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December 2, 2022

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

The Honorable Scott K. Saiki,  
Speaker and Members of the  
House of Representatives ... Scott  
Thirty-second State Legislature  
State Capitol, Room 431  
Honolulu, Hawaii 96813

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

For your information and consideration, I am transmitting a copy of the report on *Hawaii's Targeted & Emerging Industries, 2022 Update Report*, as required by Sections §201-16 and §201-19, Hawaii Revised Statutes. In accordance with Section 93-16, Hawaii Revised Statutes, I am also informing you that the report may be viewed electronically at: <http://dbedt.hawaii.gov/overview/annual-reports-reports-to-the-legislature/>.

With aloha,

H23 5-7.5(4)  
Mike McCartney

Enclosure

c: Legislative Reference Bureau



# Hawai‘i’s Targeted & Emerging Industries

## *2022 Update Report*



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

**December 2022**

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



This report is prepared by Dr. Binsheng Li, Economist, under the direction of Dr. Eugene Tian, Division Administrator. Dr. Joseph Roos, Economic Research Program Manager, reviewed and provided valuable inputs for this report.

**Hawai‘i Department of Business, Economic Development & Tourism**  
**December 2022**

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**TABLE OF CONTENTS**


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EXECUTIVE SUMMARY .....	iv
INTRODUCTION .....	1
Defining Targeted Industries .....	1
The Targeted Industry Portfolio.....	1
Measuring Targeted Industries .....	3
Data Sources .....	5
TECHNOLOGY SECTOR.....	6
Size & Growth .....	6
Competitive Metrics.....	8
Overall Performance .....	10
CREATIVE SECTOR .....	11
Size & Growth .....	11
Competitive Metrics.....	13
Overall Performance .....	14
AGRIBUSINESS.....	15
Size & Growth .....	15
Competitive Metrics.....	16
Overall Performance .....	17
HEALTH & WELLNESS.....	18
Size & Growth .....	18
Competitive Metrics.....	20
Overall Performance .....	20
EDUCATION .....	21
Size & Growth .....	21
Competitive Metrics.....	22
Overall Performance .....	23
OTHER TARGETED ACTIVITIES .....	24
Size & Growth .....	24
Overall Performance .....	26
PERFORMANCE BY COUNTY.....	27
City & County of Honolulu .....	28
Hawai‘i County.....	31
Maui County .....	33

Kaua‘i County..... 35  
CONCLUSIONS..... 38

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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 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 13<sup>th</sup> update of the 2009 report to cover the 2011 to 2021 period.

The activities were grouped into four performance categories. *Base-growth* activities rated the highest on the basis of 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 their national counterpart. This update report extends the performance measures through 2021. Table 1 provides a comprehensive overview of performance among activities in the Targeted Industry Portfolio over the 2011 to 2021 period. In the body of this report the activities will be examined in detail by their major sector groups such as technology, creative industries, and others. The performance is measured by job growth. A job is a position either paid with wage and salary or with self-employment income regardless of full time or part time. Key observations from the updated examination of the portfolio are:

- Eight activities were high performing, with positive job growth combined with a job growth rate that was higher than the nation for the same activity. Among those were Film, TV, Video Production/Distribution, Pharmacies, Specialty Health Care Services, Engineering and Related Services, Alternative Power Generation, Hospitals & Nursing Facilities, Agriculture Support Services, and Technology Equipment Distribution.
- The high-performing activities in the targeted industry portfolio (Base-growth and Emerging) accounted for about 50,272 jobs or 6.4% of total civilian jobs in 2021. However, between 2011 and 2021 those activities generated 77.1% of the total gain in jobs for the civilian economy, or about 10,029 new jobs.
- Among the best performing activities, Alternative Power Generation, Specialty Health Care Services, and Agriculture Support Services grew jobs over 4% per year during the 2011 to 2021 period.
- Adjusting for overlaps, total targeted jobs reached 154,322 jobs in 2021, an increase of 10,215 jobs from 2011.

