

# Hawai‘i’s Targeted & Emerging Industries

## *2023 Update Report*



**Department of Business, Economic Development and Tourism  
November 2023**

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**Hawai‘i Department of Business, Economic Development & Tourism**  
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## EXECUTIVE SUMMARY

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In 2009 DBEDT Research compiled and published a performance review of Hawai‘i’s targeted & emerging (or ‘targeted’) industry portfolio.<sup>1</sup> The portfolio consisted of several dozen economic activities that had been suggested, proposed, or actively promoted over the past several decades as potential new growth industries. The purpose of the review was to better define those activities for measurement purposes and to find out which had performed best in recent years. This report is the 14<sup>th</sup> update of the 2009 report and covers the 2012-2022 period.

Targeted and emerging industries were grouped (“activities”) into four performance categories. *Base-growth* activities rated the highest based on state and national performance and were more concentrated in Hawai‘i’s economy than the nation overall. Industries in this category had developed a competitive national advantage and were probably exporting some proportion of industry output. *Emerging* activities also rated high on performance but had not reached a level of concentration that would as yet suggest a competitive advantage. *Transitioning* activities in the portfolio were showing growth in jobs over the measurement period (and in some cases impressive growth) but were outperformed by the same activity nationally, suggesting that Hawai‘i was not as competitive. Finally, *declining* activities 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 2022.

Table 1 provides a comprehensive overview of performance among activities in the Targeted Industry Portfolio over the 2012 to 2022 period. In the body of this report, the activities will be examined in detail by their major sector groups such as Technology, Creative, and Agribusiness. 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 using the compound annual growth rate formula. Key observations from the updated examination of the portfolio are:

- Hawai‘i’s total targeted jobs reached 160,660 jobs in 2022, an increase of 12,378 jobs or an average annual growth rate of 0.8% from 2012; Hawai‘i’s average annual job growth rates were lower than the nation’s for both the civilian economies and targeted industries; and 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 2022.
- Six Hawai‘i activities were high performing, with positive jobs growth combined with average annual job growth rates that were higher in Hawai‘i than the nation for the same activity. Between 2012 and 2022, Specialty Health Care Services gained the greatest number of jobs at 4,822 and Agriculture Support Services jobs increased at an average annual growth rate of 4.8%. The activity with the highest concentration compared to the nation was Pharmacies at 126%. Technology Equipment Distribution had the highest average annual earnings at \$154,242 in 2022 among all targeted jobs in Hawai‘i.

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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/)

- Seventeen Hawai'i activities were in the Transitioning category. They gained jobs over the 2012 to 2022 period but did not keep up with national growth for the same activities, resulting in a loss of competitive national industry share. However, most of these activities had larger job number gains as a percentage of the workforce than the civilian economy as a whole. Between 2012 and 2022, for Hawai'i, Health Practitioners gained the greatest number of jobs at 3,398; Technical Consulting Services had the highest average annual job growth rate at 3.1%; and the Music concentration of industry compared to the nation's concentration was the highest at 141%. In 2022, Hawai'i's Chemical and Pharmaceutical Manufacturing had the highest average annual earnings at \$140,426.
- Sixteen Hawai'i activities in the portfolio were in the Declining category as the result of net job losses for the 2012 to 2022 period. Higher Education jobs declined the most at 1,472, and Biotechnology had the largest average annual job *decline* rate at 6.1%.

Table 1. Overall Performance of the Targeted Industry Portfolio

| Industry Group 2/  | Jobs in Hawai'i |              | Avg. Annual Job Growth Rate 2012-2022 |      | Concentration 1/ |                      | Avg. Annual Earnings 2022 |           |
|--|-----------------|--------------|---------------------------------------|------|------------------|----------------------|---------------------------|-----------|
|  | 2022            | Change 12-22 | HI                                    | U.S. | 2022             | % Point Change 12-22 | HI                        | U.S.      |
| Civilian Total   | 841,332         | 40,788       | 0.5%                                  | 1.5% | 100%             | 0%                   | \$66,971                  | \$71,873  |
| Total Targeted without Overlap                                     | 160,660         | 12,378       | 0.8%                                  | 1.6% | 84%              | 2%                   | \$73,688                  | \$89,508  |
| <b>Base-Growth Activities</b>                                      |                 |              |                                       |      |                  |                      |                           |           |
| Pharmacies   | 4,937           | 391          | 0.8%                                  | 0.5% | 126%             | 16%                  | \$42,640                  | \$47,955  |
| Specialty Health Care Services                                     | 13,091          | 4,822        | 4.7%                                  | 3.2% | 103%             | 22%                  | \$72,065                  | \$58,079  |
| <b>Emerging Activities</b>   |                 |              |                                       |      |                  |                      |                           |           |
| Agriculture Support Services                                       | 2,177           | 811          | 4.8%                                  | 3.0% | 76%              | 18%                  | \$68,069                  | \$64,935  |
| Film, TV, Video Production/Distribution, Cable and Media Streaming | 2,626           | 973          | 4.7%                                  | 2.3% | 94%              | 27%                  | \$100,740                 | \$152,917 |
| Hospitals and Nursing Facilities                                   | 20,444          | 1,420        | 0.7%                                  | 0.1% | 77%              | 12%                  | \$100,824                 | \$87,771  |
| Technology Equipment Distribution                                  | 940             | 180          | 2.1%                                  | 1.6% | 38%              | 5%                   | \$154,242                 | \$156,951 |
| <b>Transitioning Activities</b>                                    |                 |              |                                       |      |                  |                      |                           |           |
| Art Education  | 764             | 111          | 1.6%                                  | 1.7% | 75%              | 6%                   | \$22,907                  | \$19,712  |
| Music  | 1,305           | 147          | 1.2%                                  | 2.1% | 141%             | 1%                   | \$42,836                  | \$48,113  |
| Performing and Creative Arts                                       | 9,450           | 776          | 0.9%                                  | 1.8% | 123%             | 1%                   | \$27,356                  | \$32,738  |
| Business Consulting  | 6,188           | 1,334        | 2.5%                                  | 4.0% | 62%              | -3%                  | \$75,655                  | \$102,713 |
| Computer Services and Software Publishers                          | 5,730           | 1,053        | 2.1%                                  | 4.5% | 42%              | -6%                  | \$126,084                 | \$158,327 |
| Design Services  | 1,974           | 30           | 0.2%                                  | 1.6% | 95%              | -4%                  | \$40,349                  | \$53,919  |
| Engineering and Research and Development                           | 5,988           | 225          | 0.4%                                  | 1.9% | 80%              | -4%                  | \$119,574                 | \$133,311 |
| Marketing, Photography and Related                                 | 11,249          | 795          | 0.7%                                  | 2.0% | 92%              | -2%                  | \$37,081                  | \$68,302  |
| Specialty Education  | 5,883           | 808          | 1.5%                                  | 1.8% | 104%             | 8%                   | \$38,127                  | \$38,662  |
| Health Practitioners   | 25,271          | 3,398        | 1.5%                                  | 2.1% | 103%             | 4%                   | \$98,238                  | \$92,905  |
| Technical Consulting Services                                      | 5,724           | 1,515        | 3.1%                                  | 4.1% | 67%              | 1%                   | \$75,535                  | \$103,589 |
| Chemical and Pharmaceutical Manufacturing                          | 125             | 16           | 1.4%                                  | 2.0% | 6%               | 0%                   | \$140,426                 | \$154,583 |
| Computer System Design and Related Services                        | 6,595           | 97           | 0.1%                                  | 3.6% | 55%              | -15%                 | \$115,279                 | \$144,399 |
| Engineering and Related Services                                   | 6,822           | 741          | 1.2%                                  | 1.5% | 97%              | 6%                   | \$116,233                 | \$113,949 |
| Information and Telecom Technology                                 | 4,940           | 320          | 0.7%                                  | 2.6% | 60%              | -5%                  | \$116,308                 | \$157,682 |
| Medical Labs and Imaging Centers                                   | 1,941           | 194          | 1.1%                                  | 2.7% | 139%             | -8%                  | \$80,950                  | \$91,452  |

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

| Industry Group                        | Jobs in Hawai'i |              | Avg. Annual Job Growth Rate 2012-2022 |       | Concentration 1/ |                      | Avg. Annual Earnings 2022 |           |
|---------------------------------------|-----------------|--------------|---------------------------------------|-------|------------------|----------------------|---------------------------|-----------|
|                                       | 2022            | Change 12-22 | HI                                    | U.S.  | 2022             | % Point Change 12-22 | HI                        | U.S.      |
| <b>Declining Activities</b>           |                 |              |                                       |       |                  |                      |                           |           |
| Agriculture Inputs                    | 401             | -15          | -0.4%                                 | 0.7%  | 38%              | 0%                   | \$62,838                  | \$89,861  |
| Agriculture Packaging and Warehousing | 243             | -21          | -0.8%                                 | 1.8%  | 29%              | -5%                  | \$62,857                  | \$69,425  |
| Agriculture Processing                | 6,344           | -339         | -0.5%                                 | 2.0%  | 82%              | -13%                 | \$55,828                  | \$69,586  |
| Farm Production                       | 13,207          | -595         | -0.4%                                 | 0.1%  | 101%             | 5%                   | \$38,506                  | \$43,544  |
| Fishing, Forestry and Hunting         | 1,522           | -93          | -0.6%                                 | 0.1%  | 339%             | 12%                  | \$30,379                  | \$35,884  |
| Publishing and Information            | 1,458           | -586         | -3.3%                                 | -1.3% | 60%              | -7%                  | \$77,904                  | \$151,199 |
| Radio and Television Broadcasting     | 801             | -202         | -2.2%                                 | -1.2% | 130%             | -1%                  | \$78,074                  | \$96,107  |
| Architecture                          | 1,855           | -56          | -0.3%                                 | 1.4%  | 134%             | -10%                 | \$99,385                  | \$92,867  |
| Cultural Activities                   | 2,912           | -156         | -0.5%                                 | 1.3%  | 349%             | -29%                 | \$64,572                  | \$71,616  |
| Higher Education                      | 4,393           | -1,472       | -2.8%                                 | -0.4% | 58%              | -9%                  | \$45,122                  | \$70,399  |
| Apparel                               | 1,003           | -133         | -1.2%                                 | -1.6% | 167%             | 22%                  | \$25,021                  | \$47,202  |
| Call Centers                          | 221             | -57          | -2.3%                                 | 0.0%  | 11%              | -1%                  | \$28,628                  | \$54,902  |
| Alternative Power Generation          | 252             | -145         | -4.4%                                 | 1.1%  | 82%              | -48%                 | \$138,754                 | \$187,823 |
| Biotechnology                         | 367             | -321         | -6.1%                                 | 7.1%  | 31%              | -73%                 | \$113,723                 | \$212,315 |
| Other Technology Manufacturing        | 452             | -161         | -3.0%                                 | 0.6%  | 8%               | -2%                  | \$82,237                  | \$130,865 |
| R&D Services (except Biotechnology)   | 1,235           | -586         | -3.8%                                 | 2.2%  | 48%              | -31%                 | \$103,612                 | \$154,598 |

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

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

Source: Lightcast™ and DBEDT calculation.

The industry performance measures are impacted by the time range in comparison. For example, many Hawai'i industries in 2022 were recovering from the COVID-19 pandemic, especially tourism-related; while these industries in 2012 may not carry impacts from the 2009 recession.

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## INTRODUCTION

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In 2009, in accordance with Chapter 201-16 Hawai‘i Revised Statutes, 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. These activities were labeled *emerging, targeted, and growth* industries. The activities ranged from technology specialties to diversified agriculture and have been pursued by various stakeholders, including state and local governments, business groups, and community-based organizations.

The report of that review sought to improve the definition of the various activities 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 activities, and performance measures for 2002 to 2008. This is the 14th report that updates the review of targeted industry performance at the state level to 2022.

### Defining Targeted 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 activities that have been of interest over the last several decades. The activities 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 activity was of interest for its potential contribution to growth and diversification by agencies, organizations, or stakeholders. These ranged from activities 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 activity 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 activities could be assessed for their contribution to economic growth and diversification over the years. Some industries 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.

### The Targeted Industry Portfolio

As seen in Table 2, the targeted industry groups (or “activities”) of the portfolio are listed under major areas of interest such as Technology, Creative, and Agribusiness. A detailed description of each portfolio industry was presented in the 2009 report, and readers can refer to that report for more details. For most of these industry groups, definitions for measurement purposes have been adopted from previous studies. Activities included in each sector are not necessarily mutually exclusive to each other. For example, a moderate overlap exists between the creative and technology sectors because of their mutually dependent relationship. The data used in this report is based on the NAICS Coding System. Every five years the NAICS definitions are updated. The Office of Management and Budget (OMB) charges the Economic Classification Policy Committee (ECPC) with the maintenance and review of NAICS, and this report uses the latest definitions from the 2022 update. See Appendix A for the full list of NAICS in the portfolio and the conversion of 2017 NAICS to 2022 NAICS that allow this report to be fulfilled.



Table 2. Targeted Industry Portfolio

|  |   |
|--|---|
| <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*                                  | <b>Health and Wellness Sector</b>       |
| Other Technology Manufacturing                                     | Health Practitioners                    |
| R&D Services (except Biotechnology)                                | Hospitals and Nursing Facilities        |
| Technical Consulting Services                                      | Medical Labs and Imaging Centers*       |
| Technology Equipment Distribution                                  | Pharmacies                              |
| <b>Creative Sector</b>   | Specialty Health Care Services          |
| Architecture   | <b>Education (Private) Sector</b>       |
| Art Education  | Higher Education                        |
| Business Consulting  | Specialty Education                     |
| Computer Services and Software Publishers                          | <b>Other Targeted Activities Sector</b> |
| Cultural Activities  | Apparel                                 |
| Design Services  | Call Centers                            |
| Engineering and Research and Development                           |   |
| 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



## Measuring Targeted Industries

In this update report, the industry groups of the targeted industry portfolio are presented by the major sectors shown in Table 2. The performance measures are the same as those developed for the 2009 report. However, they are presented in a slightly different way that will be clearer and intuitive to readers unfamiliar with economic performance measures. Average annual growth rates in this report were calculated using the compound annual growth rate.

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




Another performance measure is Hawai'i's competitiveness and concentration of activities compared to the nation overall. If the respective activity is growing faster in Hawai'i than the nation, this suggests that the state has a competitive advantage in this activity. Also, if the activity has a greater employment concentration in the state than the nation (as measured by the percentage of total jobs), it is likely an activity in which Hawai'i has a competitive advantage. A higher concentration (as measured by the percentage of total jobs) also suggests that the activity has matured to the point that it is likely exporting a portion of its output directly or indirectly. 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.

The average annual earnings for workers in each activity were examined. Higher average annual earnings generally come from high-quality jobs. A relatively higher average earning suggests that the 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 group the portfolio activities into four performance categories as in Table 3. A popular 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. This characterizes relatively new and rapidly growing activities that usually serve new markets inside or outside the local economy. The second stage identifies base-growth industries that have passed through the emerging stage and have become strong, competitive sources of economic growth in the economy. As base-growth industries mature, they reach their full market potential and growth slows. This represents the transition stage. A majority are relatively healthy but have slowed and have become less competitive over time. Declining industries 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 or their evolution will fit nicely into the model, especially over short periods. Some industries 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 industry that has slowed from a base-growth to a transitioning industry 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 industry life cycle. In the long-term, the model should provide a fairly accurate picture of the performance of industries. In 2022, Hawai'i's economy was still recovering from the COVID-19 pandemic, which impacted industry sector performance and placement.

Table 3. Performance Map Criteria (Industry Life Cycle)

| <b>Emerging Activities</b>  |   | <b>Base-Growth Activities</b>  |
|---|---|--|
| Positive job growth<br>Increasing competitive national market share<br>(outperforming the same activity nationally)<br>Lower concentration in Hawai'i than nationally |  | Positive job growth<br>Increasing competitive national market share<br>(outperforming the same activity nationally)<br>Higher concentration in Hawai'i than nationally |
|   |   |   |
| <b>Declining Activities</b>   |   | <b>Transitioning Activities</b>  |
| Negative job growth   |  | Positive job growth<br>Decreasing competitive national market share<br>(underperforming the same activity nationally)  |

## 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™ (formerly EMSI). Lightcast™ uses data from the Bureau of Labor Statistics, the 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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A joint project in 2008 between 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>2</sup> The project adopted a definition for technology established by the U.S. Bureau of Labor Statistics (BLS).<sup>3</sup> The BLS approach classifies industries as being in the technology sector based on the proportion of highly trained technical workers in the industries. This update report adjusted the earlier definition by using the 2022 NAICS codes.

### Size & Growth

With the adjustments described above, the technology sector accounted for 29,391 jobs in 2022, or 3.5% of all civilian jobs in Hawai'i. For the 2012 to 2022 period, the technology sector had an average annual job growth rate of 0.7%, 0.2 of a percentage point higher than the state's civilian economy's rate.

The 2022 estimate shows that the technology sector had an average annual job growth rate of 3.4% between 2020 and 2022, compared with 4.1% for the state's civilian economy's rate.

