
Pharmacies	-0.2%	0.0%	-2.1%	4,745

Source: Lightcast™ and DBEDT calculation.

## Competitive Metrics

Over the 2013-2023 period, the average annual job growth rate in Hawai‘i’s Health and Wellness Sector was above the national average for the same sector.

Table 14. Hawai‘i Health and Wellness Sector Performance Compared with Nation

Industry Groups	Jobs 2023	Jobs per Establishments 2023	Avg. Annual Earnings 2023	Avg. Ann Job Growth		When U.S. = 100%		
				2013-2023	Above USA	Concentration 1/	Jobs per Establishment	Avg. Annual Earnings
<b>Total Civilian</b>	881,867	15.5	\$69,537	0.7%	-1.0%	100%	85%	96%
<b>Health &amp; Wellness Sector</b>	<b>67,532</b>	<b>17.9</b>	<b>\$92,050</b>	<b>1.7%</b>	<b>0.1%</b>	<b>94%</b>	<b>80%</b>	<b>111%</b>
Health Practitioners	26,775	8.9	\$103,339	1.9%	-0.4%	105%	79%	110%
Hospitals and Nursing Facilities	20,703	228.8	\$100,550	0.6%	0.3%	75%	116%	113%
Medical Labs and Imaging Centers	1,950	27.9	\$83,502	1.5%	-0.9%	139%	242%	91%
Pharmacies	4,745	21.4	\$42,117	-0.2%	-0.5%	120%	143%	85%
Specialty Health Care Services	13,360	36.5	\$75,237	4.0%	0.8%	100%	109%	128%

1/ Proportion of jobs in the industry groups in the region compared to the proportion nationally.

Source: Lightcast™ and DBEDT calculation.

At \$92,050, the average annual earnings for the sector exceeded the national average in 2023 by about 11%. Specialty Health Care Services was the sector in the targeted industry portfolio that had average annual earnings significantly above the U.S. average for the same sector (28%). Medical Labs and Imaging Centers and Pharmacies were the two groups in the sector that had average annual earnings below the nation’s comparable industries.

Regarding concentration, only the industry group Hospitals and Nursing Facilities underperformed the same group for the entire nation.

## Overall Performance

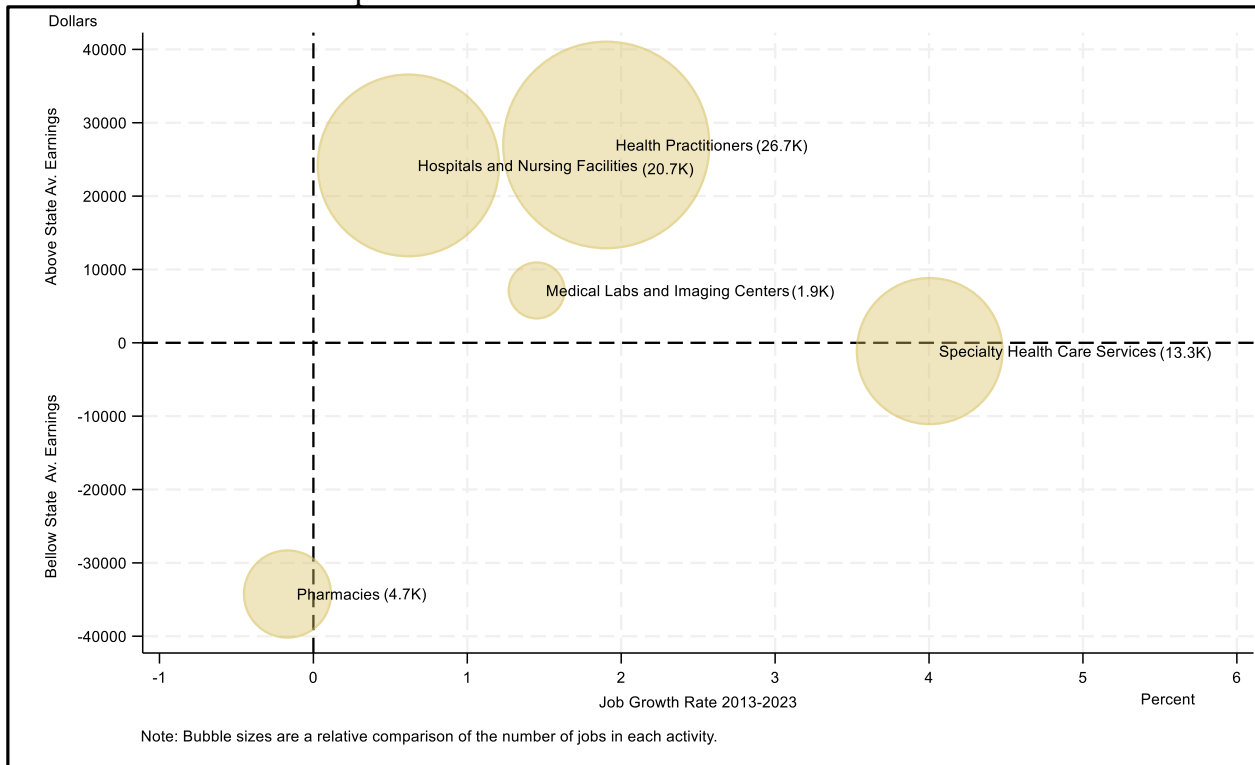
Among the Health and Wellness industry groups, Specialty Health Care Services, and Hospitals and Nursing Facilities performed the best in terms of growth and competitiveness.

Health Practitioners, and Medical Labs and Imaging Centers were in the Transitioning category. These groups increased jobs but lost competitive national share due to better growth at the U.S. level.

The largest groups in the sector, Health Practitioners and Hospitals and Nursing Facilities, proved important because of their considerable above-state average earnings.



Table 15. Performance Map Criteria for the Health and Wellness Sector



Emerging Industry Groups	Base-Growth Industry Groups
Hospitals and Nursing Facilities Specialty Health Care Services	
Declining Industry Groups	Transitioning Industry Groups
Pharmacies	Health Practitioners Medical Labs and Imaging Centers

Source: Lightcast™ and DBEDT calculation.

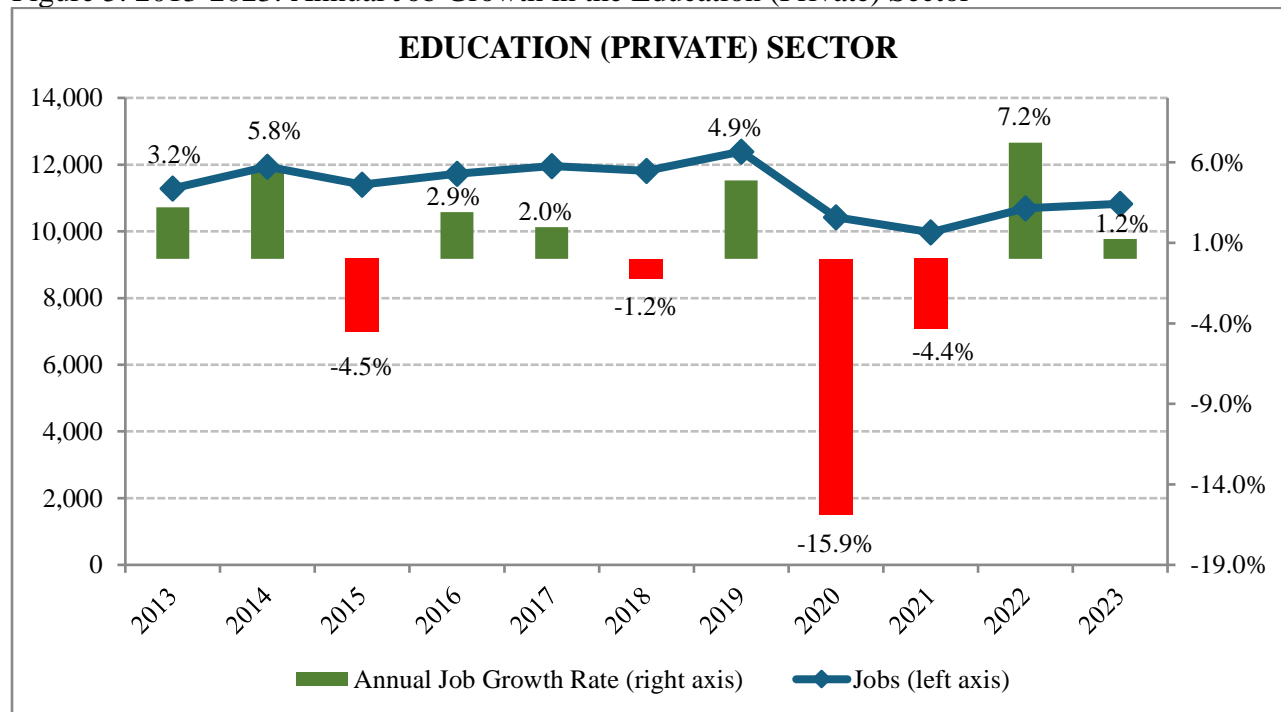
## EDUCATION SECTOR

The private education sector, which includes private colleges and specialty schools, is an important segment of Hawai'i's economy. The following section examines the growth and performance of the education activity of private sector colleges and specialty schools.

### Size & Growth

Private post-secondary and specialty education in Hawai'i accounted for 10,824 jobs in 2023. For the 2013- 2023 period, it had an average annual job *decline* rate of 0.4%. In 2023, neither of these two groups' job numbers had recovered to their 2019 levels.

Figure 5. 2013-2023: Annual Job Growth in the Education (Private) Sector



Source: Lightcast™ and DBEDT calculation.

From 2013 to 2023, the average annual job growth rate for Specialty Education was 2.1% and for Higher Education was a negative 3.3%. From 2013 to 2022, the average annual job growth rate for Specialty Education was 2.0%, and for Higher Education, it was negative 3.4%. From 2022 to 2023, the average annual job growth rate for Specialty Education was 3.7%, and for Higher Education, it was a negative 2.3%.

Table 16. Jobs in the Education (Private) Sector: Average Annual Job Growth, 2013-2023

Industry Groups	Average Annual Job Growth Rate
	2013-2023
Civilian Total	0.7%
EDUCATION (PRIVATE) SECTOR Total	-0.4%
Specialty Education	2.1%
Higher Education	-3.3%

Industry Groups	Average Annual Job Growth Rate			Jobs in 2023
	2013-2023	2013-2022	2022-2023	
<b>Civilian Total</b>	0.7%	0.5%	2.5%	881,867
<b>Education (Private) Sector Total</b>	-0.4%	-0.6%	1.2%	10,824
Specialty Education	2.1%	2.0%	3.7%	6,561
Higher Education	-3.3%	-3.4%	-2.3%	4,264

Source: Lightcast™ and DBEDT calculation.

### Competitive Metrics

From 2013 to 2023 for Hawai‘i, both Specialty Education and Higher Education lost national competitive share and had average annual job growth rates below the nation’s comparable industries. The average annual earnings of Specialty Education in Hawai‘i in 2023 was \$36,110, which was about 52% of the state’s civilian economy’s average but about 102% of the nation’s average for the comparable industries. In 2023 for Hawai‘i, the average annual earnings of Higher Education were \$47,494, which was 68% of the state’s civilian economy’s average and about 65% of the nation’s average for the comparable industries.