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

Table 1. Overall Performance of the Targeted Industry Portfolio

INDUSTRY GROUPS	Jobs in Hawai'i		Avg. Ann. Job Growth (2011-2021)		Concentration of Industry in Hawai'i Compared to U.S.		Average Annual Earnings (2021)	
	2021	Change 11-21	% Point Change		2021	11-21	HI	U.S.
			HI	U.S.				
TOTAL CIVILIAN JOBS	789,629	-507	0.0%	1.1%	100%	0.00%	\$65,637	\$70,358
TOTAL TARGETED JOBS WITHOUT OVERLAP	154,322	10,215	0.7%	1.4%	84%	3.00%	\$71,711	\$86,733
<b>Base-Growth Activities</b>								
Film, TV, Video Production/Distribution	2,170	573	3.1%	1.2%	124%	32%	\$80,868	\$117,564
Pharmacies	3,557	191	0.6%	-0.1%	124%	20%	\$53,283	\$57,113
Specialty Health Care Services	13,354	5,561	5.5%	3.2%	109%	30%	\$69,412	\$55,648
Engineering and Related Serv.	6,937	938	1.5%	1.3%	102%	12%	\$112,392	\$109,384
<b>Emerging Activities</b>								
Alternative Power Generation	259	148	8.9%	0.1%	93%	57%	\$137,155	\$188,106
Hospitals & Nursing Facilities	21,094	1,791	0.9%	0.2%	80%	13%	\$98,211	\$81,789
Agric. Support Services	2,006	709	4.5%	2.5%	73%	19%	\$59,419	\$63,316
Technology Equipment Distr.	896	118	1.4%	1.1%	38%	5%	\$159,657	\$153,683
<b>Transitioning Activities</b>								
Fishing, Forestry & Hunting	1,713	167	1.0%	1.2%	350%	31%	\$29,021	\$35,150
Higher Education	5,478	155	0.3%	0.6%	66%	5%	\$33,904	\$60,221
Art Education	782	185	2.7%	3.4%	67%	3%	\$16,871	\$15,797
Specialty Education	6,004	1,217	2.3%	3.0%	97%	3%	\$30,184	\$30,945
Technical Consulting Services	5,414	1,384	3.0%	3.7%	68%	2%	\$73,120	\$99,137
Health Practitioners	23,659	2,329	1.0%	1.9%	101%	2%	\$95,664	\$91,728
Engineering and Research & Development	6,110	375	0.6%	1.5%	86%	1%	\$114,459	\$127,726
Business Consulting	5,864	1,193	2.3%	3.5%	63%	-1%	\$73,072	\$98,495
Marketing, Photography & Related	10,837	511	0.5%	1.9%	93%	-3%	\$36,505	\$63,134
Design Services	1,870	37	0.2%	1.6%	91%	-3%	\$42,890	\$51,187
Medical and Diagnostic Testing*	1,921	174	1.0%	2.4%	144%	-6%	\$75,248	\$94,730
Information & Telecom Tech.	4,947	157	0.3%	2.5%	55%	-7%	\$117,865	\$177,763
Computer Services and Software Publishers	5,263	753	1.6%	4.2%	42%	-7%	\$128,183	\$162,471
<b>Declining Activities</b>								
Agric. Processing	6,074	-8	0.0%	1.7%	82%	-6%	\$52,383	\$66,733
Architecture	1,888	-24	-0.1%	1.1%	140%	-2%	\$97,926	\$88,679
Computer Sys. Design & Related	6,195	-116	-0.2%	3.3%	55%	-15%	\$114,737	\$146,693
Music	1,004	-31	-0.3%	0.6%	138%	2%	\$35,263	\$50,349
Farm Production	13,092	-1,131	-0.8%	0.0%	100%	2%	\$39,281	\$44,145
Agric. Packaging & Warehousing	196	-19	-0.9%	1.6%	24%	-4%	\$59,794	\$66,347
Agric. Inputs	346	-61	-1.6%	0.6%	34%	-4%	\$62,518	\$84,364
Cultural Activities	2,401	-442	-1.7%	1.0%	313%	-55%	\$69,308	\$69,609
Performing and Creative Arts	7,222	-1,450	-1.8%	-0.3%	118%	-6%	\$23,637	\$29,913
Radio and Television Broadcasting	935	-211	-2.0%	-0.9%	99%	-1%	\$72,326	\$101,150
Apparel	783	-206	-2.3%	-3.0%	160%	26%	\$31,076	\$49,703
Other Technology Manufacturing	479	-133	-2.4%	0.3%	9%	-2%	\$80,459	\$128,935
Call Centers	230	-78	-2.9%	0.9%	11%	-4%	\$26,868	\$52,176
R&D Services (exc. Biotech.)	1,285	-582	-3.7%	1.7%	53%	-29%	\$98,761	\$147,364
Publishing & Information	1,547	-734	-3.8%	-0.2%	50%	-15%	\$73,730	\$184,798
Biotechnology	378	-308	-5.8%	6.1%	35%	-68%	\$104,314	\$232,238
Chemical & Pharmaceutical Manufacturing	47	-120	-11.9%	1.7%	2%	-6%	\$89,554	\$152,774