For the 2012 to 2022 period, Technical Consulting Services had the strongest average annual job growth rate among the technology industry groups, followed by Technology Equipment Distribution. Other activities in the technology sector with positive job growth over the 2012 to 2022 period were Medical Labs and Imaging Centers, Engineering and Related Services, Chemical and Pharmaceutical Manufacturing, Computer System Design and Related Services, and Information and Telecom Technology.

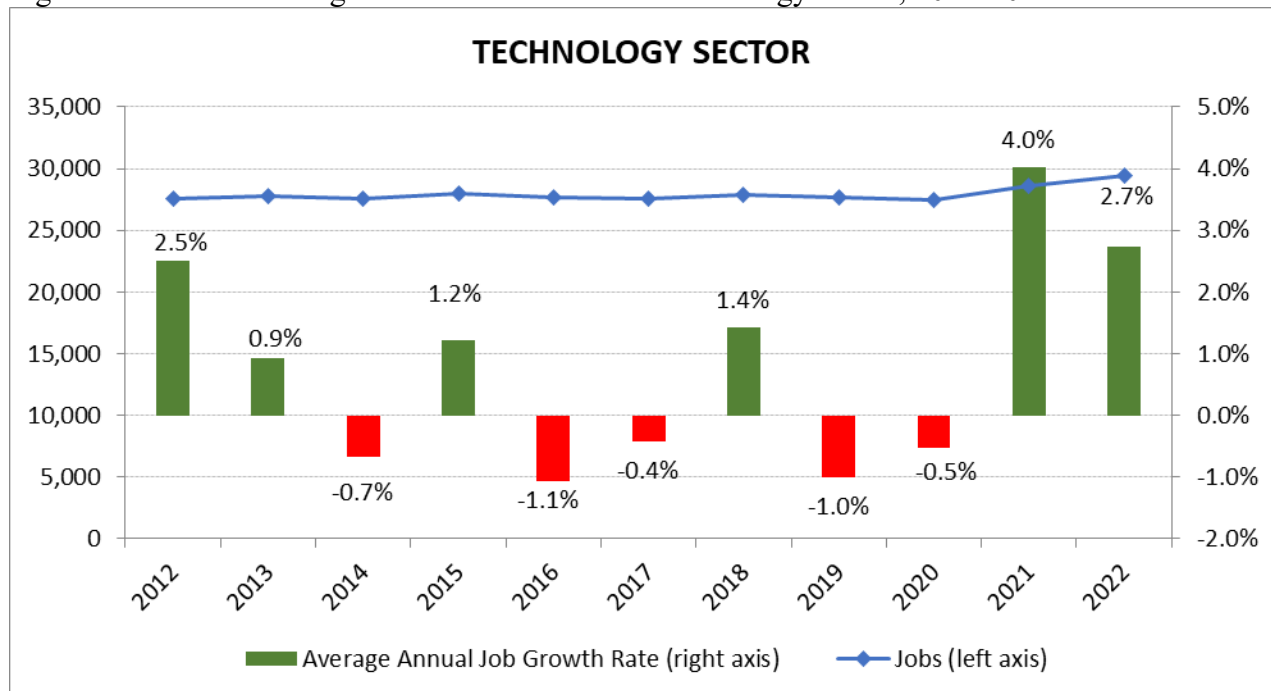
The four technology industry groups that lost jobs during the 2012 to 2022 period were Other Technology Manufacturing, R&D Services (except Biotechnology), Alternative Power Generation, and Biotechnology.

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<sup>2</sup> Hawai'i Science & Technology Institute, *Innovation and Technology in Hawai'i: An Economic and Workforce Profile*, October 2008.

<sup>3</sup> As yet there is no official or universally agreed upon definition for the technology sector.

Figure 1. Jobs and Average Annual Growth in the Technology Sector, 2012-2022

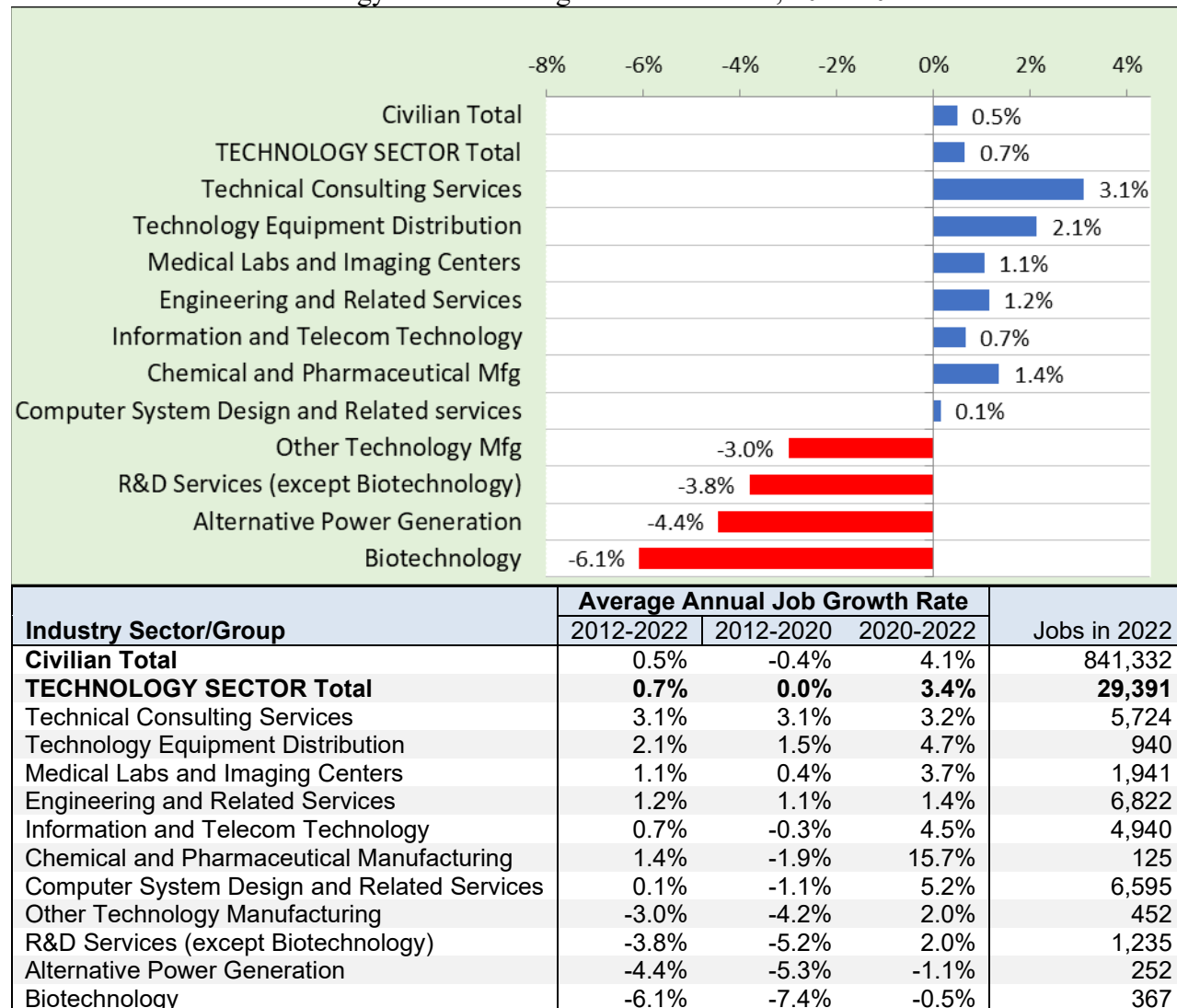


As a group, the technology sector's average annual job growth rate was 0.2 of a percentage point above the state's civilian economy's rate over the 2012 to 2022 period, 0.4 of a percentage point above the state's civilian economy's rate over the 2012 to 2020 period, and 0.7 of a percentage point below the state's civilian economy's rate over the 2020 to 2022 period.

Technical Consulting Services increased jobs at the highest average annual growth rate at 3.1% over the 2012 to 2022 period; followed by Technology Equipment Distribution at 2.1%.

Four groups in the sector, Other Technology Manufacturing, R&D Services (except Biotechnology), Alternative Power Generation, and Biotechnology lost jobs over the 2012 to 2022 period.

Table 4. Jobs in the Technology Sector: Average Annual Growth, 2012-2022



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 2012-2022 period, Hawai‘i’s technology sector’s rate was 2 percentage points below the nation’s 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 13.2 percentage points below the nation’s rate.

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

| Industry Sector/Group                       | Jobs<br>2022  | Jobs per<br>Establis<br>hment<br>2022 | Avg Annual<br>Earnings<br>2022 | Avg Ann Job<br>Growth Rate |               | When U.S. = 100% |                               |                        |
|---|---------------|---------------------------------------|--------------------------------|----------------------------|---------------|------------------|-------------------------------|------------------------|
|   |               |                                       |                                | 2012-<br>2022              | Above<br>U.S. | Concentration 1/ | Jobs per<br>Establis<br>hment | Avg Annual<br>Earnings |
| <b>Civilian Total</b>                       | 841,332       | 16                                    | \$66,971                       | 0.5%                       | -1.0%         | 100%             | 89%                           | 93%                    |
| <b>TECHNOLOGY SECTOR</b>                    | <b>29,391</b> | <b>7</b>                              | <b>\$106,205</b>               | <b>0.7%</b>                | <b>-2.0%</b>  | <b>57%</b>       | <b>63%</b>                    | <b>78%</b>             |
| Engineering and Related Services            | 6,822         | 9                                     | \$116,233                      | 1.2%                       | -0.4%         | 97%              | 70%                           | 102%                   |
| Computer System Design and Related Services | 6,595         | 5                                     | \$115,279                      | 0.1%                       | -3.4%         | 55%              | 69%                           | 80%                    |
| Technical Consulting Services               | 5,724         | 9                                     | \$75,535                       | 3.1%                       | -1.0%         | 67%              | 107%                          | 73%                    |
| Information and Telecom Technology          | 4,940         | 6                                     | \$116,308                      | 0.7%                       | -1.9%         | 60%              | 45%                           | 74%                    |
| Medical Labs and Imaging Centers            | 1,941         | 30                                    | \$80,950                       | 1.1%                       | -1.6%         | 139%             | 250%                          | 89%                    |
| R&D Services (except Biotechnology)         | 1,235         | 7                                     | \$103,612                      | -3.8%                      | -6.0%         | 48%              | 33%                           | 67%                    |
| Technology Equipment Distribution           | 940           | 5                                     | \$154,242                      | 2.1%                       | <b>0.5%</b>   | 38%              | 44%                           | 98%                    |
| Other Technology Manufacturing              | 452           | 12                                    | \$82,237                       | -3.0%                      | -3.6%         | 8%               | 25%                           | 63%                    |
| Biotechnology                               | 367           | 6                                     | \$113,723                      | -6.1%                      | <b>-13.2%</b> | 31%              | 40%                           | 54%                    |
| Alternative Power Generation                | 252           | 9                                     | \$138,754                      | -4.4%                      | -5.6%         | 82%              | 42%                           | 74%                    |
| Chemical and Pharmaceutical Manufacturing   | 125           | 10                                    | \$140,426                      | 1.4%                       | -0.7%         | 6%               | 19%                           | 91%                    |

1/ Proportion of jobs in the activity in 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 2022, Hawai'i's concentration of the state's workforce in technology was 57% 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 2022, Hawai'i's technology sector average annual earnings of \$106,205 were 59% higher than Hawai'i's civilian economy average of \$66,971. The average annual earnings of all eleven technology industry groups exceeded the average for Hawai'i's civilian economy. Hawai'i's Engineering and Related Services average annual earnings exceeded the nation's comparable industry average by 2 percentage points. However, workers in most of the Hawai'i technology sector groups were not paid as much as the U.S. average for the same activities. 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 2012 to 2022 period: Technical Consulting Services, Chemical and Pharmaceutical Manufacturing, Computer System Design and Related Services, Engineering and Related Services, 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, Other Technology Manufacturing, and R&D Services (except Biotechnology) were in the Declining category due to job losses during the period. These 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. Performance Map Criteria for the Technology Sector

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



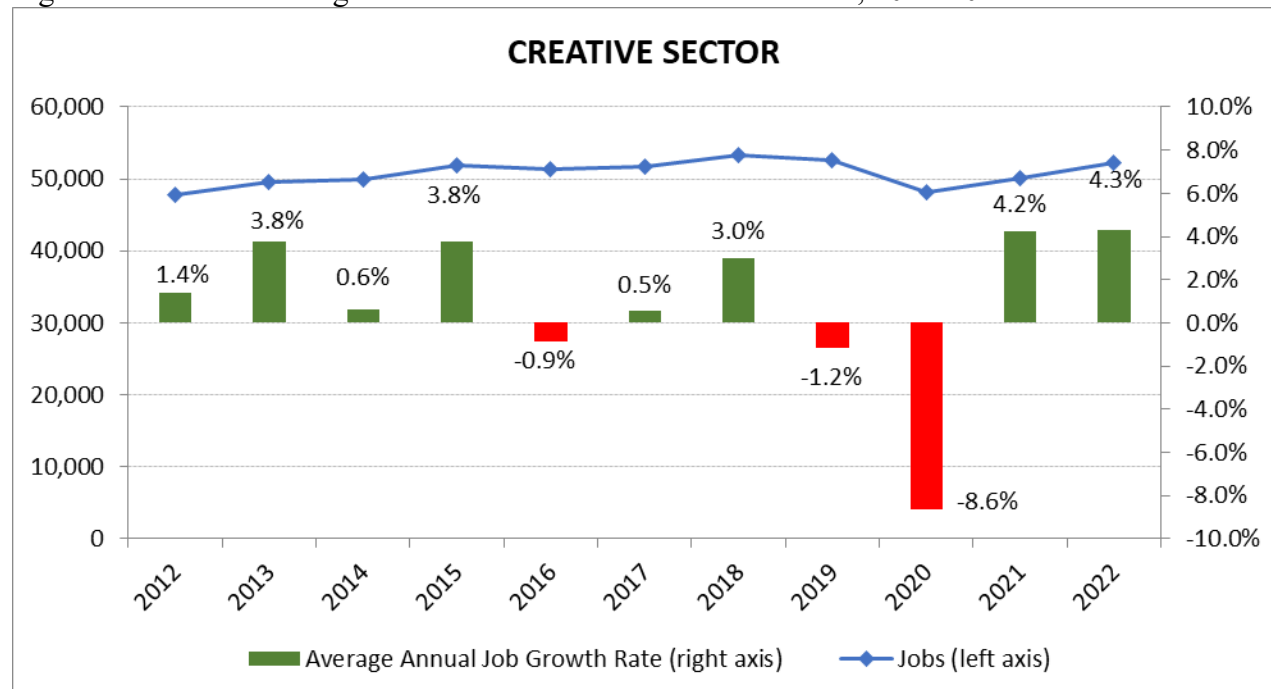
## CREATIVE SECTOR

The DBEDT Research Division 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>4</sup>

### Size & Growth

The thirteen creative industry groups accounted for an estimated 52,301 jobs in 2022, about 6.2% of all civilian jobs in Hawai‘i. Marketing, Photography and Related and Performing and Creative Arts were the two largest groups in the sector and combined accounted for about 40% of jobs in the sector in 2022.