Table 17. Hawai‘i Private Education Sector Performance Compared with Nation

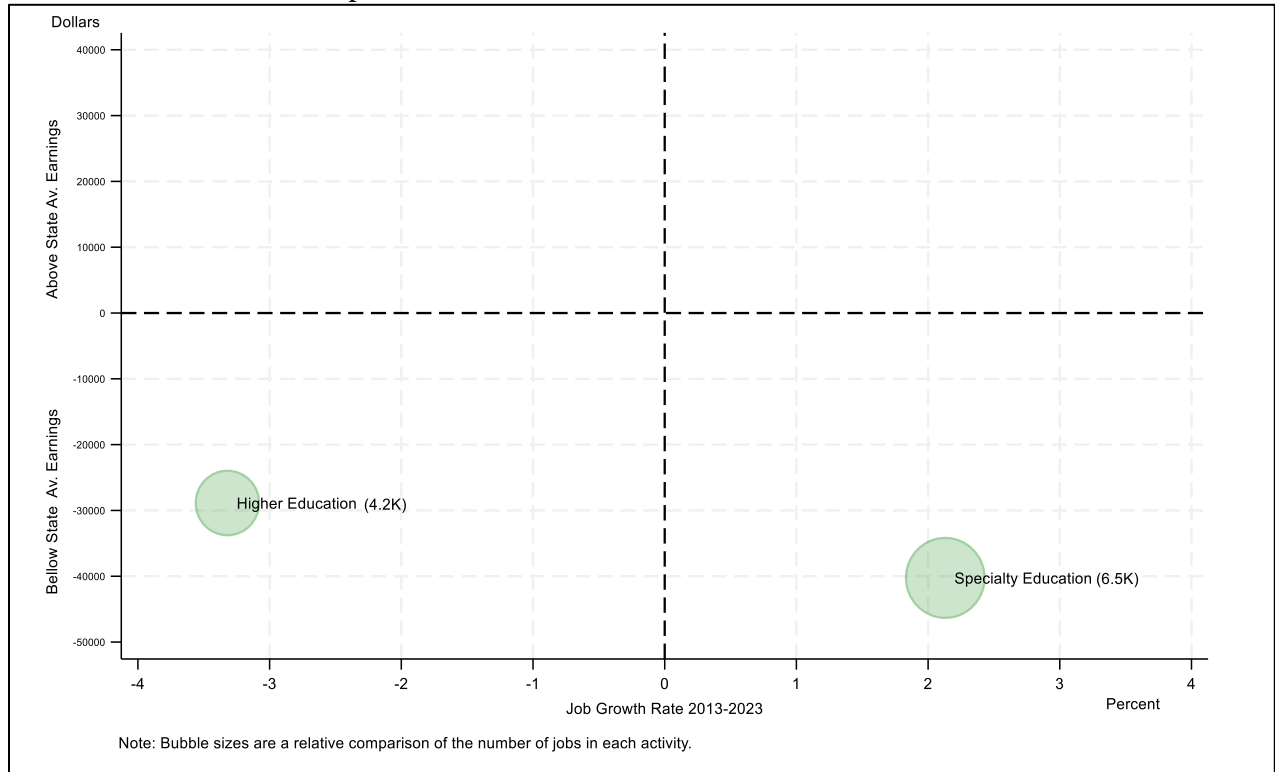
Industry Groups	Jobs 2023	Jobs per Establishment 2023	Avg. Annual Earnings 2023	Avg. Ann Job Growth		When U.S. = 100%		
				2013-2023	Above USA	Concentration 1/	Jobs per Establishment	Avg. Annual Earnings
<b>Total Civilian</b>	881,867	15.5	\$69,537	0.7%	-1.0%	100%	85%	96%
<b>Education (Private) Sector</b>	<b>10,824</b>	<b>13.0</b>	<b>\$40,594</b>	<b>-0.4%</b>	<b>-1.3%</b>	<b>76%</b>	<b>46%</b>	<b>73%</b>
Higher Education	4,264	28.8	\$47,494	-3.3%	-2.8%	56%	22%	65%
Specialty Education	6,561	9.6	\$36,110	2.1%	-0.6%	99%	65%	102%

1/ Proportion of jobs in the industry groups in the region compared to the proportion nationally. Source: Lightcast™ and DBEDT calculation.

## Overall Performance

During the 2013-2023 period, the Specialty Education group was in the Transitioning category. The Higher Education group was in the Declining category. Both are relatively important job creators but offer below-average earnings.

Table 18. Performance Map Criteria for the Education Sector



<b>Emerging Industry Groups</b>	<b>Base-Growth Industry Groups</b>
<b>Declining Industry Groups</b>	<b>Transitioning Industry Groups</b>
Higher Education	Specialty Education

Source: Lightcast™ and DBEDT calculation.

## OTHER TARGETED INDUSTRY GROUPS

In this section, we refer to two industry groups that have received special public attention in previous years: the Apparel and Call Center industry groups.

The Apparel industry group has been promoted due to Hawai'i's unique style and cultural heritage and for bringing Hawaiian/aloha wear to worldwide prominence. However, over the years, a large portion of the garment manufacturing jobs has been outsourced overseas. While local manufacturing of Hawaiian wear continues to exist, it is more common to find garments with labels that say designed in Hawai'i but manufactured elsewhere.

Call Centers have also been promoted based on Hawai'i's mid-Pacific location and multilingual resources.

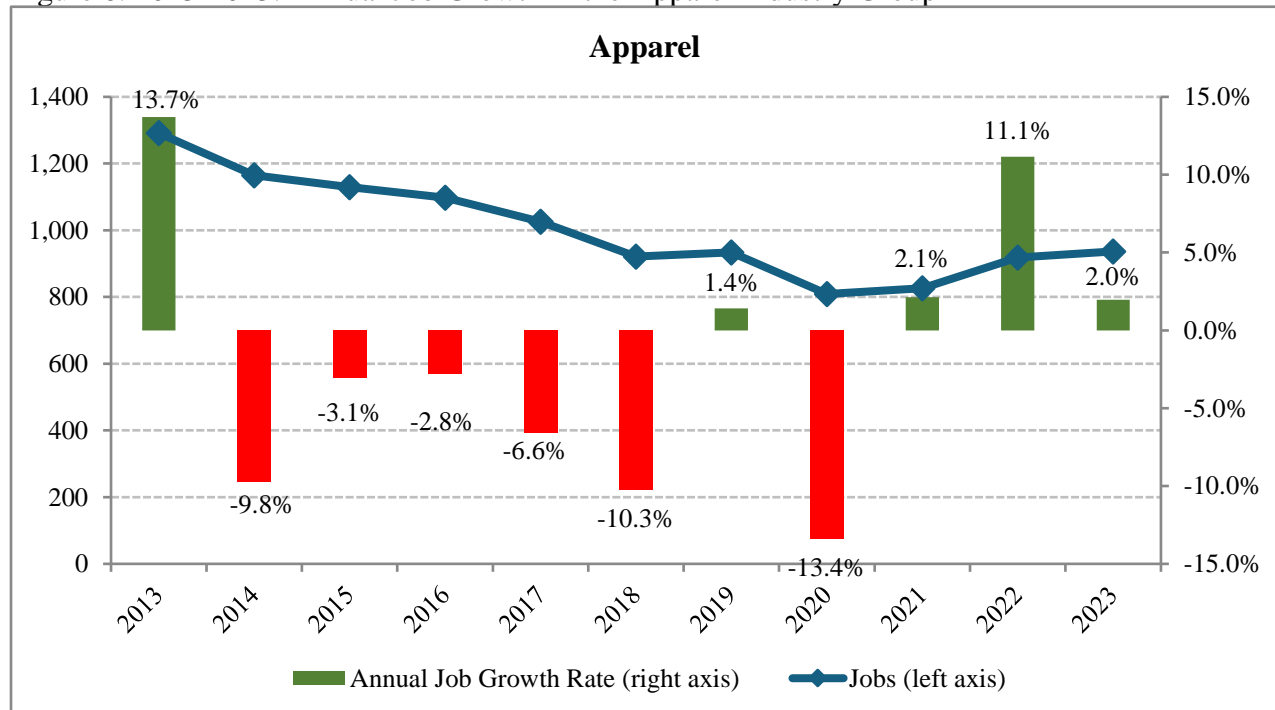
### Size & Growth

For both industry groups, annual growth rates in the last three years have been positive. In 2023, both industry groups' job numbers had recovered to their 2019 levels.

However, when looking at the period from 2013 to 2023, the average annual job growth rate for Apparel was a negative 3.2%, whereas for Call Centers it was positive at 2.5%.

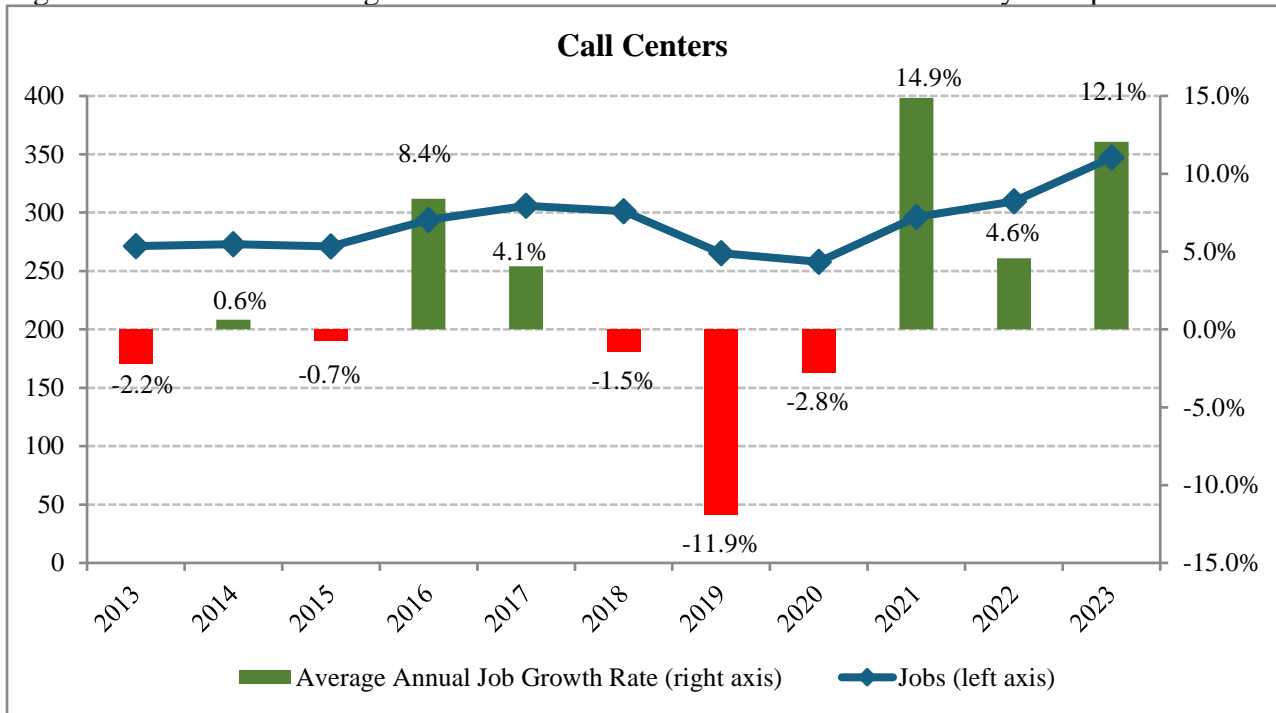
From 2013 to 2022, the average annual job growth rate for Apparel was negative 3.7% and for Call Centers was positive (1.5%). From 2022 to 2023, the average annual job growth rate for Apparel was positive (2.0%), and for Call Centers was also positive (12.1%).