\*The 1,921 jobs in this industry were allocated to both the Technology and Health and Wellness Sectors.

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Source: DBEDT based on data from Lightcast, Economic Modeling Specialist International (EMSI). The sum of the individual industries does not add up to the total due to adjusting for overlaps among sectors.

- About 95.5% of the high-performing activities had average annual earnings that exceeded \$69,400 in 2021. Technology Equipment Distribution had the highest average earnings at \$159,657. By comparison, the average earnings for the civilian economy in 2021 was \$65,637.
- Thirteen activities, which accounted for 79,861 jobs in 2021, fell into the Transitioning category. They gained jobs over the period but did not keep up with national growth for the same activities resulting in a loss of competitive national industry share. However, all of those activities grew faster in terms of jobs than the civilian economy as a whole.
- The positive side of the Transitioning activities in the portfolio was that they did contribute to job growth in the economy. They were also an important source of high paying jobs. About 67% of jobs in Transitioning category had average earnings over \$65,637 in 2021. The main concern of these activities was that they were not as competitive as the same activities at the national level.
- Seventeen activities in the portfolio fell into the Declining industry category as the result of net job losses for the 2011 to 2021 period. Notable among these were Agriculture Processing, Architecture, Computer System Design & Related, Music, Farm Production, Agriculture Packaging & Warehousing, Agriculture Inputs, Cultural Activities, Performing and Creative Arts, Radio and Television Broadcasting, Apparel, Other Technology Manufacturing, Call Centers, R&D Services (exc. Biotech.), Publishing & Information, Biotechnology, and Chemical & Pharmaceutical Manufacturing.
- Among the 17 declining industries, only four of them lost jobs at the U.S. level during the 2011 to 2021 period. They are Apparel, Performing and Creative Arts, Radio and Television Broadcasting, and Publishing & Information.
- Jobs in the Declining industry group totaled an estimated 44,103 in 2021 (5.6% of all civilian jobs), representing a loss of about 5,656 jobs from 2011. About 31% of the jobs in the Declining industry group had above average earnings in Hawai'i.
- Declining industries are not necessarily dying activities. In some cases, like Publishing & Information activity, the technology for developing and delivering information is improving rapidly, and perhaps reducing the need for workers. In these cases, the declining activities may stabilize at some point and resume some growth as the economy expands. Finally, some Declining activities may be tied to other activities such as tourism and defense and may be reflecting the cycles of those industries, rather than independent local or export markets.

It is important to note that the measures and classifications used in the targeted industry portfolio are descriptive but not diagnostic. That is, the measures alone do not reveal why the industries performed as they did. They also do not reveal the role of these activities in the economy. It is not clear if the high performing industries are growing independently or are feeding off growth in other activities. It is also not clear which industries are devoting their output primarily to export as opposed to local consumption markets, although the measures of concentration help identify probable export candidates. The purpose of this performance



assessment is to assist economic developers and policymakers to understand which targeted industries are achieving the expected potential and which are not.