Figure 2. Jobs and Average Annual Growth in the Creative Sector, 2012-2022



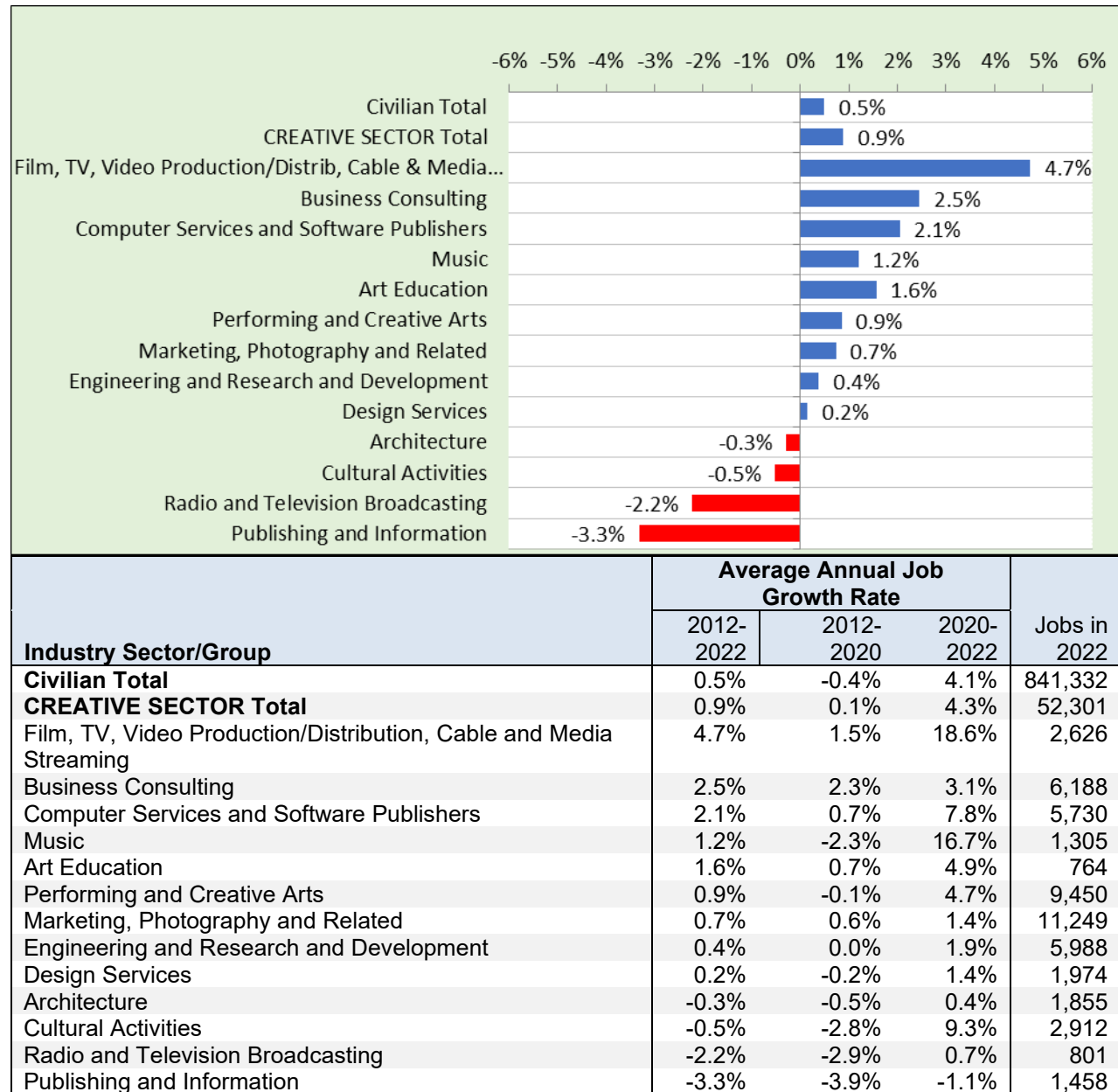
As seen in Table 7, the creative sector's average annual job growth rate was 0.4 of a percentage point above the state's civilian economy's rate over the 2012 to 2022 period, 0.5 of a percentage point above the state's civilian economy's rate over the 2012 to 2020 period, and 0.2 of a percentage point above the state's civilian economy's rate over the 2020 to 2022 period.

Film, TV, Video Production/Distribution, Cable and Media Streaming had the highest average annual job growth rate over the 2012 to 2022 period, at 4.7%, followed by Business Consulting at 2.5%.

Four groups in the sector, Publishing and Information, Radio/TV Broadcasting, Cultural Activities, and Architecture, failed to gain jobs over the 2012 to 2022 period.

<sup>4</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/)

Table 7. Jobs in the Creative Sector: Average Annual Growth, 2012-2022



Source: Lightcast™ and DBEDT calculation.

## Competitive Metrics

Many activities in the creative sector lost competitive share to the U.S. economy over the 2012 to 2022 period. Only one (Film, TV, Video Production/Distribution, Cable and Media Streaming) among the thirteen groups outperformed its national comparable industry during this period.

Several creative industry groups have levels of concentration in the state's economy that exceed the nation. Cultural Activities are more than three times as concentrated in Hawai'i. Music, Architecture, Performing and Creative Arts, and Radio and Television Broadcasting also exceed national concentrations. In contrast, most business and technology-oriented activities 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 2022, Hawai‘i’s creative sector average annual earnings, at \$67,847, were slightly higher than the state’s civilian economy’s, at \$66,971. However, the sector’s average annual earnings were only 66% of the national average for the same activities. The lower average annual earnings in Hawai‘i were found in both technology-oriented and artistic-oriented activities in the sector. Among the thirteen activities in the creative sector, only workers in Architecture and Art Education were paid slightly more in Hawai‘i than the nation overall. The activities 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 Sector/Group  | Jobs<br>2022  | Jobs per<br>Establishment<br>2022 | Avg Annual<br>Earnings<br>2022 | Avg Ann Job<br>Growth Rate |               | When U.S. = 100% |                  |                        |
|--|---------------|-----------------------------------|--------------------------------|----------------------------|---------------|------------------|------------------|------------------------|
|  |               |                                   |                                | 2012-<br>2022              | above<br>U.S. | Concentration 1/ | Jobs per<br>Area | Avg Annual<br>Earnings |
| <b>Civilian Total</b>  | 841,332       | 16                                | \$66,971                       | 0.5%                       | -1.0%         | 100%             | 89%              | 93%                    |
| <b>CREATIVE SECTOR</b>   | <b>52,301</b> | <b>11</b>                         | <b>\$67,847</b>                | <b>0.9%</b>                | <b>-1.6%</b>  | <b>83%</b>       | <b>92%</b>       | <b>66%</b>             |
| Marketing, Photography and Related                                 | 11,249        | 15                                | \$37,081                       | 0.7%                       | -1.3%         | 92%              | 116%             | 54%                    |
| Performing and Creative Arts                                       | 9,450         | 27                                | \$27,356                       | 0.9%                       | -0.9%         | 123%             | 90%              | 84%                    |
| Business Consulting  | 6,188         | 9                                 | \$75,655                       | 2.5%                       | -1.5%         | 62%              | 103%             | 74%                    |
| Engineering and Research and Development                           | 5,988         | 9                                 | \$119,574                      | 0.4%                       | -1.5%         | 80%              | 57%              | 90%                    |
| Computer Services and Software Publishers                          | 5,730         | 4                                 | \$126,084                      | 2.1%                       | -2.4%         | 42%              | 53%              | 80%                    |
| Cultural Activities  | 2,912         | 28                                | \$64,572                       | -0.5%                      | -1.8%         | 349%             | 239%             | 90%                    |
| Film, TV, Video Production/Distribution, Cable and Media Streaming | 2,626         | 12                                | \$100,740                      | 4.7%                       | 2.5%          | 94%              | 76%              | 66%                    |
| Design Services  | 1,974         | 11                                | \$40,349                       | 0.2%                       | -1.5%         | 95%              | 100%             | 75%                    |
| Architecture   | 1,855         | 8                                 | \$99,385                       | -0.3%                      | -1.7%         | 134%             | 85%              | 107%                   |
| Publishing and Information   | 1,458         | 10                                | \$77,904                       | -3.3%                      | -2.1%         | 60%              | 72%              | 52%                    |
| Music  | 1,305         | 18                                | \$42,836                       | 1.2%                       | -0.9%         | 141%             | 115%             | 89%                    |
| Radio and Television Broadcasting                                  | 801           | 21                                | \$78,074                       | -2.2%                      | -1.0%         | 130%             | 79%              | 81%                    |
| Art Education  | 764           | 10                                | \$22,907                       | 1.6%                       | -0.2%         | 75%              | 60%              | 116%                   |

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

Source: Lightcast™ and DBEDT calculation.

## Overall Performance

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

Eight other groups (Marketing, Photography and Related, Performing and Creative Arts, Business Consulting, Engineering and Research and Development, Computer Services and Software Publishers, Design Services, Music, 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 2012 to 2022 period.

Architecture, Cultural Activities, Radio and Television Broadcasting, and Publishing and Information were in the lowest performance group. All lost jobs over the 2012 to 2022 period.

Table 9. Performance Map Criteria for the Creative Sector

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

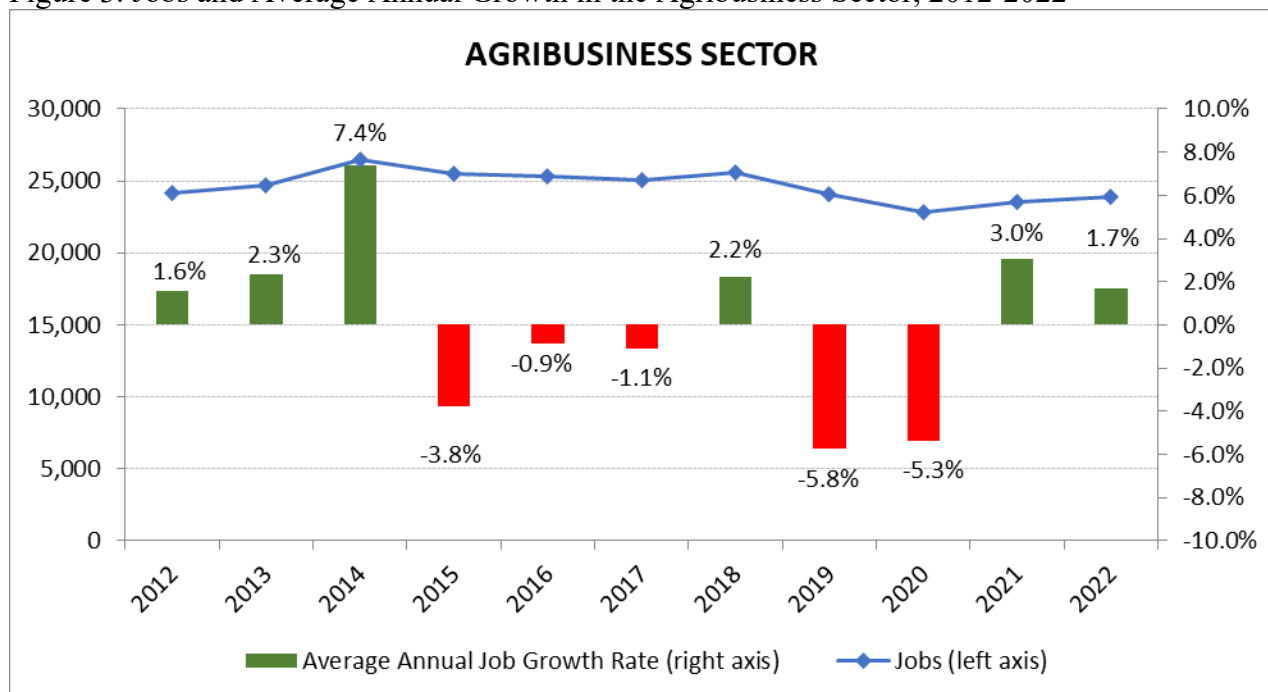
## AGRIBUSINESS SECTOR

In 2022, 23,894 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 (55%). The second largest industry group in the sector was Agricultural Processing at 27% of the sector's jobs.

### Size & Growth

The agribusiness sector had an average annual job *decline* rate of 0.1% over the 2012 to 2022 period. Five of the six Agribusiness industry groups lost jobs over the period, whereas there were job gains in the Agricultural Support Services group. The largest activity in the agribusiness sector was Farm Production, which had an average annual job *decline* rate of 0.4% over the period.

Figure 3. Jobs and Average Annual Growth in the Agribusiness Sector, 2012-2022



The best-performing agribusiness industry group over the 2012 to 2022 cycle was the Agricultural Support Services, with a 4.8% average annual job growth rate.

Table 10. Jobs in the Agribusiness Sector: Average Annual Growth, 2012-2022

|                               | -2% | -1% | 0% | 1% | 2% | 3% | 4% | 5% | 6% |
|-------------------------------|-----|-----|----|----|----|----|----|----|----|
| Civilian Total                |     |     |    |    |    |    |    |    |    |
| AGRIBUSINESS SECTOR Total     |     |     |    |    |    |    |    |    |    |
| Agric. Support Services       |     |     |    |    |    |    |    |    |    |
| Farm Production               |     |     |    |    |    |    |    |    |    |
| Agric. Inputs                 |     |     |    |    |    |    |    |    |    |
| Agric. Processing             |     |     |    |    |    |    |    |    |    |
| Fishing, Forestry and Hunting |     |     |    |    |    |    |    |    |    |
| Agric. Packaging and Warehsg  |     |     |    |    |    |    |    |    |    |

| Industry Sector/Group                 | Average Annual Job Growth Rate |           |           | Jobs in 2022 |
|---------------------------------------|--------------------------------|-----------|-----------|--------------|
|                                       | 2012-2022                      | 2012-2020 | 2020-2022 |              |
| Civilian Total                        | 0.5%                           | -0.4%     | 4.1%      | 841,332      |
| AGRIBUSINESS SECTOR Total             | -0.1%                          | -0.7%     | 2.3%      | 23,894       |
| Agriculture Support Services          | 4.8%                           | 4.1%      | 7.7%      | 2,177        |
| Farm Production                       | -0.4%                          | -0.7%     | 0.7%      | 13,207       |
| Agriculture Inputs                    | -0.4%                          | -1.9%     | 6.0%      | 401          |
| Agriculture Processing                | -0.5%                          | -1.6%     | 4.0%      | 6,344        |
| Fishing, Forestry and Hunting         | -0.6%                          | -1.0%     | 1.2%      | 1,522        |
| Agriculture Packaging and Warehousing | -0.8%                          | -3.7%     | 11.4%     | 243          |

Source: Lightcast™ and DBEDT calculation.

## Competitive Metrics

Competitive metrics show that the comparable U.S. agricultural sector experienced a slight job loss over the 2012 to 2022 period. Only Agricultural Support Services outperformed the same activities for the nation by 1.8 percentage points per year.

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

| Industry Sector/Group                 | Jobs<br>2022 | Jobs per<br>Establis<br>hment<br>2022 | Avg Annual<br>Earnings<br>2022 | Avg Ann Job<br>Growth Rate |               | When U.S. = 100% |                  |                        |
|---------------------------------------|--------------|---------------------------------------|--------------------------------|----------------------------|---------------|------------------|------------------|------------------------|
|                                       |              |                                       |                                | 2012-<br>2022              | above<br>U.S. | Concentration 1/ | Jobs per<br>Area | Avg Annual<br>Earnings |
| Civilian Total                        | 841,332      | 16                                    | \$66,971                       | 0.5%                       | -1.0%         | 100%             | 89%              | 93%                    |
| AGRIBUSINESS SECTOR                   | 23,894       | 23                                    | \$45,937                       | -0.1%                      | -1.1%         | 92%              | 74%              | 82%                    |
| Farm Production                       | 13,207       | 29                                    | \$38,506                       | -0.4%                      | -0.5%         | 101%             | 83%              | 88%                    |
| Agriculture Processing                | 6,344        | 18                                    | \$55,828                       | -0.5%                      | -2.5%         | 82%              | 43%              | 80%                    |
| Agriculture Support Services          | 2,177        | 16                                    | \$68,069                       | 4.8%                       | 1.8%          | 76%              | 103%             | 105%                   |
| Fishing, Forestry and Hunting         | 1,522        | 22                                    | \$30,379                       | -0.6%                      | -0.6%         | 339%             | 72%              | 85%                    |
| Agriculture Inputs                    | 401          | 11                                    | \$62,838                       | -0.4%                      | -1.1%         | 38%              | 81%              | 70%                    |
| Agriculture Packaging and Warehousing | 243          | 29                                    | \$62,857                       | -0.8%                      | -2.6%         | 29%              | 79%              | 91%                    |

1/ Proportion of jobs in the activity in 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 activities. The clear exception was Fishing, Forestry and Hunting which was significantly more concentrated in Hawai‘i than the nation.

## Overall Performance

From an overall performance standpoint, only Agricultural Support Services was in the Emerging category for the 2012 to 2022 period. The remaining five groups were in the Declining category over the same period.

Table 12. Performance Map Criteria for the Agribusiness Sector

| <b>Emerging Activities</b>  | <b>Base-Growth Activities</b>   |
|---|---------------------------------|
| Agriculture Support Services  |                                 |
| <b>Declining Activities</b>   | <b>Transitioning Activities</b> |
| Agriculture Inputs<br>Agriculture Packaging and Warehousing<br>Agriculture Processing<br>Farm Production<br>Fishing, Forestry and Hunting |                                 |



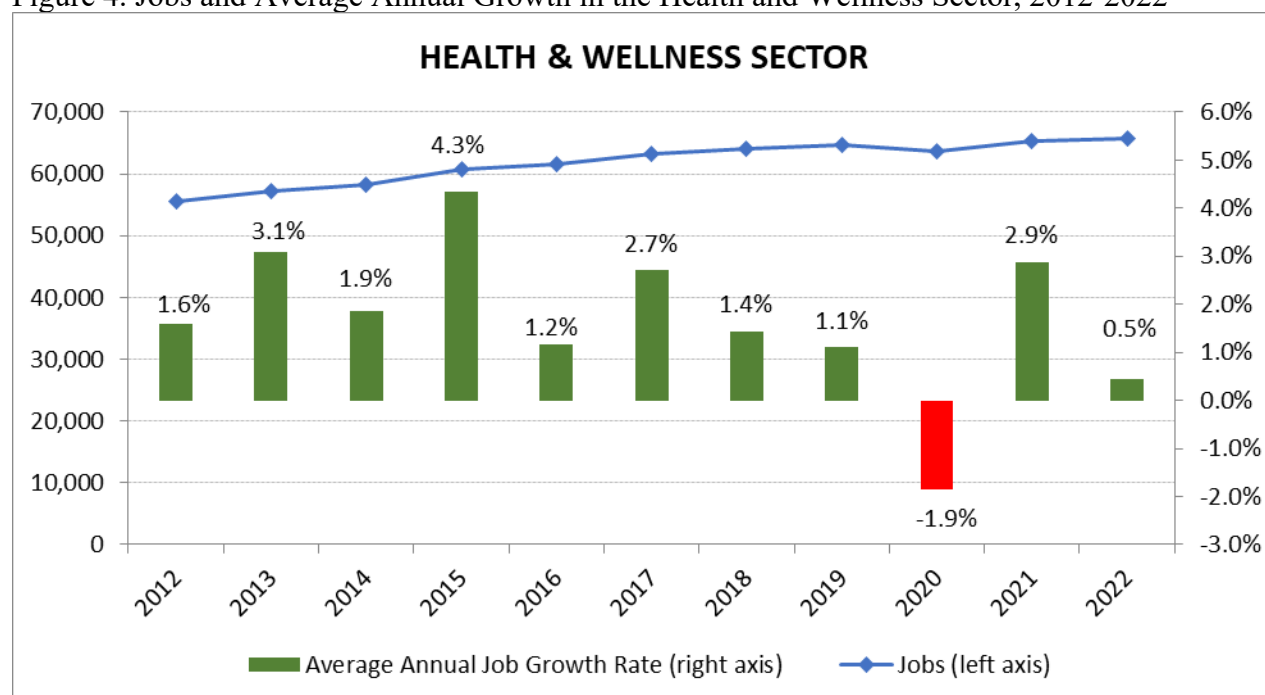
## HEALTH AND WELLNESS SECTOR

Health and Wellness has been suggested as a potential export activity. 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>5</sup> This definition identifies the major industry groups of Hawai'i's health care sector.