Figure 6. 2013-2023: Annual Job Growth in the Apparel Industry Group



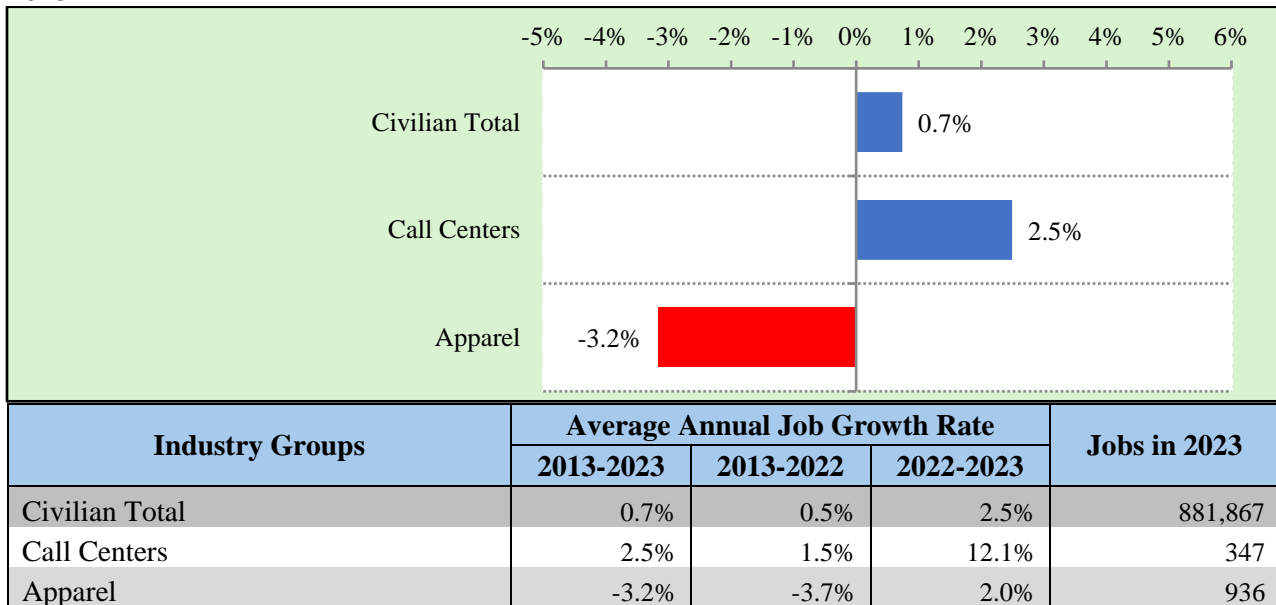
Source: Lightcast™ and DBEDT calculation.

Figure 7. 2013-2023: Average Annual Job Growth in the Call Centers Industry Group



Source: Lightcast™ and DBEDT calculation.

Table 19. Jobs in the Apparel and Call Centers Industry Groups: Average Annual Growth, 2013-2023



Source: Lightcast™ and DBEDT calculation

### Competitive Metrics

During the 2013-2023 period, the average annual job *decline* rate for Apparel in Hawai‘i was 3.2%, 0.7 percentage points below the U.S. (Table 20).

During the 2013 to 2023 period, the Call Center industry group in Hawai‘i experienced an average annual job *increase* rate of 2.5%, 3.6 percentage points above the U.S. Call Center industry group during the same period.

In 2023, the job concentration of Apparel in Hawai‘i was 64% above the national concentration; in contrast, the job concentration of Call Centers in Hawai‘i was only 19% of the national concentration. In 2023, the average annual earnings for Apparel and Call Centers in Hawai‘i were \$23,069 and \$29,476, respectively. These averages were about 47% and 53% of the nation’s averages, respectively.

Table 20. Hawai‘i Apparel and Call Centers Performance Compared with Nation

Industry Groups	Jobs 2023	Jobs per Establishments 2023	Avg. Annual Earnings 2023	Avg. Ann. Job Growth		When U.S. = 100%		
				2013-2023	Above USA	Concentration 1/	Jobs per Establishment	Avg. Annual Earnings
<b>Total Civilian</b>	881,867	15.5	\$69,537	0.7%	-1.0%	100%	85%	96%
<b>Other Industry Groups</b>	<b>1,284</b>	<b>12.1</b>	<b>\$24,803</b>	<b>-1.9%</b>	<b>-0.5%</b>	<b>53%</b>	<b>43%</b>	<b>46%</b>
Apparel	936	16.7	\$23,069	-3.2%	-0.7%	164%	76%	47%
Call Centers	347	6.9	\$29,476	2.5%	3.6%	19%	23%	53%

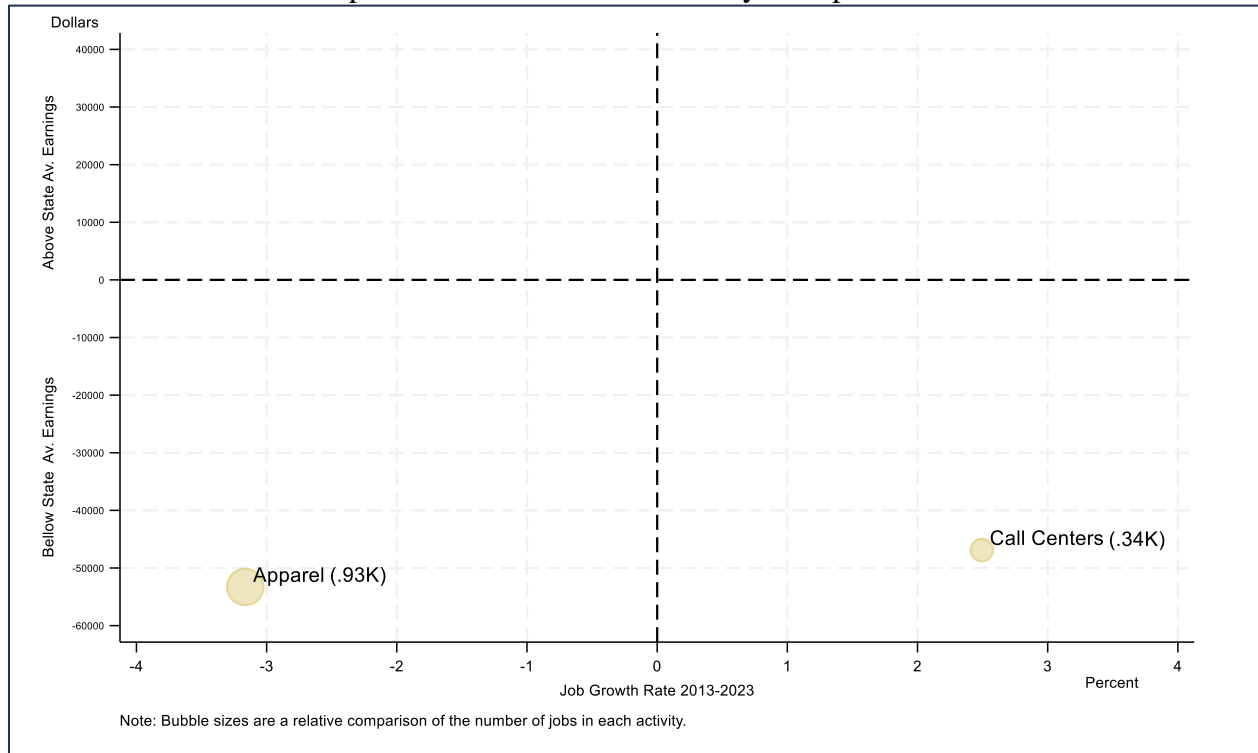
1/ Proportion of jobs in the industry groups in the region in region compared to the proportion nationally.

Source: Lightcast™ and DBEDT calculation.

## Overall Performance

Based on the performance metrics, during the 2013- 2023 period, the Apparel industry group was in the declining category, with an average annual job *decline* rate of 3.2%. On the other hand, the Call Centers industry group was in the Emerging category. Both industry groups’ average earnings are below the state average

Table 21. Performance Map Criteria for the Other Industry Groups



Emerging Industry Groups		Base-Growth Industry Groups
Call Centers		
Declining Industry Groups		Transitioning Industry Groups
Apparel		

Source: Lightcast™ and DBEDT calculation.



## PERFORMANCE BY COUNTY

The following tables summarize the 2013-2023 county performance of the statewide targeted and emerging industries. Performance has been ordered by Best Performing Targets (registering as base-growth and emerging industry groups) and Other Targeted Industry Performance (those that were in the transitioning and declining industry groups).

As shown in Table 22, the total number of jobs in Hawai‘i’s targeted industries without overlaps (“targeted”) was 167,423 in 2023. Honolulu accounted for about 69%, followed by Hawai‘i County at 14%, Maui County at 12%, and Kaua‘i County at 5%. Over the 2013-2023 period, adjusting for overlaps, total jobs in the targeted increased by 14,656 jobs.

Honolulu gained 7,015 jobs. It was followed by Maui County (3,277 jobs), Hawai‘i County (3,041 jobs), and Kaua‘i County (955 jobs). In terms annual average job growth, Maui County targeted industry jobs increased by 1.85%, Hawai‘i County by 1.36%, Kaua‘i County by 1.28%, and Honolulu County by 0.63%.

Table 22. 2013-2023: Sectoral Job Composition and Changes by County

Sectors	2023 Jobs				
	State	Honolulu	Hawai'i	Maui	Kaua'i
Total Civilian	881,867	602,867	113,034	110,650	48,360
Total Targeted Without Overlap	167,423	115,250	24,085	19,579	7,998
Technology Sector	31,549	24,707	2,978	2,327	1,162
Creative Sector	55,619	39,750	6,188	6,802	2,528
Agribusiness Sector	24,542	9,777	9,227	3,549	1,987
Health & Wellness Sector	67,532	50,025	6,937	7,742	2,802
Education (Private) Sector	10,824	8,549	1,042	909	274
Other Industry Groups	1,284	1,066	90	90	38
Sectors	% in State 2023 Jobs				
	State	Honolulu	Hawai'i	Maui	Kaua'i
Total Civilian	100%	68%	13%	13%	5%
Total Targeted Without Overlap	100%	69%	14%	12%	5%
Technology Sector	100%	78%	9%	7%	4%
Creative Sector	100%	71%	11%	12%	5%
Agribusiness Sector	100%	40%	38%	14%	8%
Health & Wellness Sector	100%	74%	10%	11%	4%
Education (Private) Sector	100%	79%	10%	8%	3%
Other Industry Groups	100%	83%	7%	7%	3%

Table 22. 2013-2023: Sectoral Job Composition and Changes by County (cont'd)

Sectors	Job Change 2013 to 2023				
	State	Honolulu	Hawai'i	Maui	Kaua'i
Total Civilian	62,424	24,019	14,820	11,509	5,816
Total Targeted Without Overlap	14,656	7,015	3,041	3,277	955
Technology Sector	3,748	2,180	521	423	311
Creative Sector	5,966	3,879	1,054	587	208
Agribusiness Sector	-247	-680	833	-559	164
Health & Wellness Sector	10,357	6,128	966	2,867	382
Education (Private) Sector	-466	-1,209	230	350	113
Other Industry Groups	-279	-292	8	10	-6

Source: Lightcast™ and DBEDT calculation.

### City & County of Honolulu

As shown in Table 23 and referenced in Table 1, Honolulu accounted for 115,250, or 69% of the state's 167,423 targeted jobs in 2023. From 2013 to 2023, Honolulu's targeted average annual job growth rate of 0.6% was above Honolulu's civilian economy's rate of 0.4%, below the state's targeted rate of 0.9%, and below the nation's targeted rate of 1.7%. Average annual earnings for both Honolulu's civilian economy and targeted were higher than the state's comparable averages. Average annual earnings for Honolulu's civilian economy exceeded the nation's comparable average but fell short for its targeted industries.