The industry performance measures are also impacted by the time period in comparison. For example, many Hawai‘i industries in in 2021 are still recovering from the COVID-19 pandemic, especially the tourism related industries while these industries in 2011 may not be impacted by the 2009 recession. Also, the COVID-19 impacts on the U.S. and Hawai‘i economies are different.

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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 have been labeled variously as *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 13th report that updates the review of targeted industry performance at the state level to 2021.

### 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 the purpose of 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 still was 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

Table 2 lists the industries of the portfolio. The portfolio industries have also been grouped into 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 are referred to that report for more detail. For most of these industry groups, definitions for measurement purposes have been adopted from previous studies, particularly for the technology sector, the creative sector, and health and wellness. 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 Medical Labs,

Diagnostic and Imaging Centers group is included in both the Technology sector and the Health & Wellness sector.

Table 2. Targeted Industry Portfolio

<b>TECHNOLOGY SECTOR</b>	<b>AGRIBUSINESS</b>
Alternative Power Generation	Agriculture Inputs
Biotechnology	Agriculture Packaging & Warehousing
Chemical & Pharmaceutical Manufacturing	Agriculture Processing
Computer Sys. Design & Related	Agriculture Support Services
Engineering and Related Services	Farm Production
Information & Telecom Technology	Fishing, Forestry & Hunting
Medical Labs, Diagnostic and Imaging Centers	<b>HEALTH &amp; WELLNESS</b>
Other Technology Manufacturing	Health Practitioners
R&D Services (excluding Biotechnology)	Hospitals & Nursing Facilities
Technical Consulting Services	Medical Labs, Diagnostic and Imaging Centers
Technology Equipment Distribution	Pharmacies
<b>CREATIVE SECTOR</b>	Specialty Health Care Services
Art Education	<b>EDUCATION (PRIVATE)</b>
Architecture	Higher Education
Business Consulting	Specialty Education
Computer Services and Software Publishers	<b>OTHER TARGETS</b>
Cultural Activities	Apparel
Design Services	Call Centers
Engineering and Research & Development	
Film, TV, Video Production/Distribution	
Marketing, Photography & Related	
Music	
Performing and Creative Arts	
Publishing & Information	
Radio and Television Broadcasting	

Source: DBEDT

### Measuring Targeted Industries

In this updated 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.

One of the key performance measures is the change of jobs 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 rate of job growth 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 would 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.

The average earnings for workers in each activity were examined. Higher earnings generally come from high quality jobs. A relatively higher earnings average 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 the 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 are usually serving 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 the industry is unable to reinvent itself with new products and markets, it will continue to wither and fade away.

Not all industries or their evolution will fit nicely into the model, especially over short periods of time. Some industries may emerge but never rise to the level moving from weakly emerging to the transitioning or declining stage or move back and forth among the different stages over a period of 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. However, in the long-term, the model should provide a fairly accurate picture of the performance of industries.

Table 3. Performance Map Criteria (Industry Life Cycle)

<i>Emerging Activities</i>		<i>Base-Growth Activities</i>
Positive job growth Increasing competitive national market share (outperforming the same activity nationally) Lower concentration in Hawai‘i than nationally		Positive job growth Increasing competitive national market share (outperforming the same activity nationally) Higher concentration in Hawai‘i than nationally
		
<i>Declining Activities</i>		<i>Transitioning Activities</i>
Losing jobs over period		Positive job growth Losing competitive national market share

### Data Sources

Jobs and earnings reported in this report include wage and salary positions and estimates for self-employed and proprietors. The data were obtained via a subscription to the data bases of Lightcast formerly EMSI. EMSI uses data from Bureau of Labor Statistics, Bureau of Economic Analysis and others 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 updated report followed the earlier definition with a few adjustments that were necessary due to changes in new North American Industrial Classification System (NAICS). The earlier definition excluded wireless telecom services from the technology sector, because the services could not meet the BLS criteria to be in the Technology sector. Wired services, however, are no longer reported separately from other telecom services since the 2012 revision in NAICS. Facing the increased competition with new telecom services, many wired carriers chose to close or reduce the traditional wired services in order to expand services with more market potential. As a result, a variety of services are often served by a single carrier and the change in the 2017 NAICS was a reflection of these market trends. This update report adjusted the earlier definition by applying the BLS approach to new NAICS codes.