### Size & Growth

The Hawai'i Health and Wellness Sector accounted for an estimated 65,684 jobs in 2022. About 70% of the jobs were among Health Practitioners and Hospital & Nursing Facilities. All the industry groups in Health and Wellness increased jobs over the 2012 to 2022 period.

Figure 4. Jobs and Average Annual Growth in the Health and Wellness Sector, 2012-2022



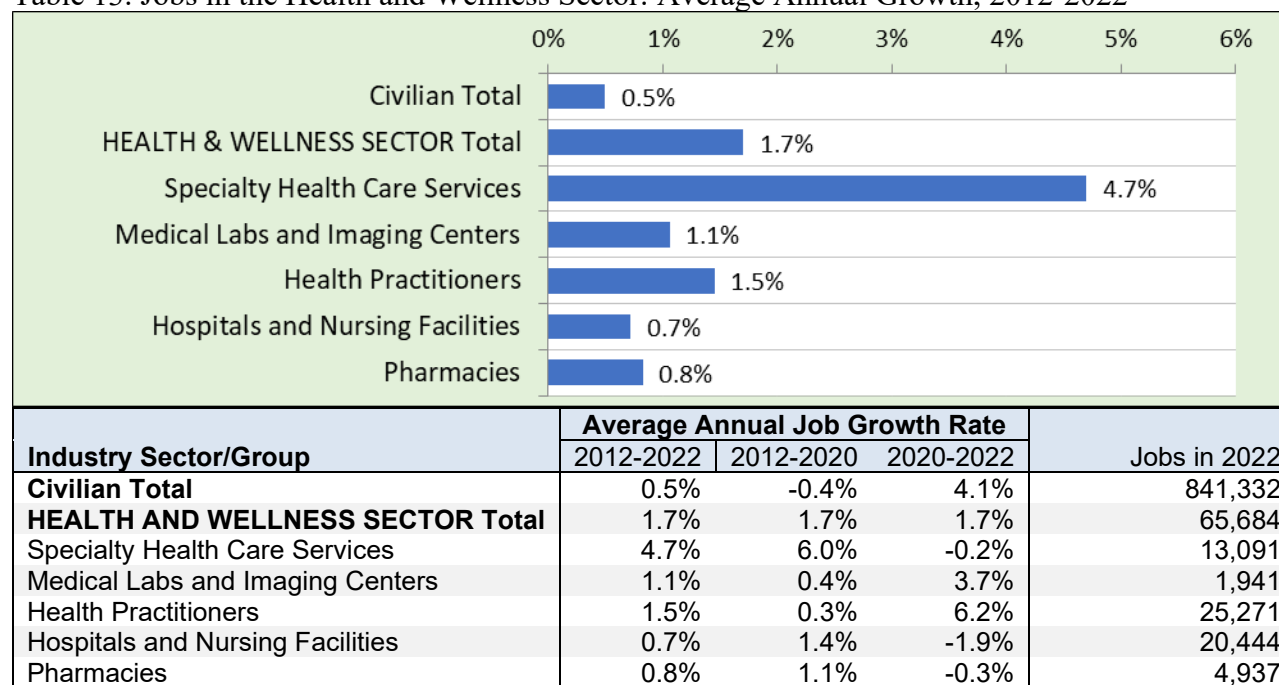
For Hawai'i overall, the Health and Wellness sector increased jobs faster than the rest of the economy during the 2012-2022 period. This sector had an average annual job growth rate of 1.7% from 2012 to 2020 and 1.7% from 2020 to 2022.

Hawai'i Health Practitioners showed modest growth. For the 2012 to 2022 period, this sector had an average annual job growth rate of 1.5%.

The highest average annual job growth rate was observed in Specialty Health Care Services, a relatively small industry group, at 4.7% over the 2012-2022 period.

<sup>5</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>

Table 13. Jobs in the Health and Wellness Sector: Average Annual Growth, 2012-2022



Source: Lightcast™ and DBEDT calculation.

## Competitive Metrics

Over the 2012 to 2022 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 Sector/Group             | Jobs<br>2022 | Jobs per<br>Establishment<br>2022 | Avg Annual<br>Earnings<br>2022 | Avg Ann Job<br>Growth Rate |               | When U.S. = 100% |                  |                        |
|-----------------------------------|--------------|-----------------------------------|--------------------------------|----------------------------|---------------|------------------|------------------|------------------------|
|                                   |              |                                   |                                | 2012-<br>2022              | above<br>U.S. | Concentration 1/ | Jobs per<br>Area | Avg Annual<br>Earnings |
| <b>Civilian Total</b>             | 841,332      | 16                                | \$66,971                       | 0.5%                       | -1.0%         | 100%             | 89%              | 93%                    |
| <b>HEALTH AND WELLNESS SECTOR</b> | 65,684       | 18                                | <b>\$89,137</b>                | 1.7%                       | 0.3%          | 95%              | 79%              | <b>109%</b>            |
| Health Practitioners              | 25,271       | 9                                 | \$98,238                       | 1.5%                       | -0.7%         | 103%             | 76%              | 106%                   |
| Hospitals and Nursing Facilities  | 20,444       | 241                               | \$100,824                      | 0.7%                       | 0.6%          | 77%              | 120%             | 115%                   |
| Specialty Health Care Services    | 13,091       | 37                                | \$72,065                       | 4.7%                       | 1.5%          | 103%             | 109%             | 124%                   |
| Pharmacies                        | 4,937        | 21                                | \$42,640                       | 0.8%                       | 0.3%          | 126%             | 142%             | 89%                    |
| Medical Labs and Imaging Centers  | 1,941        | 30                                | \$80,950                       | 1.1%                       | -1.6%         | 139%             | 250%             | 89%                    |

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

Source: Lightcast™ and DBEDT calculation.

At \$89,137, the average annual earnings for the Health and Wellness Sector as a whole, exceeded the national average in 2022 by about 9%. This was the only major sector in the targeted industry portfolio that had average annual earnings above the U.S. average for the same sector. Except for Medical Labs and Imaging Centers and Pharmacies, all other groups in the sector had average annual earnings above the nation’s comparable industries.

## Overall Performance

Among the Health and Wellness industry groups, Specialty Health Care Services, Pharmacies, 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.

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

| <b>Emerging Activities</b>       | <b>Base-Growth Activities</b>                            |
|----------------------------------|--|
| Hospitals and Nursing Facilities | Pharmacies<br>Specialty Health Care Services             |
| <b>Declining Activities</b>      | <b>Transitioning Activities</b>                          |
|                                  | Health Practitioners<br>Medical Labs and Imaging Centers |

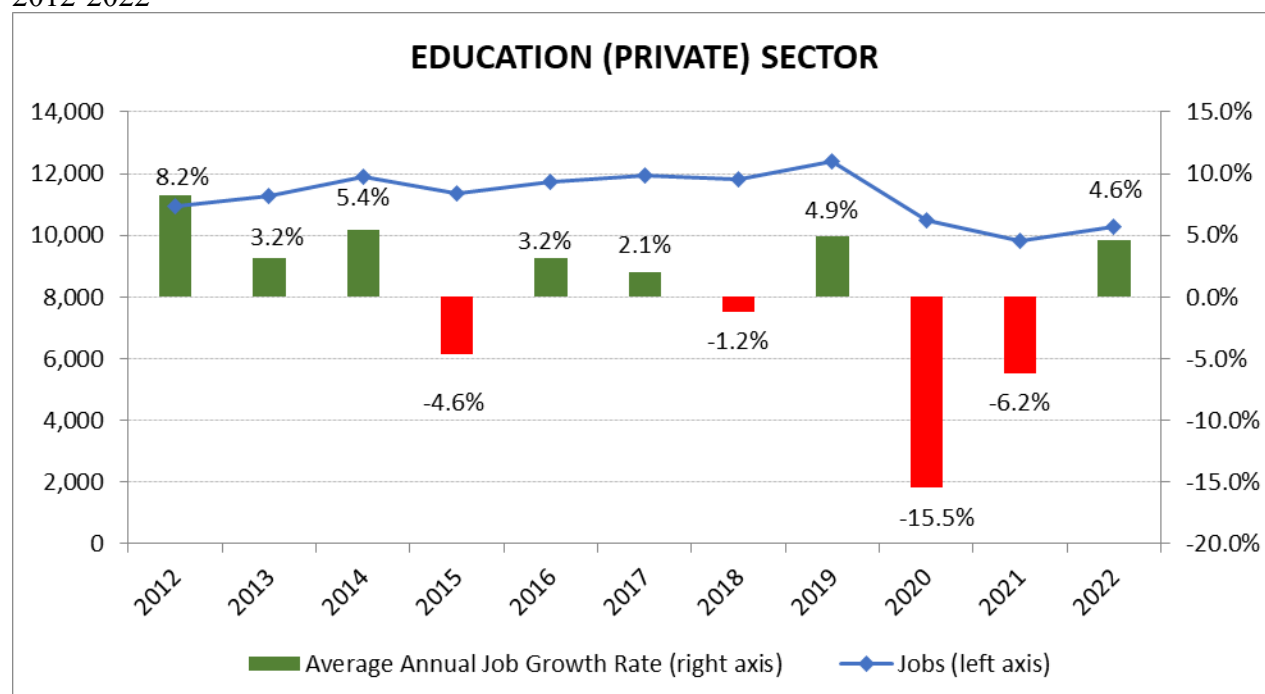
## EDUCATION SECTOR

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

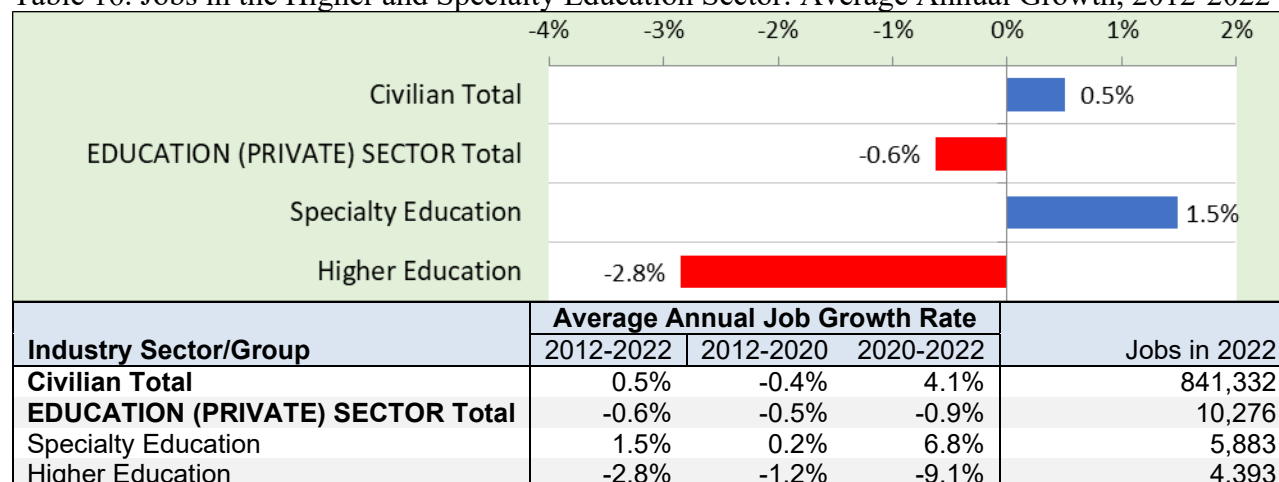
Private post-secondary and specialty education in Hawai'i accounted for 10,276 jobs in 2022. For the 2012 to 2022 period, it had an average annual job *decline* rate of 0.6%.

Figure 5. Jobs and Average Annual Growth in the Specialty & Higher Education Sector, 2012-2022



From 2012 to 2022, the average annual job growth rate for Specialty Education was 1.5% and for Higher Education was negative 2.8%. From 2012 to 2020, the average annual job growth rate for Specialty Education was 0.2%, and for Higher Education, it was negative 1.2%. From 2020 to 2022, the average annual job growth rate for Specialty Education was 6.8%, and for Higher Education, it was negative 9.1%.

Table 16. Jobs in the Higher and Specialty Education Sector: Average Annual Growth, 2012-2022



Source: Lightcast™ and DBEDT calculation.

### Competitive Metrics

From 2012 to 2022 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.

In 2022 for Hawai‘i, the average annual earnings of Specialty Education were \$38,127, which was about 57% of the state’s civilian economy’s average and about 99% of the nation’s average for the comparable industries.

In 2022 for Hawai‘i, the average annual earnings of Higher Education were \$41,117, which was about 61% of the state’s civilian economy’s average and about 64% of the nation’s average for the comparable industries.

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

| Industry Sector/Group             | Jobs<br>2022  | Jobs per<br>Establis<br>hment<br>2022 | Avg Annual<br>Earnings<br>2022 | Avg Ann Job<br>Growth Rate |               | When U.S. = 100% |                  |                        |
|-----------------------------------|---------------|---------------------------------------|--------------------------------|----------------------------|---------------|------------------|------------------|------------------------|
|                                   |               |                                       |                                | 2012-<br>2022              | above<br>U.S. | Concentration 1/ | Jobs per<br>Area | Avg Annual<br>Earnings |
| <b>Civilian Total</b>             | 841,332       | 16                                    | \$66,971                       | 0.5%                       | -1.0%         | 100%             | 89%              | 93%                    |
| <b>EDUCATION (PRIVATE) SECTOR</b> | <b>10,276</b> | <b>13</b>                             | <b>\$41,117</b>                | <b>-0.6%</b>               | <b>-1.1%</b>  | <b>78%</b>       | <b>47%</b>       | <b>72%</b>             |
| Specialty Education               | 5,883         | 9                                     | \$38,127                       | 1.5%                       | -0.3%         | 104%             | 67%              | <b>99%</b>             |
| Higher Education                  | 4,393         | 32                                    | \$45,122                       | -2.8%                      | -2.4%         | 58%              | 23%              | <b>64%</b>             |

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

Source: Lightcast™ and DBEDT calculation.

## Overall Performance

During the 2012 to 2022 period, the Specialty Education group was in the Transitioning category. The Higher Education group was in the Declining category.

Table 18. Performance Map Criteria for the Education Sector

| Emerging Activities  | Base-Growth Activities   |
|----------------------|--------------------------|
|                      |                          |
| Declining Activities | Transitioning Activities |
| Higher Education     | Specialty Education      |

## OTHER TARGETED ACTIVITIES SECTOR

The Apparel sector has been promoted due to Hawai'i's unique style and cultural heritage that brought Hawaiian/Aloha wear to worldwide prominence. However, over the years, a large portion of the garment manufacturing jobs have been outsourced overseas. While there is still some manufacturing of Hawaiian wear in the state, 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

Both Apparel Manufacturing and Call Centers in Hawai'i lost jobs in the past ten years. From 2012 to 2022, the average annual job growth rate for Apparel was negative 1.2% and for Call Centers was negative 2.3%. From 2012 to 2020, the average annual job growth rate for Apparel was negative 4.1% and for Call Centers was negative 2.1%. From 2020 to 2022, the average annual job growth rate for Apparel was negative 11.3%, and for Call Centers was negative 2.9%.