Among the six major sectors over the 2013-2023 period, none were high-performing Base-Growth or Emerging industry groups in Honolulu County. Three sectors were in the Transitioning category and three sectors were in the Declining category. The Health and Wellness Sector gained the greatest number of jobs at 6,128, had the highest average annual job growth rate at 1.3%, and had the highest concentration of industry compared to the nation's concentration at 102%. The Technology Sector had the highest average annual earnings in 2023 at \$110,698.

Table 23. Performance of the Major Groups of Honolulu Targeted Industry Portfolio

Sectors 2/	Jobs in Honolulu		Avg. Annual Job Growth Rate 2013-2023		Concentration 1/		Avg. Annual Earnings 2023	
	2023	Change 2013-2023	Honolulu	U.S.	2023	Percentage Point Change 13-23	Honolulu	U.S.
Total Civilian	602,867	24,019	0.4%	1.8%	100%	0%	\$73,791	\$72,640
Total Targeted Without Overlap	115,250	7,015	0.6%	1.7%	84%	2%	\$82,443	\$90,415
<b>Transitioning</b>								
Technology Sector	24,707	2,180	0.9%	2.8%	67%	-4%	\$110,698	\$137,421
Creative Sector	39,750	3,879	1.0%	2.7%	87%	-3%	\$75,016	\$103,233
Health & Wellness Sector	50,025	6,128	1.3%	1.5%	102%	11%	\$97,093	\$82,963
<b>Declining</b>								
Agribusiness Sector	9,777	-680	-0.7%	1.0%	54%	-2%	\$54,250	\$57,362
Education (Private) Sector	8,549	-1,209	-1.3%	0.8%	88%	-8%	\$41,698	\$55,255
Other Industry Groups	1,066	-292	-2.4%	-1.5%	64%	3%	\$26,245	\$54,076

1/ Proportion of jobs in the sector in the region compared to the proportion nationally.

2/ The sum of the individual sectors is greater than Total Targeted without Overlap since overlaps exist between sectors.

Source: Lightcast™ and DBEDT calculation.

Table 24 shows the performance of detailed targeted and emerging industry groups in Honolulu. Six industries were high-performing (Base-Growth and Emerging) over the 2013- 2023 period, with average annual job growth rates that were higher than the nation's rate for the comparable industries. Agricultural Support Services gained the greatest number of jobs and had the highest average annual job growth rate at 605 and 5.3%, respectively; Music had the highest concentration of industry compared to the nation's concentration, at 140%. Technology Equipment Distribution had the highest average annual earnings in 2023 at \$147,575.

Eighteen industries were in the Transitioning category over the 2013- 2023 period. They gained jobs but did not keep up with national growth for the same industry groups resulting in a loss of competitive national industry share. Health Practitioners gained the greatest number of jobs at 3,598. Technical Consulting Services had the highest average annual job growth rate at 3.5%. Medical Labs and Imaging Centers had the highest concentration of industry compared to the nation's concentration, at 159%. Computer Services and Software Publishers had the highest average annual earnings in 2023 at \$126,673.

Fifteen industries in the portfolio were in the Declining industry category as the result of net job losses over the 2013- 2023 period. Alternative Power Generation lost the fewest number of jobs at thirty-one. Hospitals and Nursing Facilities had the lowest average annual job *decline* rate at 0.1%.

Cultural Activities had the highest concentration of industry compared to the nation's concentration, at 482%. Alternative Power Generation had the highest average annual earnings in 2023 at \$134,128.

Table 24. Performance of the Detailed Honolulu Targeted Industry Portfolio

Industry Groups	Jobs in Honolulu		Avg. Annual Job Growth Rate 2013-2023		Concentration 1/		Avg. Annual Earnings 2023	
	2023	Change 2013-2023	Honolulu	U.S.	2023	Percentage Point Change 13-23	Honolulu	U.S.
<b>Base-Growth</b>								
Music	843	234	3.3%	1.1%	140%	41%	\$42,325	\$51,978
Film, TV, Video Production/Distrib, Cable & Media Streaming	1,924	371	2.2%	1.3%	110%	22%	\$99,007	\$164,200
<b>Emerging</b>								
Agric. Support Services	1,510	605	5.3%	3.4%	73%	20%	\$67,136	\$68,627
Call Centers	303	58	2.1%	-1.1%	24%	9%	\$28,959	\$55,731
Technology Equipment Distribution	902	181	2.3%	1.9%	51%	8%	\$147,575	\$161,864
Other Technology Mfg.	399	71	2.0%	0.9%	10%	2%	\$87,185	\$133,147
<b>Transitioning</b>								
Agric. Inputs	216	5	0.3%	0.7%	29%	2%	\$85,776	\$91,187
Art Education	654	69	1.1%	2.7%	78%	-2%	\$23,328	\$18,306
Performing and Creative Arts	4,816	132	0.3%	1.8%	89%	-2%	\$34,571	\$33,200
Business Consulting	5,284	1,381	3.1%	4.4%	72%	0%	\$85,829	\$101,942
Computer Services and Software Publishers	4,702	613	1.4%	4.3%	49%	-8%	\$126,673	\$161,834
Design Services	1,477	145	1.0%	2.3%	93%	1%	\$39,350	\$55,454
Engineering and Research and Development	5,224	721	1.5%	2.3%	98%	6%	\$125,337	\$136,472
Marketing, Photography and Related	8,481	783	1.0%	2.4%	93%	-1%	\$39,516	\$69,098
Specialty Education	4,507	628	1.5%	2.7%	99%	1%	\$36,747	\$35,309
Health Practitioners	18,893	3,598	2.1%	2.3%	108%	12%	\$113,143	\$93,995
Medical Labs and Imaging Centers	1,522	179	1.3%	2.4%	159%	4%	\$85,493	\$92,259
Pharmacies	3,460	20	0.1%	0.3%	128%	13%	\$41,927	\$49,456
Specialty Health Care Services	9,370	2,556	3.2%	3.3%	102%	13%	\$78,251	\$59,003
Technical Consulting Services	4,864	1,416	3.5%	4.5%	77%	3%	\$86,931	\$102,720
Chemical and Pharmaceutical Mfg.	36	5	1.5%	1.8%	2%	0%	\$92,233	\$155,916
Engineering and Related Services	6,181	1,000	1.8%	1.8%	122%	15%	\$122,087	\$117,081
Information and Telecom Technology	4,126	6	0.0%	3.1%	67%	-13%	\$110,249	\$152,682
Medical Labs and Imaging Centers	1,522	179	1.3%	2.4%	159%	4%	\$85,493	\$92,259

Table 24. Performance of the Detailed Honolulu Targeted Industry Portfolio (cont'd)

Declining								
Agric. Packaging and Warehsg	170	-57	-2.9%	1.8%	29%	-11%	\$69,802	\$70,400
Agric. Processing	4,082	-988	-2.1%	2.1%	74%	-25%	\$60,420	\$71,314
Farm Production	3,110	-113	-0.4%	0.0%	35%	3%	\$39,556	\$43,378
Fishing, Forestry and Hunting	689	-132	-1.7%	-0.9%	234%	10%	\$42,073	\$35,114
Publishing and Information	1,158	-207	-1.6%	-0.5%	65%	1%	\$63,226	\$138,896
Radio and Television Broadcast- ing	708	-159	-2.0%	-0.2%	147%	-7%	\$68,281	\$84,906
Architecture	1,534	-42	-0.3%	1.7%	152%	-10%	\$105,246	\$93,786
Cultural Activities	2,944	-164	-0.5%	1.7%	482%	-45%	\$65,801	\$73,504
Higher Education	4,042	-1,837	-3.7%	-0.6%	78%	-16%	\$47,217	\$72,699
Hospitals and Nursing Facilities	16,780	-225	-0.1%	0.4%	89%	7%	\$101,973	\$88,737
Apparel	763	-350	-3.7%	-2.5%	196%	2%	\$25,166	\$48,678
Alternative Power Generation	128	-31	-2.1%	1.9%	56%	-17%	\$134,128	\$186,027
Biotechnology	209	-198	-6.4%	7.3%	24%	-60%	\$126,265	\$226,730
Computer System Design and Related services	5,567	-94	-0.2%	3.4%	66%	-16%	\$122,138	\$148,664
R&D Services (except Biotech- nology)	774	-356	-3.7%	2.7%	42%	-28%	\$100,724	\$156,762

1/ Proportion of jobs in the industry groups in the region compared to the proportion nationally.

Source: Lightcast™ and DBEDT calculation.

## Hawai‘i County

As shown in Table 25 and referenced in Table 1, Hawai‘i County accounted for 24,085, or 14% of the state’s 167,423 targeted jobs in 2023. From 2013 to 2023, Hawai‘i County’s targeted average annual job growth rate of 1.4% was equal to the overall Hawai‘i County civilian economy’s rate of 1.4%, above the state’s targeted rate of 0.9%, and below the nation’s targeted rate of 1.7%. In 2023, average annual earnings for both the Hawai‘i County civilian economy and targeted groups were lower than the state’s comparable averages and nation’s comparable averages.

Among the six major sectors over the 2013- 2023 period, two sectors were in the high-performing Emerging industry groups and four sectors were in the Transitioning industry groups. The Creative Sector gained the greatest number of jobs at 1,054. The Education (Private) Sector had the highest average annual job growth rate at 2.5%. The Agribusiness Sector had the highest industry concentration compared to the nation’s concentration, at 270%. The Technology Sector had the highest average annual earnings in 2022 at \$85,984.

Table 25. Performance of the Major Groups of Hawai‘i County Targeted Industry Portfolio

Sectors 2/	Jobs in HI County		Avg. Annual Job Growth Rate 2013-2023		Concentration 1/		Avg. Annual Earnings 2023	
	2023	Change 2013-2023	HI County	U.S.	2023	Percentage Point Change 13-23	HI County	U.S.
Total Civilian	113,034	14,820	1.4%	1.8%	100%	0%	\$56,602	\$72,640
Total Targeted Without Overlap	24,085	3,041	1.4%	1.7%	94%	0%	\$52,772	\$90,415
<b>Emerging</b>								
Education (Private) Sector	1,042	230	2.5%	0.8%	57%	10%	\$36,714	\$55,255
Other Industry Groups	90	8	1.0%	1.5%	29%	7%	\$13,580	\$54,076
<b>Transitioning</b>								
Technology Sector	2,978	521	1.9%	2.8%	43%	-2%	\$85,984	\$137,421
Creative Sector	6,188	1,054	1.9%	2.7%	73%	-4%	\$50,133	\$103,233
Health & Wellness Sector	6,937	966	1.5%	1.5%	75%	2%	\$71,401	\$82,963
Agribusiness Sector	9,227	833	1.0%	1.0%	270%	8%	\$38,056	\$57,362

1/ Proportion of jobs in the sector in the region compared to the proportion nationally.

2/ The sum of the individual sectors is greater than Total Targeted without Overlap since overlaps exist between sectors.

Source: Lightcast™ and DBEDT calculation.

Table 26 shows the performance of detailed targeted and emerging industry groups in Hawai‘i County. Nineteen industry groups ranked as high performing, with positive job growth combined with a job growth rate that was higher than the nation for the same industry group over the 2013-2023 period. Specialty Health Care Services gained the greatest number of jobs at 576. Technology Equipment Distribution jobs had the highest average annual job growth rate at 6.5%.

Farm Production had the highest concentration of industry compared to the nation's concentration, at 410%. Technology Equipment Distribution had the highest average annual earnings in 2023 at \$141,373.