### Size & Growth

With the adjustments described above, the technology sector accounted for 28,758 jobs in 2021, or 3.6% of all civilian jobs in Hawai‘i including self-employed and sole proprietors. For the 2011 to 2021 period, the technology sector had an annual average 0.6% gain in jobs, 0.6 of a percentage point higher than the average annual growth for the civilian economy.

The 2021 estimate shows that the technology sector had an annual average job gain of 1.5% between 2019 and 2021, compared with a 4.9% loss for total civilian jobs in Hawai‘i. From 2019 to 2021, Engineering and Related Services added 373 jobs, followed by Computer System Design and Related (added 135 jobs), Technical Consulting Services (added 116 jobs), and Medical and Diagnostic Testing (added 114 jobs). The major categories with job losses from 2019 to 2021 were Chemical & Pharmaceutical Manufacturing (lost 56 jobs), and Alternative Power Generation (lost 42 jobs).

For the 2011 to 2021 period, Alternative Power Generation had the strongest job growth among the technology industry groups, followed by Technical Consulting Services. However, it is important to note that total jobs for Alternative Power Generation is still relatively small at 259 jobs. Other activities in the technology sector with positive job growth over the 2011 to 2021 period were Engineering and Related Services, Technology Equipment Distribution, Medical and Diagnostic Testing, and Information & Telecom Technology.

The five technology industry groups that lost jobs during the 2011 to 2021 period were Computer System Design and Related, Other Technology Manufacturing, R&D Services (except Biotechnology), Biotechnology, and Chemical & Pharmaceutical Manufacturing.

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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. Job and Annual Job Growth of the Technology Sector