Figure 6. Jobs and Average Annual Growth in the Apparel Sector, 2012-2022

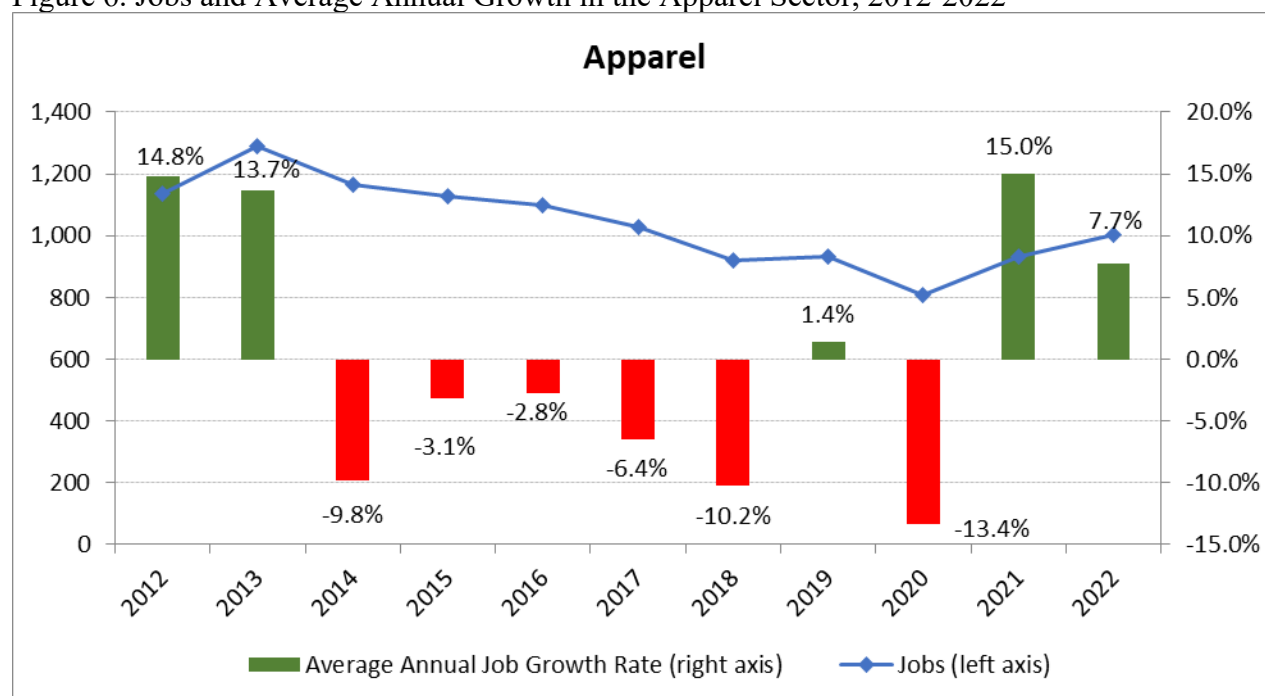




Figure 7. Jobs and Average Annual Growth in the Call Centers Sector, 2012-2022

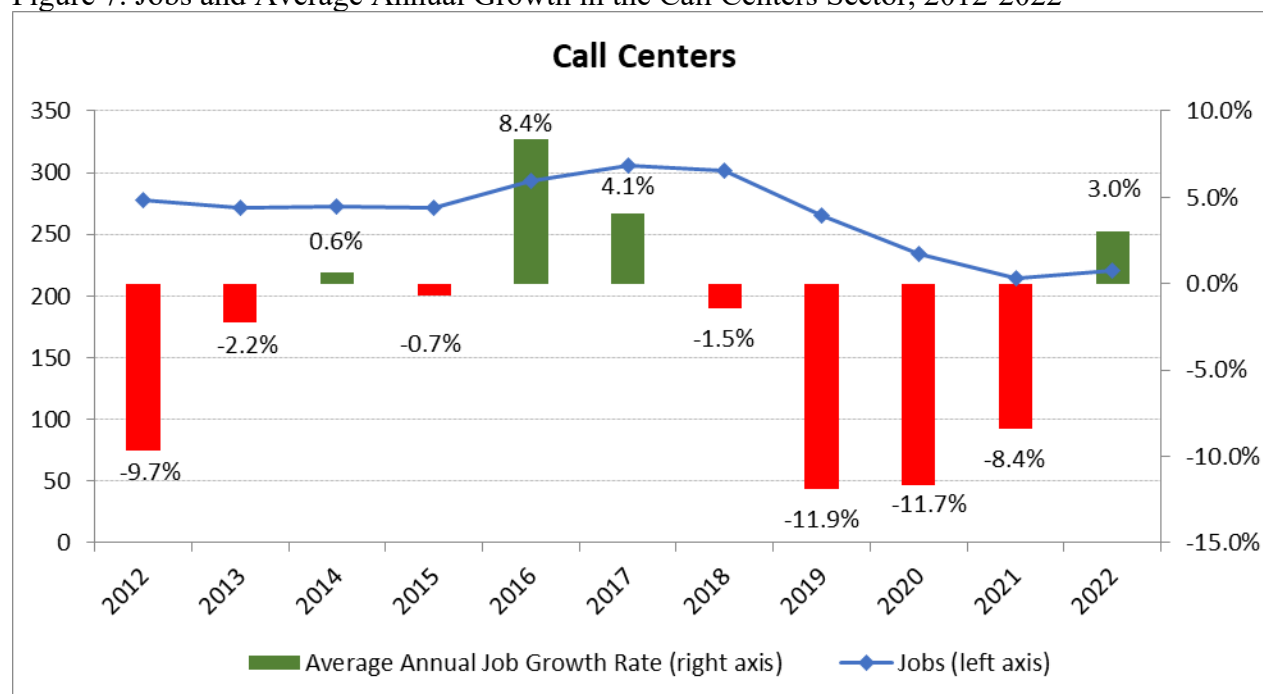


Table 19. Jobs in the Apparel and Call Centers Sectors: Average Annual Growth, 2012-2022

|                     |  | -3% | -2% | -1%   | 0% | 1%   | 2% |
|---------------------|--|-----|-----|-------|----|------|----|
| Civilian Total      |  |     |     |       |    | 0.5% |    |
| OTHERS SECTOR Total |  |     |     | -1.4% |    |      |    |
| Apparel             |  |     |     | -1.2% |    |      |    |
| Call Centers        |  |     |     | -2.3% |    |      |    |

| Industry Sector | Average Annual Job Growth Rate |           |           | Jobs in 2022 |
|-----------------|--------------------------------|-----------|-----------|--------------|
|                 | 2012-2022                      | 2012-2020 | 2020-2022 |              |
| Civilian Total  | 0.5%                           | -0.4%     | 4.1%      | 841,332      |
| Apparel         | -1.2%                          | -4.1%     | 11.3%     | 1,003        |
| Call Centers    | -2.3%                          | -2.1%     | -2.9%     | 221          |

Source: Lightcast™ and DBEDT calculation.

## Competitive Metrics

In terms of average annual job growth rates, the Apparel sector declined in both Hawai'i and the nation. During the 2012-2022 period, the average annual job *decline* rate for Apparel in Hawai'i was 1.2% and in the U.S. was 1.6%. This partially reflects the global outsourcing trend for manufacturing in general.

During the 2012 to 2022 period, the U.S. Call Center industry had an average annual job growth rate of 0.04%. In contrast, the Call Center industry in Hawai'i experienced an average annual job *decline* rate of 2.3% during the same period.

In 2022, the job concentration of Apparel in Hawai‘i was 67% above the national concentration; in contrast, the job concentration of Call Centers in Hawai‘i was only 11% of the national concentration.

In 2022, the average annual earnings for Apparel and Call Centers in Hawai‘i were \$25,021 and \$28,628, respectively. These averages were about 53% and 52% of the nation’s averages, respectively.

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

| Industry Sector/Group | Jobs 2022 | Jobs per Establishment 2022 | Avg Annual Earnings 2022 | Avg Ann Job Growth Rate |            | When U.S. = 100% |               |                     |
|-----------------------|-----------|-----------------------------|--------------------------|-------------------------|------------|------------------|---------------|---------------------|
|                       |           |                             |                          | 2012-2022               | above U.S. | Concentration 1/ | Jobs per Area | Avg Annual Earnings |
| <b>Civilian Total</b> | 841,332   | 16                          | \$66,971                 | 0.5%                    | -1.0%      | 100%             | 89%           | 93%                 |
| <b>OTHERS SECTOR</b>  | 1,224     | 13                          | \$25,673                 | -1.4%                   | -1.0%      | 48%              | 42%           | 48%                 |
| Apparel               | 1,003     | 19                          | <b>\$25,021</b>          | <b>-1.2%</b>            | 0.4%       | <b>167%</b>      | 80%           | <b>53%</b>          |
| Call Centers          | 221       | 6                           | <b>\$28,628</b>          | <b>-2.3%</b>            | -2.2%      | <b>11%</b>       | 16%           | <b>52%</b>          |

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

Source: Lightcast™ and DBEDT calculation.

## Overall Performance

Based on the performance metrics, during the 2012 to 2022 period, both the Apparel industry group and the Call Centers industry group were in the declining category, with an average annual job *decline* rate of 1.2% and 2.3% per year, respectively.

Table 21. Performance Map Criteria for the Other Sector

| Emerging Activities     | Base-Growth Activities   |
|-------------------------|--------------------------|
|                         |                          |
| Declining Activities    | Transitioning Activities |
| Apparel<br>Call Centers |                          |

## PERFORMANCE BY COUNTY

The following tables summarize the 2012 to 2022 county performance of the statewide targeted & emerging industries. Performance has been ordered by Best Performing Targets (registering as base-growth & emerging activities) and Other Targeted Industry Performance (those that were in the transitioning and declining activities).

As shown in Table 22, the total number of jobs in Hawai‘i’s targeted & emerging industries without overlaps (“targeted”) was 160,660 in 2022. Honolulu accounted for about 69%, followed by Hawai‘i County at 13%, Maui County at 10%, and Kaua‘i County at 4%. Over the 2012 to 2022 period, adjusting for overlaps, total jobs in the targeted increased by 12,378 jobs. Honolulu gained 5,858 jobs, followed by Kaua‘i County at 193 jobs; Hawai‘i County lost 651 jobs; and Maui County lost 981 jobs.

Table 22. 2022 Jobs and Job Changes from 2012 to 2022 by County

| Industry Sector                | 2022 Jobs                |          |         |         |        |
|--------------------------------|--------------------------|----------|---------|---------|--------|
|                                | State 1/                 | Honolulu | Hawai‘i | Maui    | Kaua‘i |
| Civilian Total                 | 841,332                  | 577,038  | 107,076 | 106,979 | 45,500 |
| Total Targeted without Overlap | 160,660                  | 111,240  | 22,788  | 18,854  | 7,473  |
| TECHNOLOGY SECTOR              | 29,391                   | 23,524   | 2,530   | 2,145   | 1,017  |
| CREATIVE SECTOR                | 52,301                   | 37,768   | 5,597   | 6,452   | 2,302  |
| AGRIBUSINESS SECTOR            | 23,894                   | 9,693    | 8,883   | 3,488   | 1,820  |
| HEALTH AND WELLNESS SECTOR     | 65,684                   | 48,683   | 6,766   | 7,536   | 2,690  |
| EDUCATION (PRIVATE) SECTOR     | 10,276                   | 8,142    | 926     | 853     | 301    |
| OTHERS                         | 1,224                    | 1,002    | 99      | 93      | 30     |
| Industry Sector                | % in State for 2022 Jobs |          |         |         |        |
|                                | State 1/                 | Honolulu | Hawai‘i | Maui    | Kaua‘i |
| Civilian Total                 | 100%                     | 69%      | 13%     | 13%     | 5%     |
| Total Targeted without Overlap | 100%                     | 69%      | 14%     | 12%     | 5%     |
| TECHNOLOGY SECTOR              | 100%                     | 80%      | 9%      | 7%      | 3%     |
| CREATIVE SECTOR                | 100%                     | 72%      | 11%     | 12%     | 4%     |
| AGRIBUSINESS SECTOR            | 100%                     | 41%      | 37%     | 15%     | 8%     |
| HEALTH AND WELLNESS SECTOR     | 100%                     | 74%      | 10%     | 11%     | 4%     |
| EDUCATION (PRIVATE) SECTOR     | 100%                     | 79%      | 9%      | 8%      | 3%     |
| OTHERS                         | 100%                     | 82%      | 8%      | 8%      | 2%     |
| Industry Sector                | Job Changes 2012 to 2022 |          |         |         |        |
|                                | State 1/                 | Honolulu | Hawai‘i | Maui    | Kaua‘i |
| Civilian Total                 | 40,788                   | 10,083   | 11,609  | 10,585  | 4,398  |
| Total Targeted without Overlap | 12,378                   | 5,858    | 2,484   | 3,093   | 722    |
| TECHNOLOGY SECTOR              | 1,851                    | 948      | 264     | 365     | 149    |
| CREATIVE SECTOR                | 4,443                    | 3,097    | 607     | 486     | 133    |
| AGRIBUSINESS SECTOR            | -250                     | -385     | 573     | -564    | 116    |
| HEALTH AND WELLNESS SECTOR     | 10,225                   | 5,949    | 1,166   | 2,765   | 340    |
| EDUCATION (PRIVATE) SECTOR     | -664                     | -1,399   | 176     | 366     | 139    |
| OTHERS                         | -189                     | -243     | 31      | 26      | -3     |

1/ Sum of counties may not add up to state due to the exclusion of Kalawao County data and percentage rounding.

Source: Lightcast™ and DBEDT calculation.

## City & County of Honolulu

As shown in Table 23 and referencing Table 1, Honolulu accounted for 111,240 or 69% of the state's 160,660 targeted jobs in 2022. In 2012, Honolulu's targeted average annual job growth rate of 0.5% was above Honolulu's civilian economy's rate of 0.2%, below the state's targeted rate of 0.8%, and below the nation's targeted rate of 1.6%. Average annual earnings for both Honolulu's civilian economy and targeted were higher than the state's comparable averages, but lower than the nation's comparable averages.

Among the six major sectors over the 2012 to 2022 period, zero sectors were high-performing Base-Growth or Emerging activities 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 5,949, 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 103%. The Technology Sector had the highest average annual earnings in 2022 at \$109,136.

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

| Industry Sector 2/              | Jobs in Honolulu |              | Avg. Annual Job Growth Rate 2012-2022 |       | Concentration 1/ |                      | Avg. Annual Earnings 2022 |           |
|---------------------------------|------------------|--------------|---------------------------------------|-------|------------------|----------------------|---------------------------|-----------|
|                                 | 2022             | Change 12-22 | Honolulu                              | U.S.  | 2022             | % Point Change 12-22 | Honolulu                  | U.S.      |
| Civilian Total                  | 577,038          | 10,083       | 0.2%                                  | 1.5%  | 100%             | 0.00%                | \$71,116                  | \$71,873  |
| Total Targeted without Overlap  | 111,240          | 5,858        | 0.5%                                  | 1.6%  | 85%              | 2.66%                | \$80,727                  | \$89,508  |
| <b>Transitioning Activities</b> |                  |              |                                       |       |                  |                      |                           |           |
| TECHNOLOGY SECTOR               | 23,524           | 948          | 0.4%                                  | 2.6%  | 66%              | -5.85%               | \$109,136                 | \$136,035 |
| CREATIVE SECTOR                 | 37,768           | 3,097        | 0.9%                                  | 2.5%  | 87%              | -2.56%               | \$74,475                  | \$102,717 |
| HEALTH AND WELLNESS SECTOR      | 48,683           | 5,949        | 1.3%                                  | 1.4%  | 103%             | 12.32%               | \$93,644                  | \$81,930  |
| <b>Declining Activities</b>     |                  |              |                                       |       |                  |                      |                           |           |
| EDUCATION (PRIVATE) SECTOR      | 8,142            | -1,399       | -1.6%                                 | 0.4%  | 90%              | -6.32%               | \$42,230                  | \$56,844  |
| OTHERS SECTOR                   | 1,002            | -243         | -2.2%                                 | -0.4% | 57%              | -2.31%               | \$26,567                  | \$53,095  |
| AGRIBUSINESS SECTOR             | 9,693            | -385         | -0.4%                                 | 1.0%  | 54%              | -0.16%               | \$53,285                  | \$56,238  |

1/ Proportion of jobs in the activity in 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 & emerging industry groups in Honolulu. Eight activities were high-performing over the 2012 to 2022 period with an average annual job growth rate that was higher than the nation's rate for the comparable industries. Specialty Health Care Services gained the greatest number of jobs at 2,935; Film, TV, Video Production/Distribution, Cable and Media Streaming had the highest average annual job growth rate at 5.4%; and Music and Pharmacies had the highest concentration of industry compared to the nation's concentration, at 126%. Technology Equipment Distribution had the highest average annual earnings in 2022 at \$155,251.

Thirteen activities were in the Transitioning category over the 2012 to 2022 period. They gained jobs but did not keep up with national growth for the same activities resulting in a loss of competitive national industry share. Health Practitioners gained the greatest number of jobs at 2,499; Technical Consulting Services had the highest average annual job growth rate at 3.2%; and Medical Labs and Imaging Centers had the highest concentration of industry compared to the nation's

concentration, at 160%. Computer Services and Software Publishers had the highest average annual earnings in 2022 at \$127,322.