Nine industry groups were in the Transitioning category over the 2013-2023 period. They gained jobs but did not keep up with national growth for the same industry groups resulting in a loss of competitive national industry share. Health Practitioners gained the greatest number of jobs at 505. Specialty Education jobs had the highest average annual job growth rate at 2.5%. Performing and Creative Arts had the highest concentration of industry compared to the nation's concentration, at 152%. Engineering and Related Services had the highest average earnings in 2023 at \$97,957.

Eleven industry groups in the portfolio were in the Declining industry category as the result of net job losses over the 2013- 2023 period. Art Education lost the fewest number of jobs at four. Pharmacies had the lowest average annual job *decline* rate at 0.3%. Fishing, Forestry, and Hunting had the highest concentration of industry compared to the nation's concentration, at 833%. Alternative Power Generation had the highest average annual earnings in 2023 at \$176,825.



Table 26. Performance of the Detailed Hawai'i County Targeted Industry Portfolio

Industry Groups	Jobs in HI County		Avg. Annual Job Growth Rate 2013-2023		Concentration 1/		Avg. Annual Earnings 2023	
	2023	Chng. 13-23	HI County	U.S.	2023	Percentage Point Change 13-23	HI County	U.S.
<b>Base-Growth</b>								
Agric. Processing	1,300	321	2.9%	2.1%	127%	13%	\$55,795	\$71,314
Agric. Support Services	398	172	5.8%	3.4%	103%	24%	\$56,038	\$68,627
Farm Production	6,922	352	0.5%	0.0%	410%	35%	\$34,456	\$43,378
Music	253	88	4.4%	1.1%	223%	66%	\$24,974	\$51,978
Cultural Activities	144	59	5.4%	1.7%	126%	41%	\$65,714	\$73,504
Specialty Health Care Services	1,817	576	3.9%	3.3%	106%	9%	\$66,050	\$59,003
<b>Emerging</b>								
Agric. Inputs	115	25	2.5%	0.7%	82%	15%	\$59,298	\$91,187
Agric. Packaging and Warehsg	33	7	2.6%	1.8%	30%	3%	\$42,635	\$70,400
Radio and Television Broad- casting	70	17	2.7%	-0.2%	78%	22%	\$49,614	\$84,906
Business Consulting	850	342	5.3%	4.4%	62%	7%	\$46,875	\$101,942
Computer Services and Soft- ware Publishers	517	235	6.3%	4.3%	29%	6%	\$93,239	\$161,834
Film, TV, Video Produc- tion/Distrib, Cable & Media Streaming	113	45	5.2%	1.3%	34%	12%	\$81,920	\$164,200
Higher Education	97	24	2.9%	-0.6%	10%	3%	\$43,645	\$72,699
Apparel	70	1	0.2%	-2.5%	95%	25%	\$10,882	\$48,678
Call Centers	20	7	4.5%	-1.1%	8%	4%	\$23,029	\$55,731
Technical Consulting Services	790	322	5.4%	4.5%	66%	7%	\$39,795	\$102,720
Technology Equipment Distri- bution	18	8	6.5%	1.9%	5%	2%	\$141,373	\$161,864
Computer System Design and Related services	448	131	3.5%	3.4%	28%	1%	\$75,924	\$148,664
Information and Telecom Tech- nology	561	168	3.6%	3.1%	48%	4%	\$122,555	\$152,682
<b>Transitioning</b>								
Performing and Creative Arts	1,535	203	1.4%	1.8%	152%	-1%	\$28,513	\$33,200
Architecture	170	15	0.9%	1.7%	89%	-4%	\$76,285	\$93,786
Design Services	330	39	1.3%	2.3%	111%	-8%	\$38,144	\$55,454
Marketing, Photography and Related	1,407	137	1.0%	2.4%	82%	-9%	\$33,957	\$69,098
Specialty Education	945	206	2.5%	2.7%	111%	1%	\$36,000	\$35,309

Table 26. Performance of the Detailed Hawai'i County Targeted Industry Portfolio (cont'd)

Health Practitioners	3,346	505	1.6%	2.3%	102%	-3%	\$78,427	\$93,995
Medical Labs and Imaging Centers	236	40	1.9%	2.4%	131%	-2%	\$72,266	\$92,259
Engineering and Related Services	395	30	0.8%	1.8%	42%	-3%	\$97,957	\$117,081
Medical Labs and Imaging Centers	236	40	1.9%	2.4%	131%	-2%	\$72,266	\$92,259
<b>Declining</b>								
Fishing, Forestry and Hunting	459	-44	-0.9%	-0.9%	833%	23%	\$20,860	\$35,114
Art Education	70	-4	-0.6%	2.7%	45%	-15%	\$25,998	\$18,306
Publishing and Information	144	-83	-4.4%	-0.5%	43%	-19%	\$40,821	\$138,896
Engineering and Research and Development	587	-38	-0.6%	2.3%	59%	-17%	\$117,446	\$136,472
Hospitals and Nursing Facilities	997	-135	-1.3%	0.4%	28%	-4%	\$74,092	\$88,737
Pharmacies	541	-19	-0.3%	0.3%	107%	-4%	\$40,598	\$49,456
Alternative Power Generation	51	-65	-7.9%	1.9%	120%	-198%	\$176,825	\$186,027
Biotechnology	17	-18	-6.9%	7.3%	10%	-32%	\$52,234	\$226,730
Chemical and Pharmaceutical Mfg.	35	-47	-8.1%	1.8%	13%	-22%	\$146,091	\$155,916
Other Technology Mfg.	43	-11	-2.3%	0.9%	6%	-2%	\$38,403	\$133,147
R&D Services (except Biotechnology)	384	-37	-0.9%	2.7%	111%	-42%	\$122,029	\$156,762

1/ Proportion of jobs in the industry groups in the region compared to the proportion nationally.

Source: Lightcast™ and DBEDT calculation.

## Maui County

As shown in Table 27 and referenced in Table 1, Maui County accounted for 19,579, equivalent to 12% of the state's 167,423 targeted and emerging industry jobs in 2023. From 2013-2023, Maui County's targeted average annual job growth rate of 1.8% was above Maui's civilian economy's rate of 1.1%, above the state's targeted rate of 0.9%, and the nation's targeted rate of 1.7%. In 2023, average annual earnings for both Maui's civilian economy and targeted were lower than the state's comparable averages and the nation's comparable averages.

Among the six major sectors over the 2013-2023 period, three sectors were in the high-performing Emerging industry groups, two were in the Transitioning industry groups, and one was in the Declining industry groups. The Health and Wellness Sector gained the greatest number of jobs at 2,867. Education Sector jobs had the highest average annual job growth rate at 5.0%. The Agribusiness Sector had the highest concentration of industry compared to the nation's concentration at 106%. The Technology Sector had the highest average annual earnings in 2023 at \$91,502.

Table 27. Performance of the Major Groups of Maui County Targeted Industry Portfolio

Sectors 2/	Jobs in Maui County		Avg. Annual Job Growth Rate 2013-2023		Concentration 1/		Avg. Annual Earnings 2023	
	2023	Change 2013-2023	Maui County	U.S.	2023	Percentage Point Change 13-23	Maui County	U.S.
Total Civilian	110,650	11,509	1.1%	1.8%	100%	0%	\$61,647	\$72,640
Total Targeted without Overlap	19,579	3,277	1.8%	1.7%	78%	6%	\$63,957	\$90,415
<b>Emerging</b>								
Health & Wellness Sector	7,742	2,867	4.7%	1.5%	86%	27%	\$82,067	\$82,963
Education (Private) Sector	909	350	5.0%	0.8%	51%	19%	\$36,467	\$55,255
Other Industry Groups	90	10	1.2%	1.5%	30%	8%	\$23,507	\$54,076
<b>Transitioning</b>								
Technology Sector	2,327	423	2.0%	2.8%	34%	-1%	\$91,502	\$137,421
Creative Sector	6,802	587	0.9%	2.7%	82%	-10%	\$53,902	\$103,233
Creative Sector	6,802	587	0.9%	2.7%	82%	-10%	\$53,902	\$103,233
<b>Declining</b>								
Agribusiness Sector	3,549	-559	-1.5%	1.0%	106%	-21%	\$46,317	\$57,362

1/ Proportion of jobs in the sector in the region compared to the proportion nationally.

2/ The sum of the individual sectors is greater than Total Targeted without Overlap since overlaps exist between sectors.

Source: Lightcast™ and DBEDT calculation.

Table 28 shows the performance of detailed targeted and emerging industry groups in Maui County. Eleven industry groups qualified as high performing, with positive job growth combined with a job growth rate that was higher than the nation for the same activity over the 2013-2023 period. Hospitals and Nursing Facilities added the greatest number of jobs at 1,538 and had the highest average annual job growth rate at 15.1%. Specialty Education had the highest concentration

of industry compared to the nation's concentration, at 102%. Computer Services and Software Publishers had the highest average annual earnings in 2023 at \$133,435.

Thirteen industry groups were in the Transitioning category over the 2013-2023 period. They gained jobs but did not keep up with national growth for the same industry groups resulting in a loss of competitive national industry share. Marketing, Photography and Related gained the greatest number of jobs at 344; Business Consulting, and Technical Consulting Services jobs had the highest average annual job growth rate at 3.5%; and Performing and Creative Arts had the highest concentration of industry compared to the nation's concentration, at 229%. Computer System Design and Related services had the highest average annual earnings in 2023 at \$120,923.

Fourteen industry groups in the portfolio were in the Declining industry category as the result of net job losses for the 2013- 2023 period. Agriculture Packaging and Warehousing and Biotechnology lost the fewest number of jobs at two. Publishing and Information had the lowest average annual job *decline* rate at 0.3%; Fishing, Forestry, and Hunting had the highest concentration of industry compared to the nation's concentration, at 377%. Alternative Power Generation had the highest average annual earnings in 2023 at \$141,632.