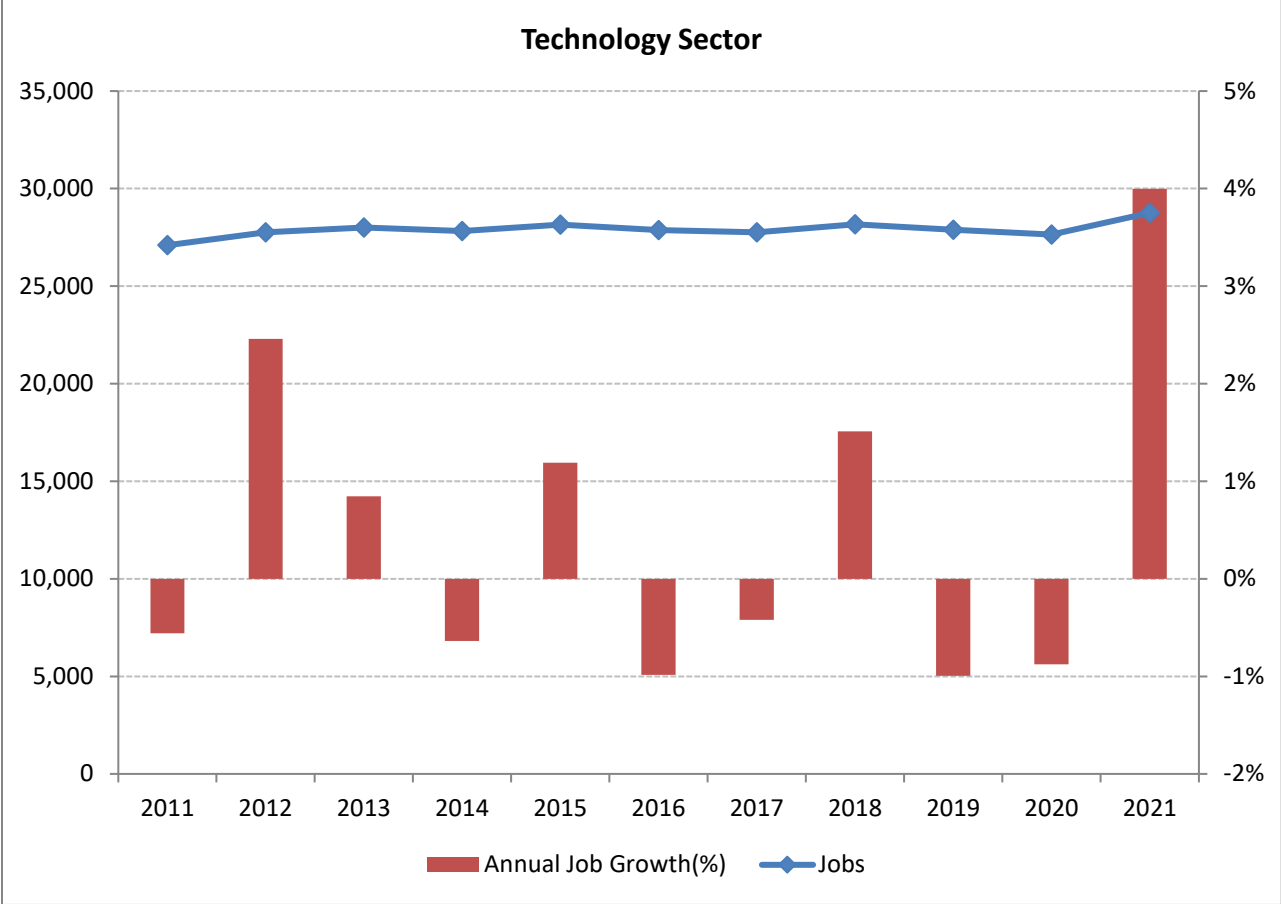




Table 4. Jobs<sup>1</sup> in Technology Sector, Average Annual Growth over 2011-2021

	Annual Job Growth			Jobs in 2021
	2011-2021	2011-2019	2019-2021	
Civilian Total	0.0%	1.3%	-4.9%	789,629
Technology Sector Total	0.6%	0.4%	1.5%	28,758
Alternative Power Gen.	8.9%	13.3%	-7.3%	259
Technical Consulting Services	3.0%	3.5%	1.1%	5,414
Engineering and Related Services	1.5%	1.1%	2.8%	6,937
Technology Equip Distribution	1.4%	1.2%	2.3%	896
Medical and Diagnostic Testing	1.0%	0.4%	3.1%	1,921
Information & Telecom Tech.	0.3%	0.4%	0.0%	4,947
Computer Sys Design and Related	-0.2%	-0.5%	1.1%	6,195
Other Technology Mfg	-2.4%	-4.5%	6.2%	479
R&D Serv. (except Biotechnology)	-3.7%	-5.3%	3.3%	1,285
Biotechnology	-5.8%	-8.6%	6.5%	378
Chemical & Pharmaceutical Mfg	-11.9%	-5.9%	-32.4%	47

<sup>1</sup>Includes wage & salary, sole proprietors & self-employed.  
Source: DBEDT based on data from EMSI.

## Competitive Metrics

The sixth column of Table 5 shows the difference in percentage points between job growth in Hawai'i and the U.S. for the technology sector industry groups. Overall, Hawai'i's technology sector grew jobs less than the same activities in the nation.

Alternative Power Generation outperformed their national counterparts by 8.7 percentage points during the 2011-2021 period. Biotechnology underperformed their national counterparts by 11.9 percentage points.