Eighteen activities in the portfolio were in the Declining industry category as the result of net job losses over the 2012 to 2022 period. Hospitals and Nursing Facilities lost the fewest number of jobs at five and had the lowest average annual job *decline* rate at 0.003%; and Cultural Activities had the highest concentration of industry compared to the nation's concentration, at 467%. Alternative Power Generation had the highest average annual earnings in 2022 at \$129,931.

Table 24. Performance of the Detailed Honolulu Targeted Industry Portfolio

| Industry Group   | Jobs in Honolulu |              | Avg. Annual Job Growth Rate 2012-2022 |       | Concentration 1/ |                      | Avg. Annual Earnings 2022 |           |
|--|------------------|--------------|---------------------------------------|-------|------------------|----------------------|---------------------------|-----------|
|  | 2022             | Change 12-22 | Honolulu                              | U.S.  | 2022             | % Point Change 12-22 | Honolulu                  | U.S.      |
| <b>Base-Growth Activities</b>                                      |                  |              |                                       |       |                  |                      |                           |           |
| Music  | 857              | 270          | 3.9%                                  | 2.1%  | 135%             | 35%                  | \$50,469                  | \$48,113  |
| Film, TV, Video Production/Distribution, Cable and Media Streaming | 2,325            | 946          | 5.4%                                  | 2.3%  | 121%             | 42%                  | \$100,661                 | \$152,917 |
| Pharmacies   | 3,634            | 381          | 1.1%                                  | 0.5%  | 135%             | 24%                  | \$42,770                  | \$47,955  |
| Specialty Health Care Services                                     | 9,297            | 2,935        | 3.9%                                  | 3.2%  | 106%             | 19%                  | \$76,010                  | \$58,079  |
| <b>Emerging Activities</b>   |                  |              |                                       |       |                  |                      |                           |           |
| Agriculture Inputs   | 253              | 50           | 2.2%                                  | 0.7%  | 35%              | 8%                   | \$65,704                  | \$89,861  |
| Agriculture Support Services                                       | 1,380            | 495          | 4.5%                                  | 3.0%  | 70%              | 17%                  | \$68,297                  | \$64,935  |
| Technology Equipment Distribution                                  | 896              | 166          | 2.1%                                  | 1.6%  | 52%              | 9%                   | \$155,251                 | \$156,951 |
| Chemical and Pharmaceutical Manufacturing                          | 33               | 8            | 2.8%                                  | 2.0%  | 2%               | 0%                   | \$80,079                  | \$154,583 |
| <b>Transitioning Activities</b>                                    |                  |              |                                       |       |                  |                      |                           |           |
| Art Education  | 553              | 53           | 1.0%                                  | 1.7%  | 79%              | 5%                   | \$22,286                  | \$19,712  |
| Performing and Creative Arts                                       | 4,836            | 222          | 0.5%                                  | 1.8%  | 91%              | 0%                   | \$29,856                  | \$32,738  |
| Business Consulting  | 4,861            | 1,045        | 2.5%                                  | 4.0%  | 71%              | -1%                  | \$82,418                  | \$102,713 |
| Computer Services and Software Publishers                          | 4,495            | 538          | 1.3%                                  | 4.5%  | 48%              | -9%                  | \$127,322                 | \$158,327 |
| Design Services  | 1,296            | 57           | 0.5%                                  | 1.6%  | 91%              | 2%                   | \$40,544                  | \$53,919  |
| Engineering and Research and Development                           | 4,978            | 287          | 0.6%                                  | 1.9%  | 98%              | 0%                   | \$120,894                 | \$133,311 |
| Marketing, Photography and Related                                 | 7,764            | 527          | 0.7%                                  | 2.0%  | 93%              | 0%                   | \$38,034                  | \$68,302  |
| Specialty Education  | 3,950            | 177          | 0.5%                                  | 1.8%  | 102%             | 1%                   | \$39,626                  | \$38,662  |
| Health Practitioners   | 17,677           | 2,499        | 1.5%                                  | 2.1%  | 105%             | 8%                   | \$105,810                 | \$92,905  |
| Technical Consulting Services                                      | 4,501            | 1,231        | 3.2%                                  | 4.1%  | 76%              | 4%                   | \$83,260                  | \$103,589 |
| Engineering and Related Services                                   | 5,908            | 678          | 1.2%                                  | 1.5%  | 122%             | 12%                  | \$119,169                 | \$113,949 |
| Medical Labs and Imaging Centers                                   | 1,527            | 138          | 0.9%                                  | 2.7%  | 160%             | -6%                  | \$83,465                  | \$91,452  |
| <b>Declining Activities</b>  |                  |              |                                       |       |                  |                      |                           |           |
| Agriculture Packaging and Warehousing                              | 211              | -39          | -1.7%                                 | 1.8%  | 37%              | -9%                  | \$66,521                  | \$69,425  |
| Agriculture Processing   | 4,212            | -701         | -1.5%                                 | 2.0%  | 79%              | -19%                 | \$57,391                  | \$69,586  |
| Farm Production  | 2,934            | -133         | -0.4%                                 | 0.1%  | 33%              | 3%                   | \$39,962                  | \$43,544  |
| Fishing, Forestry and Hunting                                      | 704              | -57          | -0.8%                                 | 0.1%  | 229%             | 11%                  | \$46,378                  | \$35,884  |
| Publishing and Information   | 1,060            | -349         | -2.8%                                 | -1.3% | 64%              | -2%                  | \$72,928                  | \$151,199 |
| Radio and Television Broadcasting                                  | 647              | -194         | -2.6%                                 | -1.2% | 153%             | -1%                  | \$82,340                  | \$96,107  |
| Architecture   | 1,428            | -125         | -0.8%                                 | 1.4%  | 150%             | -14%                 | \$106,569                 | \$92,867  |
| Cultural Activities  | 2,668            | -180         | -0.7%                                 | 1.3%  | 467%             | -30%                 | \$65,002                  | \$71,616  |
| Higher Education   | 4,192            | -1,576       | -3.1%                                 | -0.4% | 81%              | -12%                 | \$44,684                  | \$70,399  |
| Hospitals and Nursing Facilities                                   | 16,548           | -5           | -0.003%                               | 0.1%  | 91%              | 11%                  | \$102,666                 | \$87,771  |
| Apparel  | 806              | -193         | -2.1%                                 | -1.6% | 196%             | 16%                  | \$25,741                  | \$47,202  |
| Call Centers   | 196              | -51          | -2.3%                                 | 0.0%  | 15%              | -1%                  | \$29,965                  | \$54,902  |
| Alternative Power Generation                                       | 124              | -112         | -6.2%                                 | 1.1%  | 58%              | -50%                 | \$129,931                 | \$187,823 |
| Biotechnology  | 193              | -299         | -8.9%                                 | 7.1%  | 24%              | -81%                 | \$128,706                 | \$212,315 |
| Computer System Design and Related Services                        | 5,467            | -209         | -0.4%                                 | 3.6%  | 66%              | -19%                 | \$118,366                 | \$144,399 |
| Information and Telecom Technology                                 | 3,797            | -24          | -0.1%                                 | 2.6%  | 67%              | -9%                  | \$113,421                 | \$157,682 |
| Other Technology Manufacturing                                     | 385              | -96          | -2.2%                                 | 0.6%  | 10%              | -2%                  | \$89,849                  | \$130,865 |
| R&D Services (except Biotechnology)                                | 692              | -534         | -5.6%                                 | 2.2%  | 39%              | -36%                 | \$95,190                  | \$154,598 |

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

Source: Lightcast™ and DBEDT calculation.

## Hawai‘i County

As shown in Table 25 and referencing Table 1, Hawai‘i County accounted for 22,788 or 14% of the state’s 160,660 targeted jobs in 2022. In 2012, Hawai‘i County’s targeted average annual job growth rate of 1.2% was equal to the overall Hawai‘i County civilian economy’s rate of 1.2%, above the state’s targeted rate of 0.8%, and below the nation’s targeted rate of 1.6%. In 2022, 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 2012 to 2022 period, three sectors were in the high-performing Emerging activities and three sectors were in the Transitioning activities. The Health and Wellness Sector gained the greatest number of jobs at 1,166; the Others Sector had the highest average annual job growth rate at 3.8%; and the Agribusiness Sector had the highest concentration of industry compared to the nation’s concentration, at 268%. The Technology Sector had the highest average annual earnings in 2022 at \$83,653.

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

| Industry Sector 2/              | Jobs in HI County |              | Avg. Annual Job Growth Rate 2012-2022 |       | Concentration 1/ |                      | Avg. Annual Earnings 2022 |           |
|---------------------------------|-------------------|--------------|---------------------------------------|-------|------------------|----------------------|---------------------------|-----------|
|                                 | 2022              | Change 12-22 | HI County                             | U.S.  | 2022             | % Point Change 12-22 | HI County                 | U.S.      |
| Civilian Total                  | 107,076           | 11,609       | 1.2%                                  | 1.5%  | 100%             | 0.00%                | \$54,795                  | \$71,873  |
| Total Targeted without Overlap  | 22,788            | 2,484        | 1.2%                                  | 1.6%  | 93%              | -0.37%               | \$51,317                  | \$89,508  |
| <b>Emerging Activities</b>      |                   |              |                                       |       |                  |                      |                           |           |
| HEALTH AND WELLNESS SECTOR      | 6,766             | 1,166        | 1.9%                                  | 1.4%  | 77%              | 6.59%                | \$69,895                  | \$81,930  |
| EDUCATION (PRIVATE) SECTOR      | 926               | 176          | 2.1%                                  | 0.4%  | 55%              | 10.22%               | \$38,864                  | \$56,844  |
| OTHERS SECTOR                   | 99                | 31           | 3.8%                                  | -0.4% | 30%              | 11.15%               | \$15,438                  | \$53,095  |
| <b>Transitioning Activities</b> |                   |              |                                       |       |                  |                      |                           |           |
| TECHNOLOGY SECTOR               | 2,530             | 264          | 1.1%                                  | 2.6%  | 39%              | -4.58%               | \$83,653                  | \$136,035 |
| CREATIVE SECTOR                 | 5,597             | 607          | 1.2%                                  | 2.5%  | 70%              | -7.10%               | \$47,190                  | \$102,717 |
| AGRIBUSINESS SECTOR             | 8,883             | 573          | 0.7%                                  | 1.0%  | 268%             | 1.48%                | \$38,455                  | \$56,238  |

1/ Proportion of jobs in the activity in 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 & emerging industry groups in Hawai‘i County. Sixteen activities were high-performing, with positive job growth combined with a job growth rate that was higher than the nation for the same activity over the 2012 to 2022 period. Specialty Health Care Services gained the greatest number of jobs at 719; Agriculture Packaging and Warehousing jobs had the highest average annual job growth rate at 13.7%; and Farm Production had the highest concentration of industry compared to the nation’s concentration, at 400%. Technology Equipment Distribution had the highest average annual earnings in 2022 at \$111,554.

Twelve activities were in the Transitioning category over the 2012 to 2022 period. They gained jobs but did not keep up with national growth for the same activities resulting in a loss of competitive national industry share. Health Practitioners gained the greatest number of jobs at 472; Computer System Design and Related Services jobs had the highest average annual job growth rate at 3.6%; and Performing and Creative Arts had the highest concentration of industry compared to the nation’s concentration, at 157%. Information and Telecom Technology had the highest average earnings in 2022 at \$114,688.



Eleven activities in the portfolio were in the Declining industry category as the result of net job losses over the 2012 to 2022 period. Agriculture Inputs lost the fewest number of jobs at nearly 0 and had the lowest average annual job *decline* rate at 0.04%; and Fishing, Forestry and Hunting had the highest concentration of industry compared to the nation's concentration, at 817%. Alternative Power Generation had the highest average annual earnings in 2022 at \$149,101.

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

| Industry Group   | Jobs in HI County |              | Avg. Annual Job Growth Rate 2012-2022 |       | Concentration 1/ |                      | Avg. Annual Earnings 2022 |           |
|--|-------------------|--------------|---------------------------------------|-------|------------------|----------------------|---------------------------|-----------|
|  | 2022              | Change 12-22 | HI County                             | U.S.  | 2022             | % Point Change 12-22 | HI County                 | U.S.      |
| <b>Base-Growth Activities</b>                                      |                   |              |                                       |       |                  |                      |                           |           |
| Agriculture Processing   | 1,246             | 305          | 2.8%                                  | 2.0%  | 126%             | 14%                  | \$53,692                  | \$69,586  |
| Agriculture Support Services                                       | 396               | 168          | 5.7%                                  | 3.0%  | 108%             | 27%                  | \$59,234                  | \$64,935  |
| Farm Production  | 6,649             | 107          | 0.2%                                  | 0.1%  | 400%             | 18%                  | \$35,455                  | \$43,544  |
| Music  | 237               | 67           | 3.4%                                  | 2.1%  | 202%             | 29%                  | \$26,243                  | \$48,113  |
| Architecture   | 178               | 33           | 2.1%                                  | 1.4%  | 101%             | 9%                   | \$72,898                  | \$92,867  |
| Cultural Activities  | 133               | 48           | 4.6%                                  | 1.3%  | 126%             | 38%                  | \$68,677                  | \$71,616  |
| Specialty Education  | 842               | 169          | 2.3%                                  | 1.8%  | 117%             | 10%                  | \$38,324                  | \$38,662  |
| Specialty Health Care Services                                     | 1,729             | 719          | 5.5%                                  | 3.2%  | 107%             | 24%                  | \$57,848                  | \$58,079  |
| Apparel  | 89                | 34           | 5.0%                                  | -1.6% | 117%             | 58%                  | \$15,500                  | \$47,202  |
| <b>Emerging Activities</b>   |                   |              |                                       |       |                  |                      |                           |           |
| Agriculture Packaging and Warehousing                              | 26                | 19           | 13.7%                                 | 1.8%  | 24%              | 17%                  | \$44,751                  | \$69,425  |
| Art Education  | 66                | 13           | 2.3%                                  | 1.7%  | 51%              | 4%                   | \$25,173                  | \$19,712  |
| Radio and Television Broadcasting                                  | 65                | 15           | 2.6%                                  | -1.2% | 83%              | 28%                  | \$51,901                  | \$96,107  |
| Computer Services and Software Publishers                          | 442               | 195          | 6.0%                                  | 4.5%  | 26%              | 4%                   | \$95,188                  | \$158,327 |
| Film, TV, Video Production/Distribution, Cable and Media Streaming | 97                | 25           | 3.1%                                  | 2.3%  | 27%              | 3%                   | \$73,578                  | \$152,917 |
| Higher Education   | 84                | 7            | 0.9%                                  | -0.4% | 9%               | 1%                   | \$44,272                  | \$70,399  |
| Technology Equipment Distribution                                  | 21                | 9            | 6.2%                                  | 1.6%  | 7%               | 3%                   | \$111,554                 | \$156,951 |
| <b>Transitioning Activities</b>                                    |                   |              |                                       |       |                  |                      |                           |           |
| Performing and Creative Arts                                       | 1,538             | 206          | 1.4%                                  | 1.8%  | 157%             | 1%                   | \$23,598                  | \$32,738  |
| Business Consulting  | 597               | 95           | 1.8%                                  | 4.0%  | 47%              | -9%                  | \$47,833                  | \$102,713 |
| Design Services  | 316               | 33           | 1.1%                                  | 1.6%  | 119%             | -2%                  | \$38,611                  | \$53,919  |
| Marketing, Photography and Related                                 | 1,245             | 8            | 0.1%                                  | 2.0%  | 80%              | -14%                 | \$29,631                  | \$68,302  |
| Health Practitioners   | 3,261             | 472          | 1.6%                                  | 2.1%  | 105%             | -2%                  | \$79,363                  | \$92,905  |
| Pharmacies   | 543               | 25           | 0.5%                                  | 0.5%  | 109%             | 4%                   | \$40,108                  | \$47,955  |
| Technical Consulting Services                                      | 548               | 96           | 1.9%                                  | 4.1%  | 50%              | -9%                  | \$44,362                  | \$103,589 |
| Computer System Design and Related Services                        | 389               | 115          | 3.6%                                  | 3.6%  | 25%              | 1%                   | \$72,134                  | \$144,399 |
| Engineering and Related Services                                   | 385               | 33           | 0.9%                                  | 1.5%  | 43%              | -1%                  | \$91,929                  | \$113,949 |
| Information and Telecom Technology                                 | 469               | 102          | 2.5%                                  | 2.6%  | 45%              | 1%                   | \$114,688                 | \$157,682 |
| Medical Labs and Imaging Centers                                   | 215               | 10           | 0.5%                                  | 2.7%  | 121%             | -24%                 | \$71,660                  | \$91,452  |
| <b>Declining Activities</b>  |                   |              |                                       |       |                  |                      |                           |           |
| Agriculture Inputs   | 99                | 0            | 0.0%                                  | 0.7%  | 74%              | -3%                  | \$60,270                  | \$89,861  |
| Fishing, Forestry and Hunting                                      | 467               | -25          | -0.5%                                 | 0.1%  | 817%             | -17%                 | \$17,894                  | \$35,884  |
| Publishing and Information   | 123               | -120         | -6.6%                                 | -1.3% | 40%              | -27%                 | \$47,920                  | \$151,199 |
| Engineering and Research and Development                           | 561               | -12          | -0.2%                                 | 1.9%  | 59%              | -11%                 | \$110,104                 | \$133,311 |
| Hospitals and Nursing Facilities                                   | 1,018             | -60          | -0.6%                                 | 0.1%  | 30%              | -1%                  | \$75,551                  | \$87,771  |
| Call Centers   | 10                | -3           | -3.0%                                 | 0.0%  | 4%               | -1%                  | \$14,857                  | \$54,902  |
| Alternative Power Generation                                       | 33                | -56          | -9.4%                                 | 1.1%  | 84%              | -159%                | \$149,101                 | \$187,823 |
| Biotechnology  | 13                | -12          | -6.4%                                 | 7.1%  | 9%               | -24%                 | \$27,410                  | \$212,315 |
| Chemical and Pharmaceutical Manufacturing                          | 63                | -9           | -1.4%                                 | 2.0%  | 23%              | -8%                  | \$74,341                  | \$154,583 |
| Other Technology Manufacturing                                     | 26                | -16          | -4.6%                                 | 0.6%  | 4%               | -2%                  | \$20,247                  | \$130,865 |
| R&D Services (except Biotechnology)                                | 368               | -7           | -0.2%                                 | 2.2%  | 112%             | -25%                 | \$113,818                 | \$154,598 |

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

Source: Lightcast™ and DBEDT calculation.