Table 28. Performance of the Detailed Maui County Targeted Industry Portfolio

Industry Groups	Jobs in Maui County		Avg. Annual Job Growth Rate 2013-2023		Concentration 1/		Avg. Annual Earnings 2023	
	2023	Change 2013-2023	Maui County	U.S.	2023	Percentage Point Change 13-23	Maui County	U.S.
<b>Base-Growth</b>								
Specialty Education	846	306	4.6%	2.7%	102%	22%	\$32,780	\$35,309
Specialty Health Care Services	1,702	1,032	9.8%	3.3%	101%	50%	\$71,370	\$59,003
Apparel	72	5	0.7%	-2.5%	101%	32%	\$17,572	\$48,678
<b>Emerging</b>								
Radio and Television Broadcasting	69	2	0.3%	-0.2%	79%	8%	\$73,100	\$84,906
Computer Services and Software Publishers	590	242	5.4%	4.3%	33%	5%	\$133,435	\$161,834
Cultural Activities	65	13	2.2%	1.7%	58%	6%	\$61,498	\$73,504
Higher Education	63	45	13.1%	-0.6%	7%	5%	\$86,076	\$72,699
Hospitals and Nursing Facilities	2,034	1,538	15.1%	0.4%	59%	45%	\$106,942	\$88,737

Table 28. Performance of the Detailed Maui County Targeted Industry Portfolio (cont'd)

Call Centers	18	6	3.9%	-1.1%	8%	3%	\$47,581	\$55,731
Information and Telecom Technology	540	191	4.5%	3.1%	48%	8%	\$109,904	\$152,682
Medical Labs and Imaging Centers	126	28	2.5%	2.4%	72%	5%	\$82,725	\$92,259
<b>Transitioning</b>								
Agric. Support Services	244	56	2.6%	3.4%	64%	0%	\$66,585	\$68,627
Art Education	104	9	0.9%	2.7%	68%	-8%	\$29,538	\$18,306
Performing and Creative Arts	2,261	89	0.4%	1.8%	229%	-18%	\$33,848	\$33,200
Architecture	173	20	1.2%	1.7%	93%	1%	\$65,435	\$93,786
Business Consulting	545	159	3.5%	4.4%	40%	-1%	\$40,637	\$101,942
Design Services	356	25	0.7%	2.3%	122%	-11%	\$37,860	\$55,454
Film, TV, Video Production/Distrib, Cable & Media Streaming	134	14	1.1%	1.3%	42%	2%	\$78,729	\$164,200
Marketing, Photography and Related	1,751	344	2.2%	2.4%	105%	4%	\$36,846	\$69,098
Health Practitioners	3,362	321	1.0%	2.3%	105%	-7%	\$78,354	\$93,995
Technical Consulting Services	500	144	3.5%	4.5%	43%	-2%	\$40,232	\$102,720
Technology Equipment Distribution	19	0	0.2%	1.9%	6%	-1%	\$37,444	\$161,864
Computer System Design and Related services	538	134	2.9%	3.4%	35%	1%	\$120,923	\$148,664
Engineering and Related Services	368	14	0.4%	1.8%	40%	-3%	\$88,816	\$117,081
<b>Declining</b>								
Agric. Inputs	59	-19	-2.8%	0.7%	43%	-15%	\$49,772	\$91,187
Agric. Packaging and Warehsg	5	-2	-3.1%	1.8%	5%	-2%	\$15,115	\$70,400
Agric. Processing	577	-82	-1.3%	2.1%	57%	-18%	\$55,054	\$71,314
Farm Production	2,461	-479	-1.8%	0.0%	149%	-17%	\$44,999	\$43,378
Fishing, Forestry and Hunting	203	-33	-1.5%	-0.9%	377%	0%	\$13,010	\$35,114
Music	157	-289	-9.9%	1.1%	142%	-282%	\$33,725	\$51,978
Publishing and Information Engineering and Research and Development	269	-8	-0.3%	-0.5%	82%	7%	\$131,800	\$138,896
Pharmacies	327	-31	-0.9%	2.3%	33%	-9%	\$111,505	\$136,472
Alternative Power Generation	518	-52	-0.9%	0.3%	105%	-7%	\$43,469	\$49,456
Biotechnology	26	-18	-5.1%	1.9%	63%	-58%	\$141,632	\$186,027
Chemical and Pharmaceutical Mfg.	7	-2	-2.8%	7.3%	5%	-7%	\$121,968	\$226,730
Other Technology Mfg.	19	-19	-6.6%	1.8%	7%	-9%	\$77,510	\$155,916
R&D Services (except Biotechnology)	47	-26	-4.4%	0.9%	6%	-4%	\$63,814	\$133,147
	136	-22	-1.5%	2.7%	40%	-17%	\$113,693	\$156,762

1/ Proportion of jobs in the industry groups in the region compared to the proportion nationally. Source: Lightcast™ and DBEDT calculation.

## Kaua‘i County

As shown in Table 29 and referenced in Table 1, Kaua‘i County accounted for 7,998 or 5% of the state’s 167,423 targeted and emerging industry jobs in 2023. From 2013 to 2023, Kaua‘i County’s targeted average annual job growth rate of 1.3% was equal to the overall Kaua‘i civilian economy’s rate of 1.3%, above the state’s targeted rate of 0.9%, and below the nation’s targeted rate of 1.7%. Average annual earnings for both Kaua‘i County’s civilian and targeted were lower than the state’s comparable averages and lower than the nation’s comparable averages.

Among the six major sectors over the 2013- 2023 period, two sectors were in the high-performing Emerging industry groups, three sectors were in the Transitioning industry groups, and one was in the Declining industry groups. The Health and Wellness Sector gained the greatest number of jobs at 382. The Education (Private) Sector had the highest average annual job growth rate at 5.4%. The Agribusiness Sector had the highest concentration of industry compared to the nation’s concentration, at 136%. The Technology Sector had the highest average annual earnings in 2023 at \$99,704.

Table 29. Performance of the Major Groups of Kaua‘i County Targeted Industry Portfolio

Sectors 2/	Jobs in Kaua‘i County		Avg. Annual Job Growth Rate 2013-2023		Concentration 1/		Avg. Annual Earnings 2023	
	2023	Change 2013-2023	Kaua‘i County	U.S.	2023	Percentage Point Change 13-23	Kaua‘i County	U.S.
Total Civilian	48,360	5,816	1.3%	1.8%	100%	0%	\$58,647	\$72,640
Total Targeted without Overlap	7,998	955	1.3%	1.7%	73%	0%	\$61,532	\$90,415
<b>Emerging</b>								
Technology Sector	1,162	311	3.2%	2.8%	39%	3%	\$99,704	\$137,421
Education (Private) Sector	274	113	5.4%	0.8%	35%	14%	\$37,721	\$55,255
<b>Transitioning</b>								
Creative Sector	2,528	208	0.9%	2.7%	69%	-10%	\$48,227	\$103,233
Agribusiness Sector	1,987	164	0.9%	1.0%	136%	5%	\$41,571	\$57,362
Health & Wellness Sector	2,802	382	1.5%	1.5%	71%	3%	\$80,641	\$82,963
<b>Declining</b>								
Other Industry Groups	38	-6	-1.5%	-1.5%	28%	1%	\$13,688	\$54,076

1/ Proportion of jobs in the sector in the region compared to the proportion nationally.

2/ The sum of the individual sectors is greater than Total Targeted without Overlap since overlaps exist between sectors.

Source: Lightcast™ and DBEDT calculation.

Table 30 shows the performance of detailed targeted and emerging industry groups in Kaua‘i County. Fifteen industry groups were high-performing, with a job growth rate that was higher than the nation for the same activity over the 2013- 2023 period. Specialty Health Care Services gained the greatest number of jobs at 160. Alternative Power Generation jobs had the highest average annual job growth rate at 32% and had the highest concentration of industry compared to the nation’s concentration, at 389%. Technology Equipment Distribution had the highest average annual

earnings in 2023 at \$212,624. Nine industry groups were in the Transitioning category over the 2013-2023 period. They gained jobs but did not keep up with national growth for the same industry groups resulting in a loss of competitive national industry share. Health Practitioners gained the greatest number of jobs at 179. Computer Services and Software Publishers jobs had the highest average annual job growth rate at 3.2%. Biotechnology had the highest concentration of industry compared to the nation's concentration, at 229%. In 2023, Engineering and Related Services had the highest average annual earnings at \$128,941.

Fourteen industries in the portfolio were in the Declining industry category as the result of net job losses over the 2013- 2023 period. Chemical and Pharmaceutical Mfg. lost the one remaining job and currently has no jobs in this industry group. Marketing, Photography and Related had the lowest average annual job *decline* rate at 0.4%; and Fishing, Forestry and Hunting had the highest concentration of industry compared to the nation's concentration, at 631%, and Engineering and Research and Development had the highest average annual earnings in 2023 at \$119,607.

Table 30. Performance of the Detailed Kaua'i County Targeted Industry Portfolio

Industry Groups	Jobs in Kaua'i County		Avg. Annual Job Growth Rate 2013-2023		Concentration 1/		Avg. Annual Earnings 2023	
	2023	Change 13-23	Kaua'i County	U.S.	2023	Percentage Point Change 13-23	Kaua'i County	U.S.
<b>Base-Growth</b>								
Farm Production	1,337	12	0.1%	0.0%	185%	11%	\$41,266	\$43,378
Architecture	86	19	2.5%	1.7%	107%	12%	\$109,839	\$93,786
Alternative Power Generation	71	67	32.0%	1.9%	389%	361%	\$159,010	\$186,027
<b>Emerging</b>								
Agric. Packaging and Warehsg	3	1	2.8%	1.8%	6%	1%	\$15,328	\$70,400
Agric. Processing	357	130	4.6%	2.1%	81%	20%	\$49,942	\$71,314
Agric. Support Services	128	59	6.3%	3.4%	77%	21%	\$50,010	\$68,627
Business Consulting	311	159	7.4%	4.4%	53%	15%	\$45,580	\$101,942
Higher Education	13	8	9.0%	-0.6%	3%	2%	\$69,345	\$72,699
Specialty Education	261	105	5.3%	2.7%	72%	18%	\$36,108	\$35,309
Hospitals and Nursing Facilities	885	54	0.6%	0.4%	59%	4%	\$88,837	\$88,737
Specialty Health Care Services	456	160	4.4%	3.3%	62%	9%	\$63,110	\$59,003
Call Centers	6	5	22.0%	-1.1%	6%	5%	\$23,297	\$55,731
Technical Consulting Services	300	156	7.6%	4.5%	59%	17%	\$46,358	\$102,720
Technology Equipment Distribution	8	6	18.9%	1.9%	6%	4%	\$212,624	\$161,864
Information and Telecom Technology	170	58	4.3%	3.1%	34%	5%	\$126,657	\$152,682

Table 30. Performance of the Detailed Kaua‘i County Targeted Industry Portfolio (cont'd)

<b>Transitioning</b>								
Performing and Creative Arts	724	96	1.4%	1.8%	168%	2%	\$31,564	\$33,200
Computer Services and Software Publishers	183	49	3.2%	4.3%	24%	-2%	\$120,240	\$161,834
Design Services	124	11	1.0%	2.3%	97%	-9%	\$36,840	\$55,454
Health Practitioners	1,173	179	1.7%	2.3%	84%	-1%	\$88,107	\$93,995
Medical Labs and Imaging Centers	64	13	2.4%	2.4%	83%	4%	\$79,003	\$92,259
Biotechnology	157	1	0.0%	7.3%	229%	-213%	\$114,359	\$226,730
Computer System Design and Related services	192	37	2.2%	3.4%	28%	-2%	\$100,055	\$148,664
Engineering and Related Services	157	7	0.5%	1.8%	39%	-4%	\$128,941	\$117,081
Medical Labs and Imaging Centers	64	13	2.4%	2.4%	83%	4%	\$79,003	\$92,259
<b>Declining</b>								
Agric. Inputs	13	-23	-9.8%	0.7%	22%	-41%	\$55,288	\$91,187
Fishing, Forestry and Hunting	149	-13	-0.8%	-0.9%	631%	29%	\$16,273	\$35,114
Music	48	-10	-1.9%	1.1%	100%	-30%	\$23,172	\$51,978
Publishing and Information	65	-13	-1.8%	-0.5%	45%	-4%	\$39,115	\$138,896
Radio and Television Broadcasting	41	-9	-2.0%	-0.2%	105%	-16%	\$40,690	\$84,906
Cultural Activities	56	-37	-5.0%	1.7%	115%	-101%	\$49,427	\$73,504
Engineering and Research and Development	110	-39	-3.0%	2.3%	26%	-16%	\$119,607	\$136,472
Film, TV, Video Production/Distrib, Cable & Media Streaming	70	-7	-1.0%	1.3%	49%	-10%	\$50,541	\$164,200
Marketing, Photography and Related	663	-28	-0.4%	2.4%	91%	-24%	\$34,511	\$69,098
Pharmacies	223	-25	-1.0%	0.3%	103%	-10%	\$45,119	\$49,456
Apparel	32	-11	-3.0%	-2.5%	101%	-1%	\$11,850	\$48,678
Chemical and Pharmaceutical Mfg.	0	-1	-100.0%	1.8%	0%	-1%	No jobs	\$155,916
Other Technology Mfg.	2	-5	-11.0%	0.9%	1%	-2%	\$43,851	\$133,147
R&D Services (except Biotechnology)	41	-28	-5.1%	2.7%	27%	-31%	\$118,971	\$156,762

1/ Proportion of jobs in the industry groups in the region compared to the proportion nationally.  
Source: Lightcast™ and DBEDT calculation.