## Maui County

As shown in Table 27 and referencing Table 1, Maui County accounted for 18,854 or 12% of the state's 160,660 targeted & emerging industry jobs in 2022. In 2012, Maui County's targeted average annual job growth rate of 1.8% was above Maui's civilian economy's rate of 1.0%, above the state's targeted rate of 0.8%, and the nation's targeted rate of 1.6%. In 2022, 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 2012 to 2022 period, three sectors were in the high-performing Emerging activities, two were in the Transitioning activities, and one was in the Declining activities. The Health and Wellness Sector gained the greatest number of jobs at 2,765; the Education Sector jobs had the highest average annual job growth rate at 5.8%; and the Agribusiness Sector had the highest concentration of industry compared to the nation's concentration at 105%. The Technology Sector had the highest average annual earnings in 2022 at \$99,148.

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

| Industry Sector 2/              | Jobs in Maui |              | Avg. Annual Job Growth Rate 2012-2022 |       | Concentration 1/ |                      | Avg. Annual Earnings 2022 |           |
|---------------------------------|--------------|--------------|---------------------------------------|-------|------------------|----------------------|---------------------------|-----------|
|                                 | 2022         | Change 12-22 | Maui County                           | U.S.  | 2022             | % Point Change 12-22 | Maui County               | U.S.      |
| Civilian Total                  | 106,979      | 10,585       | 1.0%                                  | 1.5%  | 100%             | 0.00%                | \$59,265                  | \$71,873  |
| Total Targeted without Overlap  | 18,854       | 3,093        | 1.8%                                  | 1.6%  | 77%              | 5.26%                | \$63,605                  | \$89,508  |
| <b>Emerging Activities</b>      |              |              |                                       |       |                  |                      |                           |           |
| HEALTH AND WELLNESS SECTOR      | 7,536        | 2,765        | 4.7%                                  | 1.4%  | 86%              | 26.43%               | \$81,279                  | \$81,930  |
| EDUCATION (PRIVATE) SECTOR      | 853          | 366          | 5.8%                                  | 0.4%  | 51%              | 21.92%               | \$35,771                  | \$56,844  |
| OTHERS SECTOR                   | 93           | 26           | 3.3%                                  | -0.4% | 29%              | 9.72%                | \$26,117                  | \$53,095  |
| <b>Transitioning Activities</b> |              |              |                                       |       |                  |                      |                           |           |
| TECHNOLOGY SECTOR               | 2,145        | 365          | 1.9%                                  | 2.6%  | 33%              | -0.84%               | \$99,148                  | \$136,035 |
| CREATIVE SECTOR                 | 6,452        | 486          | 0.8%                                  | 2.5%  | 81%              | -10.52%              | \$51,733                  | \$102,717 |
| <b>Declining Activities</b>     |              |              |                                       |       |                  |                      |                           |           |
| AGRIBUSINESS SECTOR             | 3,488        | -564         | -1.5%                                 | 1.0%  | 105%             | -23.38%              | \$45,956                  | \$56,238  |

1/ Proportion of jobs in the activity in 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 & emerging industry groups in Maui County. Sixteen activities were high-performing, with positive job growth combined with a job growth rate that was higher than the nation for the same activity over the 2012 to 2022 period. Hospitals and Nursing Facilities gained the greatest number of jobs at 1,525; Alternative Power Generation jobs had the highest average annual job growth rate at 22.3%; and Specialty Education had the highest concentration of industry compared to the nation's concentration, at 111%. Chemical and Pharmaceutical Manufacturing had the highest average annual earnings in 2022 at \$371,440.

Nine activities were in the Transitioning category over the 2012 to 2022 period. They gained jobs but did not keep up with national growth for the same activities resulting in a loss of competitive national industry share. Marketing, Photography and Related gained the greatest number of jobs at 234; Computer System Design and Related Services jobs had the highest average annual job growth rate at 2.9%; and Performing and Creative Arts had the highest concentration of industry compared

to the nation's concentration, at 239%. Technology Equipment Distribution had the highest average annual earnings in 2022 at \$147,253.

Fourteen activities in the portfolio were in the Declining industry category as the result of net job losses for the 2012 to 2022 period. Agriculture Packaging and Warehousing lost the fewest number of jobs at nearly 0; Pharmacies had the lowest average annual job *decline* rate at 0.2%; and Fishing, Forestry and Hunting had the highest concentration of industry compared to the nation's concentration, at 358%. Publishing and Information had the highest average annual earnings in 2022 at \$124,130.

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

| Industry Group   | Jobs in Maui County |              | Avg. Annual Job Growth Rate 2012-2022 |       | Concentration 1/ |                      | Avg. Annual Earnings 2022 |           |
|--|---------------------|--------------|---------------------------------------|-------|------------------|----------------------|---------------------------|-----------|
|  | 2022                | Change 12-22 | Maui County                           | U.S.  | 2022             | % Point Change 12-22 | Maui County               | U.S.      |
| <b>Base-Growth Activities</b>                                      |                     |              |                                       |       |                  |                      |                           |           |
| Specialty Education  | 796                 | 321          | 5.3%                                  | 1.8%  | 111%             | 36%                  | \$31,699                  | \$38,662  |
| Specialty Health Care Services                                     | 1,623               | 994          | 10.0%                                 | 3.2%  | 100%             | 49%                  | \$68,641                  | \$58,079  |
| Apparel  | 77                  | 23           | 3.6%                                  | -1.6% | 101%             | 43%                  | \$27,299                  | \$47,202  |
| <b>Emerging Activities</b>   |                     |              |                                       |       |                  |                      |                           |           |
| Agriculture Support Services                                       | 280                 | 99           | 4.5%                                  | 3.0%  | 77%              | 13%                  | \$72,546                  | \$64,935  |
| Art Education  | 95                  | 19           | 2.3%                                  | 1.7%  | 73%              | 7%                   | \$26,214                  | \$19,712  |
| Computer Services and Software Publishers                          | 562                 | 219          | 5.1%                                  | 4.5%  | 33%              | 3%                   | \$133,897                 | \$158,327 |
| Cultural Activities  | 59                  | 8            | 1.5%                                  | 1.3%  | 55%              | 4%                   | \$52,448                  | \$71,616  |
| Film, TV, Video Production/Distribution, Cable and Media Streaming | 143                 | 45           | 3.9%                                  | 2.3%  | 40%              | 7%                   | \$132,465                 | \$152,917 |
| Higher Education   | 56                  | 44           | 16.6%                                 | -0.4% | 6%               | 5%                   | \$93,184                  | \$70,399  |
| Hospitals and Nursing Facilities                                   | 2,071               | 1,525        | 14.3%                                 | 0.1%  | 61%              | 46%                  | \$101,980                 | \$87,771  |
| Call Centers   | 16                  | 3            | 2.2%                                  | 0.0%  | 6%               | 1%                   | \$20,286                  | \$54,902  |
| Alternative Power Generation                                       | 31                  | 27           | 22.3%                                 | 1.1%  | 80%              | 68%                  | \$131,348                 | \$187,823 |
| Chemical and Pharmaceutical Manufacturing                          | 27                  | 16           | 9.2%                                  | 2.0%  | 10%              | 5%                   | \$371,440                 | \$154,583 |
| Information and Telecom Technology                                 | 450                 | 127          | 3.4%                                  | 2.6%  | 43%              | 5%                   | \$126,007                 | \$157,682 |
| Medical Labs and Imaging Centers                                   | 133                 | 35           | 3.1%                                  | 2.7%  | 75%              | 6%                   | \$74,333                  | \$91,452  |
| <b>Transitioning Activities</b>                                    |                     |              |                                       |       |                  |                      |                           |           |
| Performing and Creative Arts                                       | 2,345               | 198          | 0.9%                                  | 1.8%  | 239%             | -10%                 | \$25,396                  | \$32,738  |
| Architecture   | 173                 | 15           | 0.9%                                  | 1.4%  | 98%              | 0%                   | \$66,405                  | \$92,867  |
| Business Consulting  | 475                 | 90           | 2.1%                                  | 4.0%  | 38%              | -5%                  | \$41,269                  | \$102,713 |
| Marketing, Photography and Related                                 | 1,588               | 234          | 1.6%                                  | 2.0%  | 102%             | 1%                   | \$38,080                  | \$68,302  |
| Health Practitioners   | 3,185               | 223          | 0.7%                                  | 2.1%  | 102%             | -10%                 | \$80,733                  | \$92,905  |
| Technical Consulting Services                                      | 430                 | 81           | 2.1%                                  | 4.1%  | 39%              | -6%                  | \$40,917                  | \$103,589 |
| Technology Equipment Distribution                                  | 18                  | 2            | 1.5%                                  | 1.6%  | 6%               | 0%                   | \$147,253                 | \$156,951 |
| Computer System Design and Related Services                        | 523                 | 131          | 2.9%                                  | 3.6%  | 34%              | -1%                  | \$118,003                 | \$144,399 |
| Engineering and Related Services                                   | 359                 | 12           | 0.3%                                  | 1.5%  | 40%              | -3%                  | \$91,879                  | \$113,949 |
| <b>Declining Activities</b>  |                     |              |                                       |       |                  |                      |                           |           |
| Agriculture Inputs   | 40                  | -40          | -6.7%                                 | 0.7%  | 29%              | -31%                 | \$52,097                  | \$89,861  |
| Agriculture Packaging and Warehousing                              | 4                   | 0            | -0.8%                                 | 1.8%  | 4%               | -1%                  | \$9,572                   | \$69,425  |
| Agriculture Processing   | 581                 | -58          | -1.0%                                 | 2.0%  | 59%              | -16%                 | \$51,622                  | \$69,586  |
| Farm Production  | 2,378               | -553         | -2.1%                                 | 0.1%  | 143%             | -26%                 | \$44,182                  | \$43,544  |
| Fishing, Forestry and Hunting                                      | 204                 | -12          | -0.6%                                 | 0.1%  | 358%             | -5%                  | \$13,575                  | \$35,884  |
| Music  | 151                 | -208         | -8.3%                                 | 2.1%  | 128%             | -232%                | \$33,848                  | \$48,113  |
| Publishing and Information   | 211                 | -68          | -2.8%                                 | -1.3% | 68%              | -8%                  | \$124,130                 | \$151,199 |
| Radio and Television Broadcasting                                  | 63                  | -16          | -2.2%                                 | -1.2% | 81%              | -4%                  | \$67,855                  | \$96,107  |
| Design Services  | 275                 | -30          | -1.0%                                 | 1.6%  | 104%             | -25%                 | \$43,882                  | \$53,919  |
| Engineering and Research and Development                           | 312                 | -23          | -0.7%                                 | 1.9%  | 33%              | -8%                  | \$112,917                 | \$133,311 |
| Pharmacies   | 524                 | -12          | -0.2%                                 | 0.5%  | 105%             | -3%                  | \$43,718                  | \$47,955  |
| Biotechnology  | 8                   | -7           | -6.2%                                 | 7.1%  | 5%               | -14%                 | \$113,610                 | \$212,315 |
| Other Technology Manufacturing                                     | 38                  | -39          | -6.8%                                 | 0.6%  | 5%               | -6%                  | \$49,598                  | \$130,865 |
| R&D Services (except Biotechnology)                                | 128                 | -19          | -1.4%                                 | 2.2%  | 39%              | -14%                 | \$110,968                 | \$154,598 |

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

Source: Lightcast™ and DBEDT calculation.

## Kaua‘i County

As shown in Table 29 and referencing Table 1, Kaua‘i County accounted for 7,473 or 5% of the state’s 160,660 targeted & emerging industry jobs in 2022. In 2012, Kaua‘i County’s targeted average annual job growth rate of 1.0% was equal to the overall Kaua‘i civilian economy’s rate of 1.0%, above the state’s targeted rate of 0.8%, and below the nation’s targeted rate of 1.6%. 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 2012 to 2022 period, one sector was in the high-performing Emerging activities, four sectors were in the Transitioning activities, and one was in the Declining activities. The Health and Wellness Sector gained the greatest number of jobs at 340; The Technology Sector had the highest average annual job growth rate at 1.6%; and the Agribusiness Sector had the highest concentration of industry compared to the nation’s concentration, at 129%. The Technology Sector had the highest average annual earnings in 2022 at \$95,946.

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

| Industry Sector 2/              | Jobs in Kaua‘i |              | Avg. Annual Job Growth Rate 2012-2022 |       | Concentration 1/ |                      | Avg. Annual Earnings 2022 |           |
|---------------------------------|----------------|--------------|---------------------------------------|-------|------------------|----------------------|---------------------------|-----------|
|                                 | 2022           | Change 12-22 | Kaua‘i County                         | U.S.  | 2022             | % Point Change 12-22 | Kaua‘i County             | U.S.      |
| Civilian Total                  | 45,500         | 4,398        | 1.0%                                  | 1.5%  | 100%             | 0.00%                | \$56,416                  | \$71,873  |
| Total Targeted without Overlap  | 7,473          | 722          | 1.0%                                  | 1.6%  | 72%              | -0.33%               | \$59,283                  | \$89,508  |
| <b>Emerging Activities</b>      |                |              |                                       |       |                  |                      |                           |           |
| EDUCATION (PRIVATE) SECTOR      | 301            | 139          | 6.4%                                  | 0.4%  | 42%              | 19.58%               | \$36,617                  | \$56,844  |
| <b>Transitioning Activities</b> |                |              |                                       |       |                  |                      |                           |           |
| TECHNOLOGY SECTOR               | 1,017          | 149          | 1.6%                                  | 2.6%  | 36%              | -1.92%               | \$95,946                  | \$136,035 |
| CREATIVE SECTOR                 | 2,302          | 133          | 0.6%                                  | 2.5%  | 68%              | -10.07%              | \$44,558                  | \$102,717 |
| AGRIBUSINESS SECTOR             | 1,820          | 116          | 0.7%                                  | 1.0%  | 129%             | 2.24%                | \$42,769                  | \$56,238  |
| HEALTH AND WELLNESS SECTOR      | 2,690          | 340          | 1.4%                                  | 1.4%  | 72%              | 3.41%                | \$77,950                  | \$81,930  |
| <b>Declining Activities</b>     |                |              |                                       |       |                  |                      |                           |           |
| OTHERS SECTOR                   | 30             | -3           | -0.9%                                 | -0.4% | 22%              | 0.18%                | \$28,178                  | \$53,095  |

1/ Proportion of jobs in the activity in 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 & emerging industry groups in Kaua‘i County. Fifteen activities were high-performing, with a job growth rate that was higher than the nation for the same activity over the 2012 to 2022 period. Specialty Health Care Services gained the greatest number of jobs at 169; Technology Equipment Distribution jobs had the highest average annual job growth rate at 8.7%; and Performing and Creative Arts had the highest concentration of industry compared to the nation’s concentration, at 175%. Technology Equipment Distribution had the highest average annual earnings in 2022 at \$172,688.

Eight activities were in the Transitioning category over the 2012 to 2022 period. They gained jobs but did not keep up with national growth for the same activities resulting in a loss of competitive national industry share. Health Practitioners gained the greatest number of jobs at 202; Computer Services and Software Publishers jobs had the highest average annual job growth rate at 4.2%; and Fishing, and Forestry and Hunting had the highest concentration of industry compared to the nation’s

concentration, at 607%. In 2022, Computer Services and Software Publishers had the highest average annual earnings in 2022 at \$117,236.

Fifteen activities in the portfolio were in the Declining industry category as the result of net job losses over the 2012 to 2022 period. Agriculture Packaging and Warehousing lost the fewest number of jobs at nearly 0; Pharmacies and Farm Production had the lowest average annual job *decline* rate at 0.1%; and Alternative Power Generation had the highest concentration of industry compared to the nation's concentration, at 383%, and had the highest average annual earnings in 2022 at \$154,129.