## CONCLUSIONS

This report is the latest update of the performance measures of Hawai'i's Targeted Industry Portfolio which was developed in 2009. The 2009 report, which initially established and measured the targeted industry portfolio, showed that some industry groups performed well during the expansion phase (as measured by changes in jobs). The 2013 - 2023 update reports have extended those measurements, providing an analysis of how targets performed over the fluctuations of the business cycle. This 2024 update report used the 2023 data to illustrate how targeted industries have been performing during the 2013-2023 period.

Table 31 summarizes the best-performing targeted industry groups for the 2013-2023 period in terms of average growth and national competitiveness. They all showed growth and at the same time outperformed the same industry groups nationally over the measurement period. Among the seven best-performing industry groups, four groups had average earnings above the average for Hawai'i's civilian economy.

Table 31. Highest Performing Targeted Industry Groups, 2013 to 2023

Industry Groups	Jobs in Hawai'i		Avg. Annual Job Growth 2013-2023		Concentration 1/		Avg. Annual Earnings 2023	
	2023	Change 2013-2023	HI	U.S.	2023	Percentage Point Change 13-23	HI	U.S.
Total Civilian	881,867	62,424	0.7%	1.8%	100.0%	0%	\$69,537	\$72,640
Total Targeted without Overlap	167,423	14,656	0.9%	1.7%	83.6%	2%	\$75,216	\$90,415
<b>Base-Growth and Emerging Industry Groups</b>								
<b>Above Average State Earnings</b>								
Film, TV, Video Production/Distrib, Cable & Media Streaming	2,247	427	2.1%	1.3%	87%	15%	\$95,551	\$164,200
Hospitals and Nursing Facilities	20,703	1,236	0.6%	0.4%	75%	9%	\$100,550	\$88,737
Specialty Health Care Services	13,360	4,339	4.0%	3.3%	100%	16%	\$75,237	\$59,003
Technology Equipment Distribution	949	197	2.4%	1.9%	37%	5%	\$146,035	\$161,864
<b>Below Average State Earnings</b>								
Aquaculture	446	208	6.5%	2.9%	1422%	513%	\$59,151	\$50,300
Agric. Support Services	2,280	892	5.1%	3.4%	75%	18%	\$64,201	\$68,627
Call Centers	347	76	2.5%	-1.1%	19%	7%	\$29,476	\$55,731

1/ Proportion of jobs in the industry groups in the region compared to the proportion nationally.

Source: Lightcast™ and DBEDT calculation

## APPENDIX A. DETAILED INDUSTRY GROUPINGS 1/

NAICS	Industry Description	Industry Group Name	Industry Group Abbreviation
111000	Crop Production	Farm Production	AG5
112000	Animal Production	Farm Production	AG5
113110	Timber Tract Operations	Fishing, Forestry and Hunting	AG6
113210	Forest Nurseries and Gathering of Forest Products	Fishing, Forestry and Hunting	AG6
114111	Finfish Fishing	Fishing, Forestry and Hunting	AG6
114112	Shellfish Fishing	Fishing, Forestry and Hunting	AG6
114210	Hunting and Trapping	Fishing, Forestry and Hunting	AG6
115112	Soil Preparation, Planting, and Cultivating	Farm Production	AG5
115113	Crop Harvesting, Primarily by Machine	Farm Production	AG5
115114	Postharvest Crop Activities (except Cotton Ginning)	Farm Production	AG5
115115	Farm Labor Contractors and Crew Leaders	Farm Production	AG5
115116	Farm Management Services	Farm Production	AG5
115210	Support Activities for Animal Production	Agric. Support Services	AG4
115310	Support Activities for Forestry	Agric. Support Services	AG4
221111	Hydroelectric Power Generation	Alternative Power Generation	TS1
221113	Nuclear Electric Power Generation	Alternative Power Generation	TS1
221114	Solar Electric Power Generation	Alternative Power Generation	TS1
221115	Wind Electric Power Generation	Alternative Power Generation	TS1
221116	Geothermal Electric Power Generation	Alternative Power Generation	TS1
221117	Biomass Electric Power Generation	Alternative Power Generation	TS1
221118	Other Electric Power Generation	Alternative Power Generation	TS1
311111	Dog and Cat Food Manufacturing	Agric. Processing	AG3
311119	Other Animal Food Manufacturing	Agric. Processing	AG3
311211	Flour Milling	Agric. Processing	AG3
311212	Rice Milling	Agric. Processing	AG3
311221	Wet Corn Milling	Other Technology Mfg	TS8
311224	Soybean and Other Oilseed Processing	Other Technology Mfg	TS8
311224	Soybean and Other Oilseed Processing	Agric. Processing	AG3
311314	Cane Sugar Manufacturing	Agric. Processing	AG3
311340	Nonchocolate Confectionery Manufacturing	Agric. Processing	AG3
311351	Chocolate and Confectionery Manufacturing from Cacao Beans	Agric. Processing	AG3
311352	Confectionery Manufacturing from Purchased Chocolate	Agric. Processing	AG3
311411	Frozen Fruit, Juice, and Vegetable Manufacturing	Agric. Processing	AG3
311412	Frozen Specialty Food Manufacturing	Agric. Processing	AG3
311421	Fruit and Vegetable Canning	Agric. Processing	AG3
311423	Dried and Dehydrated Food Manufacturing	Agric. Processing	AG3
311511	Fluid Milk Manufacturing	Agric. Processing	AG3
311513	Cheese Manufacturing	Agric. Processing	AG3
311520	Ice Cream and Frozen Dessert Manufacturing	Agric. Processing	AG3
311611	Animal (except Poultry) Slaughtering	Agric. Processing	AG3
311612	Meat Processed from Carcasses	Agric. Processing	AG3
311613	Rendering and Meat Byproduct Processing	Agric. Processing	AG3
311615	Poultry Processing	Agric. Processing	AG3
311710	Seafood Product Preparation and Packaging	Agric. Processing	AG3
311812	Commercial Bakeries	Agric. Processing	AG3
311813	Frozen Cakes, Pies, and Other Pastries Manufacturing	Agric. Processing	AG3
311821	Cookie and Cracker Manufacturing	Agric. Processing	AG3
311824	Dry Pasta, Dough, and Flour Mixes Manufacturing from Purchased Flour	Agric. Processing	AG3
311830	Tortilla Manufacturing	Agric. Processing	AG3
311213	Malt Manufacturing	Agric. Processing	AG3
311422	Specialty Canning	Agric. Processing	AG3
311911	Roasted Nuts and Peanut Butter Manufacturing	Agric. Processing	AG3
311919	Other Snack Food Manufacturing	Agric. Processing	AG3
311920	Coffee and Tea Manufacturing	Agric. Processing	AG3
311930	Flavoring Syrup and Concentrate Manufacturing	Agric. Processing	AG3
311942	Spice and Extract Manufacturing	Agric. Processing	AG3
311991	Perishable Prepared Food Manufacturing	Agric. Processing	AG3
311999	All Other Miscellaneous Food Manufacturing	Agric. Processing	AG3
312111	Soft Drink Manufacturing	Agric. Processing	AG3

## Appendix A. Detailed Industry Groupings (cont'd)

NAICS	Industry Description	Industry Group Name	Industry Group Abbreviation
312112	Bottled Water Manufacturing	Agric. Processing	AG3
312113	Ice Manufacturing	Agric. Processing	AG3
312120	Breweries	Agric. Processing	AG3
312130	Wineries	Agric. Processing	AG3
312140	Distilleries	Agric. Processing	AG3
315210	Cut and Sew Apparel Contractors	Apparel	OT1
315250	Cut and Sew Apparel Manufacturing (except Contractors)	Apparel	OT1
315990	Apparel Accessories and Other Apparel Manufacturing	Apparel	OT1
321920	Wood Container and Pallet Manufacturing	Agric. Packaging and Warehsg	AG2
325193	Ethyl Alcohol Manufacturing	Chemical and Pharmaceutical Mfg	TS3
325199	All Other Basic Organic Chemical Manufacturing	Chemical and Pharmaceutical Mfg	TS3
325211	Plastics Material and Resin Manufacturing	Chemical and Pharmaceutical Mfg	TS3
325220	Artificial and Synthetic Fibers and Filaments Manufacturing	Chemical and Pharmaceutical Mfg	TS3
325311	Nitrogenous Fertilizer Manufacturing	Chemical and Pharmaceutical Mfg	TS3
325311	Nitrogenous Fertilizer Manufacturing	Agric. Inputs	AG1
325312	Phosphatic Fertilizer Manufacturing	Chemical and Pharmaceutical Mfg	TS3
325314	Fertilizer (Mixing Only) Manufacturing	Agric. Inputs	AG1
325315	Compost Manufacturing	Agric. Inputs	AG1
325320	Pesticide and Other Agricultural Chemical Manufacturing	Chemical and Pharmaceutical Mfg	TS3
325320	Pesticide and Other Agricultural Chemical Manufacturing	Agric. Inputs	AG1
325411	Medicinal and Botanical Manufacturing	Chemical and Pharmaceutical Mfg	TS3
325412	Pharmaceutical Preparation Manufacturing	Chemical and Pharmaceutical Mfg	TS3
325413	In-Vitro Diagnostic Substance Manufacturing	Chemical and Pharmaceutical Mfg	TS3
325414	Biological Product (except Diagnostic) Manufacturing	Chemical and Pharmaceutical Mfg	TS3
326160	Plastics Bottle Manufacturing	Agric. Packaging and Warehsg	AG2
332431	Metal Can Manufacturing	Agric. Packaging and Warehsg	AG2
333111	Farm Machinery and Equipment Manufacturing	Agric. Inputs	AG1
333242	Semiconductor Machinery Manufacturing	Other Technology Mfg	TS8
333310	Commercial and Service Industry Machinery Manufacturing	Other Technology Mfg	TS8
334290	Other Communications Equipment Manufacturing	Other Technology Mfg	TS8
334310	Audio and Video Equipment Manufacturing	Other Technology Mfg	TS8
334510	Electromedical and Electrotherapeutic Apparatus Manufacturing	Other Technology Mfg	TS8
334511	Search, Detection, Navigation, Guidance, Aeronautical, and Nautical System and Instrument Manufacturing	Other Technology Mfg	TS8
334513	Instruments and Related Products Manufacturing for Measuring, Displaying, and Controlling Industrial Process Variables	Other Technology Mfg	TS8
334516	Analytical Laboratory Instrument Manufacturing	Other Technology Mfg	TS8
334517	Irradiation Apparatus Manufacturing	Other Technology Mfg	TS8
334610	Manufacturing and Reproducing Magnetic and Optical Media	Film, TV, Video Production/Distrib, Cable & Media Streaming	CS8
335921	Fiber Optic Cable Manufacturing	Other Technology Mfg	TS8
336411	Aircraft Manufacturing	Other Technology Mfg	TS8
336412	Aircraft Engine and Engine Parts Manufacturing	Other Technology Mfg	TS8
336413	Other Aircraft Parts and Auxiliary Equipment Manufacturing	Other Technology Mfg	TS8
336414	Guided Missile and Space Vehicle Manufacturing	Other Technology Mfg	TS8
336415	Guided Missile and Space Vehicle Propulsion Unit and Propulsion Unit Parts Manufacturing	Other Technology Mfg	TS8
336419	Other Guided Missile and Space Vehicle Parts and Auxiliary Equipment Manufacturing	Other Technology Mfg	TS8
339112	Surgical and Medical Instrument Manufacturing	Other Technology Mfg	TS8
339113	Surgical Appliance and Supplies Manufacturing	Other Technology Mfg	TS8
339114	Dental Equipment and Supplies Manufacturing	Other Technology Mfg	TS8
339115	Ophthalmic Goods Manufacturing	Other Technology Mfg	TS8
339116	Dental Laboratories	Other Technology Mfg	TS8
423420	Office Equipment Merchant Wholesalers	Technology Equipment Distribution	TS11
423430	Computer and Computer Peripheral Equipment and Software Merchant Wholesalers	Technology Equipment Distribution	TS11
423450	Medical, Dental, and Hospital Equipment and Supplies Merchant Wholesalers	Technology Equipment Distribution	TS11
424520	Livestock Merchant Wholesalers	Agric. Inputs	AG1
424590	Other Farm Product Raw Material Merchant Wholesalers	Agric. Inputs	AG1
424910	Farm Supplies Merchant Wholesalers	Agric. Inputs	AG1
456110	Pharmacies and Drug Retailers	Pharmacies	HW4
459140	Musical Instrument and Supplies Retailers	Music	CS10
459920	Art Dealers	Performing and Creative Arts	CS11
493120	Refrigerated Warehousing and Storage	Agric. Packaging and Warehsg	AG2

## Appendix A. Detailed Industry Groupings (cont'd)

NAICS	Industry Description	Industry Group Name	Industry Group Abbreviation
512110	Motion Picture and Video Production	Film, TV, Video Production/Distrib, Cable & Media Streaming	CS8
512120	Motion Picture and Video Distribution	Film, TV, Video Production/Distrib, Cable & Media Streaming	CS8
512191	Teleproduction and Other Postproduction Services	Film, TV, Video Production/Distrib, Cable & Media Streaming	CS8
512230	Music Publishers	Music	CS10
512240	Sound Recording Studios	Music	CS10
512250	Record Production and Distribution	Music	CS10
512290	Other Sound Recording Industries	Music	CS10
513110	Newspaper Publishers	Publishing and Information	CS12
513120	Periodical Publishers	Publishing and Information	CS12
513130	Book Publishers	Publishing and Information	CS12
513140	Directory and Mailing List Publishers	Publishing and Information	CS12
513191	Greeting Card Publishers	Publishing and Information	CS12
513199	All Other Publishers	Publishing and Information	CS12
513210	Software Publishers	Information and Telecom Technology	TS6
513210	Software Publishers	Computer Services and Software Publishers	CS4
516110	Radio Broadcasting Stations	Radio and Television Broadcasting	CS13
516120	Television Broadcasting Stations	Radio and Television Broadcasting	CS13
516210	Media Streaming Distribution Services, Social Networks, and Other Media Networks and Content Providers	Film, TV, Video Production/Distrib, Cable & Media Streaming	CS8
517111	Wired Telecommunications Carriers	Information and Telecom Technology	TS6
517112	Wireless Telecommunications Carriers (except Satellite)	Information and Telecom Technology	TS6
517410	Satellite Telecommunications	Information and Telecom Technology	TS6
517810	All Other Telecommunications	Information and Telecom Technology	TS6
518210	Data Processing, Hosting, and Related Services	Information and Telecom Technology	TS6
519290	Web Search Portals and All Other Information Services	Publishing and Information	CS12
523160	Commodity Contracts Intermediation	Agric. Support Services	AG4
541310	Architectural Services	Engineering and Related Services	TS5
541310	Architectural Services	Architecture	CS2
541320	Landscape Architectural Services	Engineering and Related Services	TS5
541320	Landscape Architectural Services	Architecture	CS2
541330	Engineering Services	Engineering and Related Services	TS5
541330	Engineering Services	Engineering and Research and Development	CS7
541340	Drafting Services	Design Services	CS6
541360	Geophysical Surveying and Mapping Services	Engineering and Related Services	TS5
541380	Testing Laboratories	Engineering and Related Services	TS5
541410	Interior Design Services	Design Services	CS6
541420	Industrial Design Services	Design Services	CS6
541430	Graphic Design Services	Design Services	CS6
541490	Other Specialized Design Services	Design Services	CS6
541511	Custom Computer Programming Services	Computer System Design and Related services	TS4
541511	Custom Computer Programming Services	Computer Services and Software Publishers	CS4
541512	Computer Systems Design Services	Computer System Design and Related services	TS4
541512	Computer Systems Design Services	Computer Services and Software Publishers	CS4
541513	Computer Facilities Management Services	Computer System Design and Related services	TS4
541519	Other Computer Related Services	Computer System Design and Related services	TS4
541611	Administrative Management and General Management Consulting Services	Technical Consulting Services	TS10
541611	Administrative Management and General Management Consulting Services	Business Consulting	CS3
541612	Human Resources Consulting Services	Business Consulting	CS3
541613	Marketing Consulting Services	Marketing, Photography and Related	CS9
541614	Process, Physical Distribution, and Logistics Consulting Services	Technical Consulting Services	TS10
541614	Process, Physical Distribution, and Logistics Consulting Services	Business Consulting	CS3
541618	Other Management Consulting Services	Business Consulting	CS3
541620	Environmental Consulting Services	Technical Consulting Services	TS10
541620	Environmental Consulting Services	Business Consulting	CS3

## Appendix A. Detailed Industry Groupings (cont'd)

NAICS	Industry Description	Industry Group Name	Industry Group Abbreviation
541690	Other Scientific and Technical Consulting Services	Technical Consulting Services	TS10
541690	Other Scientific and Technical Consulting Services	Business Consulting	CS3
541714	Research and Development in Biotechnology (except Nanobiotechnology)	Biotechnology	TS2
541715	Research and Development in the Physical, Engineering, and Life Sciences (except Nanotechnology and Biotechnology)	R&D Services (except Biotechnology)	TS9
541715	Research and Development in the Physical, Engineering, and Life Sciences (except Nanotechnology and Biotechnology)	Engineering and Research and Development	CS7
541720	Research and Development in the Social Sciences and Humanities	R&D Services (except Biotechnology)	TS9
541720	Research and Development in the Social Sciences and Humanities	Engineering and Research and Development	CS7
541810	Advertising Agencies	Marketing, Photography and Related	CS9
541820	Public Relations Agencies	Marketing, Photography and Related	CS9
541830	Media Buying Agencies	Marketing, Photography and Related	CS9
541840	Media Representatives	Marketing, Photography and Related	CS9
541850	Outdoor Advertising	Marketing, Photography and Related	CS9
541860	Direct Mail Advertising	Marketing, Photography and Related	CS9
541870	Advertising Material Distribution Services	Marketing, Photography and Related	CS9
541890	Other Services Related to Advertising	Marketing, Photography and Related	CS9
541910	Marketing Research and Public Opinion Polling	Marketing, Photography and Related	CS9
541921	Photography Studios, Portrait	Marketing, Photography and Related	CS9
541922	Commercial Photography	Marketing, Photography and Related	CS9
541940	Veterinary Services	Agric. Support Services	AG4
541990	All Other Professional, Scientific, and Technical Services	Marketing, Photography and Related	CS9
561421	Telephone Answering Services	Call Centers	OT2
561422	Telemarketing Bureaus and Other Contact Centers	Call Centers	OT2
611210	Junior Colleges	Higher Education	ED1
611310	Colleges, Universities, and Professional Schools	Higher Education	ED1
611410	Business and Secretarial Schools	Specialty Education	ED2
611420	Computer Training	Computer System Design and Related services	TS4
611420	Computer Training	Specialty Education	ED2
611430	Professional and Management Development Training	Specialty Education	ED2
611511	Cosmetology and Barber Schools	Specialty Education	ED2
611512	Flight Training	Specialty Education	ED2
611519	Other Technical and Trade Schools	Specialty Education	ED2
611610	Fine Arts Schools	Art Education	CS1
611610	Fine Arts Schools	Specialty Education	ED2
611620	Sports and Recreation Instruction	Specialty Education	ED2
611630	Language Schools	Specialty Education	ED2
611699	All Other Miscellaneous Schools and Instruction	Specialty Education	ED2
611710	Educational Support Services	Specialty Education	ED2
621111	Offices of Physicians (except Mental Health Specialists)	Health Practitioners	HW1
621112	Offices of Physicians, Mental Health Specialists	Health Practitioners	HW1
621210	Offices of Dentists	Health Practitioners	HW1
621310	Offices of Chiropractors	Health Practitioners	HW1
621320	Offices of Optometrists	Health Practitioners	HW1
621330	Offices of Mental Health Practitioners (except Physicians)	Health Practitioners	HW1
621340	Offices of Physical, Occupational and Speech Therapists, and Audiologists	Health Practitioners	HW1
621391	Offices of Podiatrists	Health Practitioners	HW1
621399	Offices of All Other Miscellaneous Health Practitioners	Health Practitioners	HW1
621410	Family Planning Centers	Specialty Health Care Services	HW5
621420	Outpatient Mental Health and Substance Abuse Centers	Specialty Health Care Services	HW5
621491	HMO Medical Centers	Specialty Health Care Services	HW5
621492	Kidney Dialysis Centers	Specialty Health Care Services	HW5
621493	Freestanding Ambulatory Surgical and Emergency Centers	Specialty Health Care Services	HW5
621498	All Other Outpatient Care Centers	Specialty Health Care Services	HW5
621511	Medical Laboratories	Medical Labs and Imaging Centers	TS7
621511	Medical Laboratories	Medical Labs and Imaging Centers	HW3
621512	Diagnostic Imaging Centers	Medical Labs and Imaging Centers	TS7
621512	Diagnostic Imaging Centers	Medical Labs and Imaging Centers	HW3
621610	Home Health Care Services	Specialty Health Care Services	HW5
622110	General Medical and Surgical Hospitals	Hospitals and Nursing Facilities	HW2
622210	Psychiatric and Substance Abuse Hospitals	Hospitals and Nursing Facilities	HW2
622310	Specialty (except Psychiatric and Substance Abuse) Hospitals	Hospitals and Nursing Facilities	HW2
623110	Nursing Care Facilities (Skilled Nursing Facilities)	Hospitals and Nursing Facilities	HW2

## Appendix A. Detailed Industry Groupings (cont'd)

NAICS	Industry Description	Industry Group Name	Industry Group Abbreviation
711110	Theater Companies and Dinner Theaters	Performing and Creative Arts	CS11
711120	Dance Companies	Performing and Creative Arts	CS11
711130	Musical Groups and Artists	Music	CS10
711190	Other Performing Arts Companies	Performing and Creative Arts	CS11
711310	Promoters of Performing Arts, Sports, and Similar Events with Facilities	Performing and Creative Arts	CS11
711320	Promoters of Performing Arts, Sports, and Similar Events without Facilities	Performing and Creative Arts	CS11
711410	Agents and Managers for Artists, Athletes, Entertainers, and Other Public Figures	Performing and Creative Arts	CS11
711510	Independent Artists, Writers, and Performers	Performing and Creative Arts	CS11
712110	Museums	Cultural Activities	CS5
712120	Historical Sites	Cultural Activities	CS5
712190	Nature Parks and Other Similar Institutions	Cultural Activities	CS5
813211	Grantmaking Foundations	Cultural Activities	CS5

Source: DBEDT

1/ An industry may be counted in more than one sector or industry group. The shaded industries are counted in different sectors.