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

| Industry Group   | Jobs in Kaua'i County |              | Avg. Annual Job Growth Rate 2012-2022 |       | Concentration 1/ |                      | Avg. Annual Earnings 2022 |           |
|--|-----------------------|--------------|---------------------------------------|-------|------------------|----------------------|---------------------------|-----------|
|  | 2022                  | Change 12-22 | Kaua'i County                         | U.S.  | 2022             | % Point Change 12-22 | Kaua'i County             | U.S.      |
| <b>Base-Growth Activities</b>                                      |                       |              |                                       |       |                  |                      |                           |           |
| Music  | 60                    | 19           | 3.8%                                  | 2.1%  | 120%             | 23%                  | \$21,939                  | \$48,113  |
| Performing and Creative Arts                                       | 731                   | 151          | 2.3%                                  | 1.8%  | 175%             | 18%                  | \$25,010                  | \$32,738  |
| Architecture   | 76                    | 21           | 3.2%                                  | 1.4%  | 102%             | 20%                  | \$101,013                 | \$92,867  |
| <b>Emerging Activities</b>   |                       |              |                                       |       |                  |                      |                           |           |
| Agriculture Processing   | 306                   | 116          | 4.9%                                  | 2.0%  | 73%              | 21%                  | \$50,989                  | \$69,586  |
| Agriculture Support Services                                       | 113                   | 42           | 4.7%                                  | 3.0%  | 73%              | 14%                  | \$78,340                  | \$64,935  |
| Art Education  | 50                    | 25           | 7.0%                                  | 1.7%  | 91%              | 38%                  | \$20,475                  | \$19,712  |
| Higher Education   | 13                    | 6            | 5.9%                                  | -0.4% | 3%               | 2%                   | \$74,215                  | \$70,399  |
| Specialty Education  | 288                   | 133          | 6.4%                                  | 1.8%  | 94%              | 37%                  | \$34,897                  | \$38,662  |
| Specialty Health Care Services                                     | 438                   | 169          | 5.0%                                  | 3.2%  | 64%              | 13%                  | \$56,743                  | \$58,079  |
| Apparel  | 30                    | 3            | 0.9%                                  | -1.6% | 94%              | 25%                  | \$28,178                  | \$47,202  |
| Technical Consulting Services                                      | 212                   | 73           | 4.3%                                  | 4.1%  | 46%              | 3%                   | \$46,371                  | \$103,589 |
| Technology Equipment Distribution                                  | 4                     | 2            | 8.7%                                  | 1.6%  | 3%               | 2%                   | \$172,688                 | \$156,951 |
| Computer System Design and Related Services                        | 176                   | 53           | 3.6%                                  | 3.6%  | 27%              | 1%                   | \$96,136                  | \$144,399 |
| Information and Telecom Technology                                 | 143                   | 42           | 3.6%                                  | 2.6%  | 32%              | 4%                   | \$126,838                 | \$157,682 |
| Agriculture Processing   | 306                   | 116          | 4.9%                                  | 2.0%  | 73%              | 21%                  | \$50,989                  | \$69,586  |
| <b>Transitioning Activities</b>                                    |                       |              |                                       |       |                  |                      |                           |           |
| Fishing, Forestry and Hunting                                      | 147                   | 0            | 0.0%                                  | 0.1%  | 607%             | 28%                  | \$16,827                  | \$35,884  |
| Business Consulting  | 220                   | 69           | 3.8%                                  | 4.0%  | 41%              | 1%                   | \$46,576                  | \$102,713 |
| Computer Services and Software Publishers                          | 155                   | 53           | 4.2%                                  | 4.5%  | 21%              | 1%                   | \$117,236                 | \$158,327 |
| Marketing, Photography and Related                                 | 621                   | 3            | 0.1%                                  | 2.0%  | 94%              | -15%                 | \$32,294                  | \$68,302  |
| Health Practitioners   | 1145                  | 202          | 2.0%                                  | 2.1%  | 87%              | 3%                   | \$83,858                  | \$92,905  |
| Engineering and Related Services                                   | 156                   | 7            | 0.5%                                  | 1.5%  | 41%              | -2%                  | \$113,132                 | \$113,949 |
| Medical Labs and Imaging Centers                                   | 65                    | 12           | 2.0%                                  | 2.7%  | 86%              | -1%                  | \$66,282                  | \$91,452  |
| <b>Declining Activities</b>  |                       |              |                                       |       |                  |                      |                           |           |
| Agriculture Inputs   | 9                     | -24          | -12.5%                                | 0.7%  | 15%              | -43%                 | \$57,544                  | \$89,861  |
| Agriculture Packaging and Warehousing                              | 1                     | 0            | -0.6%                                 | 1.8%  | 3%               | -1%                  | \$11,182                  | \$69,425  |
| Farm Production  | 1244                  | -19          | -0.1%                                 | 0.1%  | 176%             | 5%                   | \$40,513                  | \$43,544  |
| Publishing and Information   | 48                    | -53          | -7.2%                                 | -1.3% | 37%              | -28%                 | \$43,157                  | \$151,199 |
| Radio and Television Broadcasting                                  | 26                    | -7           | -2.4%                                 | -1.2% | 77%              | -6%                  | \$61,984                  | \$96,107  |
| Cultural Activities  | 51                    | -34          | -5.0%                                 | 1.3%  | 112%             | -92%                 | \$42,533                  | \$71,616  |
| Design Services  | 86                    | -31          | -3.0%                                 | 1.6%  | 77%              | -40%                 | \$32,504                  | \$53,919  |
| Engineering and Research and Development                           | 123                   | -37          | -2.6%                                 | 1.9%  | 30%              | -15%                 | \$113,907                 | \$133,311 |
| Film, TV, Video Production/Distribution, Cable and Media Streaming | 55                    | -44          | -5.7%                                 | 2.3%  | 36%              | -42%                 | \$57,155                  | \$152,917 |
| Hospitals and Nursing Facilities                                   | 807                   | -39          | -0.5%                                 | 0.1%  | 56%              | 0%                   | \$91,970                  | \$87,771  |
| Pharmacies   | 235                   | -3           | -0.1%                                 | 0.5%  | 111%             | -1%                  | \$43,688                  | \$47,955  |
| Alternative Power Generation                                       | 64                    | -5           | -0.7%                                 | 1.1%  | 383%             | -55%                 | \$154,129                 | \$187,823 |
| Biotechnology  | 151                   | -4           | -0.3%                                 | 7.1%  | 233%             | -221%                | \$101,480                 | \$212,315 |
| Other Technology Manufacturing                                     | 2                     | -5           | -13.2%                                | 0.6%  | 1%               | -2%                  | \$18,838                  | \$130,865 |
| R&D Services (except Biotechnology)                                | 44                    | -27          | -4.7%                                 | 2.2%  | 32%              | -29%                 | \$110,799                 | \$154,598 |

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

Source: Lightcast™ and DBEDT calculation.

## CONCLUSIONS

This report is the 14th update of the performance measures of Hawai'i's Targeted Industry Portfolio that 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 2012 - 2022 update reports extended those measurements through the contraction phase, providing an analysis of how targets performed over the ups and downs of the business cycle. This update report updated NAICS codes to the latest 2022 definitions and used the 2022 data to illustrate how targeted industries have been performing during the 2012 to 2022 period.

Table 31 summarizes the best-performing targeted industry groups for the 2012 to 2022 period in terms of average growth and national competitiveness. They all showed growth and at the same time outperformed the same activities nationally over the measurement period. Among the six best-performing industry groups, five groups had average earnings above the average for Hawai'i's civilian economy.

Table 31. Highest Performing Targeted Activities, 2012 to 2022

| Industry Group   | Jobs in Hawai'i |              | Avg. Annual Job Growth Rate 2012-2022 |      | Concentration 1/ |                      | Avg. Annual Earnings 2022 |           |
|--|-----------------|--------------|---------------------------------------|------|------------------|----------------------|---------------------------|-----------|
|  | 2022            | Change 12-22 | Hawai'i                               | U.S. | 2022             | % Point Change 12-22 | Hawai'i                   | U.S.      |
| Civilian Total   | 841,332         | 40,788       | 0.5%                                  | 1.5% | 100%             | 0%                   | \$66,971                  | \$71,873  |
| Total Targeted without Overlap                                     | 160,660         | 12,378       | 0.8%                                  | 1.6% | 84%              | 2%                   | \$73,688                  | \$89,508  |
| <b>Base-Growth and Emerging Activities</b>                         |                 |              |                                       |      |                  |                      |                           |           |
| <b>Above Average State Earnings</b>                                |                 |              |                                       |      |                  |                      |                           |           |
| Technology Equipment Distribution                                  | 940             | 180          | 2.1%                                  | 1.6% | 38%              | 5%                   | \$154,242                 | \$156,951 |
| Hospitals and Nursing Facilities                                   | 20,444          | 1,420        | 0.7%                                  | 0.1% | 77%              | 12%                  | \$100,824                 | \$87,771  |
| Film, TV, Video Production/Distribution, Cable and Media Streaming | 2,626           | 973          | 4.7%                                  | 2.3% | 94%              | 27%                  | \$100,740                 | \$152,917 |
| Specialty Health Care Services                                     | 13,091          | 4,822        | 4.7%                                  | 3.2% | 103%             | 22%                  | \$72,065                  | \$58,079  |
| Agriculture Support Services                                       | 2,177           | 811          | 4.8%                                  | 3.0% | 76%              | 18%                  | \$68,069                  | \$64,935  |
| <b>Below Average State Earnings</b>                                |                 |              |                                       |      |                  |                      |                           |           |
| Pharmacies   | 4,937           | 391          | 0.8%                                  | 0.5% | 126%             | 16%                  | \$42,640                  | \$47,955  |

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

Source: Lightcast™ and DBEDT calculation

## APPENDIX A

Table A1. Conversion of 2017 NAICS to 2022 NAICS

| 2017 NAICS | Changed to → | 2022 NAICS | 2022 Industry Description  |
|------------|--------------|------------|--|
| 111        |              | 111000     | Crop Production  |
| 112        |              | 112000     | Animal Production  |
| 31522      |              | 315250     | Cut and Sew Apparel Manufacturing (except Contractors)   |
| 31524      |              | 315250     | Cut and Sew Apparel Manufacturing (except Contractors)   |
| 31528      |              | 315250     | Cut and Sew Apparel Manufacturing (except Contractors)   |
| 31599      |              | 315990     | Apparel Accessories and Other Apparel Manufacturing  |
| 333314     |              | 333310     | Commercial and Service Industry Machinery Manufacturing  |
| 333316     |              | 333310     | Commercial and Service Industry Machinery Manufacturing  |
| 333318     |              | 333310     | Commercial and Service Industry Machinery Manufacturing  |
| 334614     |              | 334610     | Manufacturing and Reproducing Magnetic and Optical Media   |
| 446110     |              | 456110     | Pharmacies and Drug Retailers  |
| 451140     |              | 459140     | Musical Instrument and Supplies Retailers  |
| 453920     |              | 459920     | Art Dealers  |
| 511110     |              | 513110*    | Newspaper Publishers   |
| 511120     |              | 513120     | Periodical Publishers  |
| 511130     |              | 513130     | Book Publishers  |
| 511140     |              | 513140     | Directory and Mailing List Publishers  |
| 511191     |              | 513191     | Greeting Card Publishers   |
| 511199     |              | 513199     | All Other Publishers   |
| 511210     |              | 513210     | Software Publishers  |
| 515111     |              | 516210**   | Media Streaming Distribution Services, Social Networks, and Other Media Networks and Content Providers |
| 515112     |              | 516110     | Radio Broadcasting Stations  |
| 515120     |              | 516120     | Television Broadcasting Stations   |
| 515210     |              | 516210**   | Media Streaming Distribution Services, Social Networks, and Other Media Networks and Content Providers |
| 517311     |              | 517111     | Wired Telecommunications Carriers  |
| 517312     |              | 517112     | Wireless Telecommunications Carriers (except Satellite)  |
| 517919     |              | 517810     | All Other Telecommunications   |
| 519110     |              | 516210**   | Media Streaming Distribution Services, Social Networks, and Other Media Networks and Content Providers |
| 519130     |              | 513110*    | Newspaper Publishers   |
| 519190     |              | 519290     | Web Search Portals and All Other Information Services  |
| 523130     |              | 523160     | Commodity Contracts Intermediation   |
| 523140     |              | 523160     | Commodity Contracts Intermediation   |

\* NAICS Code: 513110 Newspaper Publishers. (n.d.). NAICS Association. Retrieved September 26, 2023, from <https://www.naics.com/naics-code-description/?v=2022&code=513110>

\*\* NAICS Code: 516210 Media Streaming Distribution Services, Social Networks, and Other Media Networks and Content Providers. (n.d.). NAICS Association. Retrieved September 26, 2023, from <https://www.naics.com/naics-code-description/?v=2022&code=516210>

Source: DBEDT, United States Census Bureau (2023) <https://www.census.gov/naics/>

Table A2. Additional 2022 NAICS Included Which Were Not Included in the Conversions

| NAICS  | Industry Description  | 2022 Industry Group Name, Abbreviation |
|--------|-----------------------|--|
| 311213 | Malt Manufacturing    | Agriculture Processing, AG3            |
| 311422 | Specialty Canning     | Agriculture Processing, AG3            |
| 325315 | Compost Manufacturing | Agriculture Inputs, AG1                |

Source: DBEDT



Table A3. Detailed Industry Groupings<sup>6</sup>

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

<sup>6</sup> An industry may be counted in more than one sector or industry group.

Table A3. Detailed Industry Groupings (cont'd)

|        |  | Industry Group<br>Abbreviation                                  |
|--------|--|---|
| 312112 | Bottled Water Manufacturing  | Agric. Processing AG3   |
| 312113 |  | Agric. Processing AG3   |
| 312120 | Breweries  | Agric. Processing AG3   |
| 312130 |  | 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 |  | 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                                |



Table A3. Detailed Industry Groupings (cont'd)

|        |  |   |      |
|--------|--|---|------|
| 512110 | Motion Picture and Video Production  | Film, TV, Video Production/Distrib, Cable & Media Streaming | CS8  |
| 512120 |  | 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   | CS10 |
| 512240 | Sound Recording Studios  | Music   | CS10 |
| 512250 | Record Production and Distribution   | Music   | CS10 |
| 512290 |  | Music   | CS10 |
| 513110 |  | Publishing and Information                                  | CS12 |
| 513120 | Periodical Publishers  | Publishing and Information                                  | CS12 |
| 513130 |  | Publishing and Information                                  | CS12 |
| 513140 | Directory and Mailing List Publishers  | Publishing and Information                                  | CS12 |
| 513191 |  | Publishing and Information                                  | CS12 |
| 513199 | All Other Publishers   | Publishing and Information                                  | CS12 |
| 513210 |  | Information and Telecom Technology                          | TS6  |
| 513210 | Software Publishers  | Computer Services and Software Publishers                   | CS4  |
| 516110 |  | 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 |  | 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 |  | Engineering and Related Services                            | TS5  |
| 541310 |  | Architecture  | CS2  |
| 541320 |  | Engineering and Related Services                            | TS5  |
| 541320 |  | Architecture  | CS2  |
| 541330 |  | Engineering and Related Services                            | TS5  |
| 541330 |  | Engineering and Research and Development                    | CS7  |
| 541340 |  | Design Services   | CS6  |
| 541360 | Geophysical Surveying and Mapping Services   | Engineering and Related Services                            | TS5  |
| 541380 |  | Engineering and Related Services                            | TS5  |
| 541410 | Interior Design Services   | Design Services   | CS6  |
| 541420 |  | Design Services   | CS6  |
| 541430 | Graphic Design Services  | Design Services   | CS6  |
| 541490 | Other Specialized Design Services  | Design Services   | CS6  |
| 541511 |  | Computer System Design and Related services                 | TS4  |
| 541511 |  | 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 |  | Technical Consulting Services                               | TS10 |
| 541611 |  | Business Consulting   | CS3  |
| 541612 | Human Resources Consulting Services  | Business Consulting   | CS3  |
| 541613 | Marketing Consulting Services  | Marketing, Photography and Related                          | CS9  |
| 541614 |  | Technical Consulting Services                               | TS10 |
| 541614 | Process, Physical Distribution, and Logistics Consulting Services                                      | Business Consulting   | CS3  |
| 541618 | Other Management Consulting Services   | Business Consulting   | CS3  |
| 541620 |  | Technical Consulting Services                               | TS10 |
| 541620 | Environmental Consulting Services  | Business Consulting   | CS3  |

Table A3. 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                         |

Table A3. Detailed Industry Groupings (cont'd)

| NAICS  | Industry Description  | Industry Group Name              | Industry Group Abbreviation |
|--------|---|----------------------------------|-----------------------------|
| 623110 | Nursing Care Facilities (Skilled Nursing Facilities)                              | Hospitals and Nursing Facilities | HW2                         |
| 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