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

	Jobs		Avg.	Avg. Annual Job		When U.S. = 100%		
	per		Annual	Growth		Concen- tration 1/ Estabs	Jobs per Estabs	Avg. Annual Earning
	Jobs 2021	Estabs 2021	Earnings 2021	11-21	above U.S.			
Total Civilian	789,629	15.2	65,637	0.0%	-1.1%	100%	85%	93%
<b>TECHNOLOGY SECTOR</b>	<b>28,758</b>	<b>9.6</b>	<b>104,374</b>	<b>0.6%</b>	<b>-1.7%</b>	<b>58%</b>	<b>77%</b>	<b>75%</b>
Engineering and Related Serv.	6,937	8.9	112,392	1.5%	0.2%	102%	69%	103%
Computer Sys. Design & Related	6,195	8.7	114,737	-0.2%	-3.5%	55%	106%	78%
Technical Consulting Services	5,414	13.7	73,120	3.0%	-0.7%	68%	149%	74%
Information & Telecom Tech.	4,947	8.5	117,865	0.3%	-2.2%	55%	55%	66%
Medical and Diagnostic Testing	1,921	13.3	75,248	1.0%	-1.5%	144%	100%	79%
R&D Services (exc. Biotech.)	1,285	10.1	98,761	-3.7%	-5.4%	53%	43%	67%
Technology Equipment Distr.	896	6.3	159,657	1.4%	0.4%	38%	57%	104%
Other Technology Mfg	479	12.4	80,459	-2.4%	-2.7%	9%	27%	62%
Biotechnology	378	9.6	104,314	-5.8%	-11.9%	35%	52%	45%
Alternative Power Generation	259	7.3	137,155	8.9%	8.7%	93%	30%	73%
Chemical & Pharmaceutical Mfg	47	11.2	89,554	-11.9%	-13.5%	2%	21%	59%

1. Proportion of jobs in the activity in Hawai‘i compared to the proportion nationally

Source: See Table 4 for data source.

Over the 2011 to 2021 period, Computer System Design & Related Services lost competitive ground to their national counterparts. It is important to note it was a large group with 6,195 jobs.

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 technology industry groups at the national level. In 2021, Hawai‘i’s proportion of the state’s workforce in technology was 58% of the proportion nationally. One noteworthy exception is Medical and Diagnostic Testing, which was 44% more concentrated in Hawai‘i than the nation overall.

Hawai‘i’s technology sector average earnings was relatively high as compared with the Hawai‘i average, at \$104,374 in 2021. As a group, it was 59% higher than the average for Hawai‘i’s economy. Average earnings of the eleven technology industry groups all exceeded the average for Hawai‘i’s economy. 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 earnings in Hawai‘i’s technology sector was only 75% of the average earnings paid nationally. The largest earnings gaps between Hawai‘i and the U.S. were found in Biotechnology, and Chemical & Pharmaceutical Manufacturing.

## Overall Performance

By combining the growth and competitive measures, the technology industry groups can be placed in several performance categories as shown earlier in Table 3.

Only three technology industry groups were in the high performing Base-Growth and Emerging categories by showing positive growth and also outperforming their national counterpart. These industry groups were Alternative Power Generation, Technology Equipment Distribution, and Engineering and Related Services. 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 showed positive and competitive growth in jobs.

Three groups in the technology sector were in the Transitioning category for the 2011 to 2021 period. Including Technical Consulting Services, Medical and Diagnostic Testing, and Information & Telecom Technology. While job growth was positive in these industry groups, they still lost some competitive share to the national industry groups.

Computer System Design & Related Services, Other Technology Manufacturing, Chemical & Pharmaceutical Manufacturing, R&D Services (except Biotechnology), and Biotechnology fell into 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.

Emerging Activities	Base-Growth Activities
Alternative Power Generation Technology Equipment Distribution	Engineering and Related Services
Declining Activities	Transitioning Activities
Computer Sys. Design & Related Other Technology Manufacturing R&D Services (excluding Biotechnology) Biotechnology Chemical & Pharmaceutical Manufacturing	Technical Consulting Services Medical and Diagnostic Testing Information & Telecom Technology

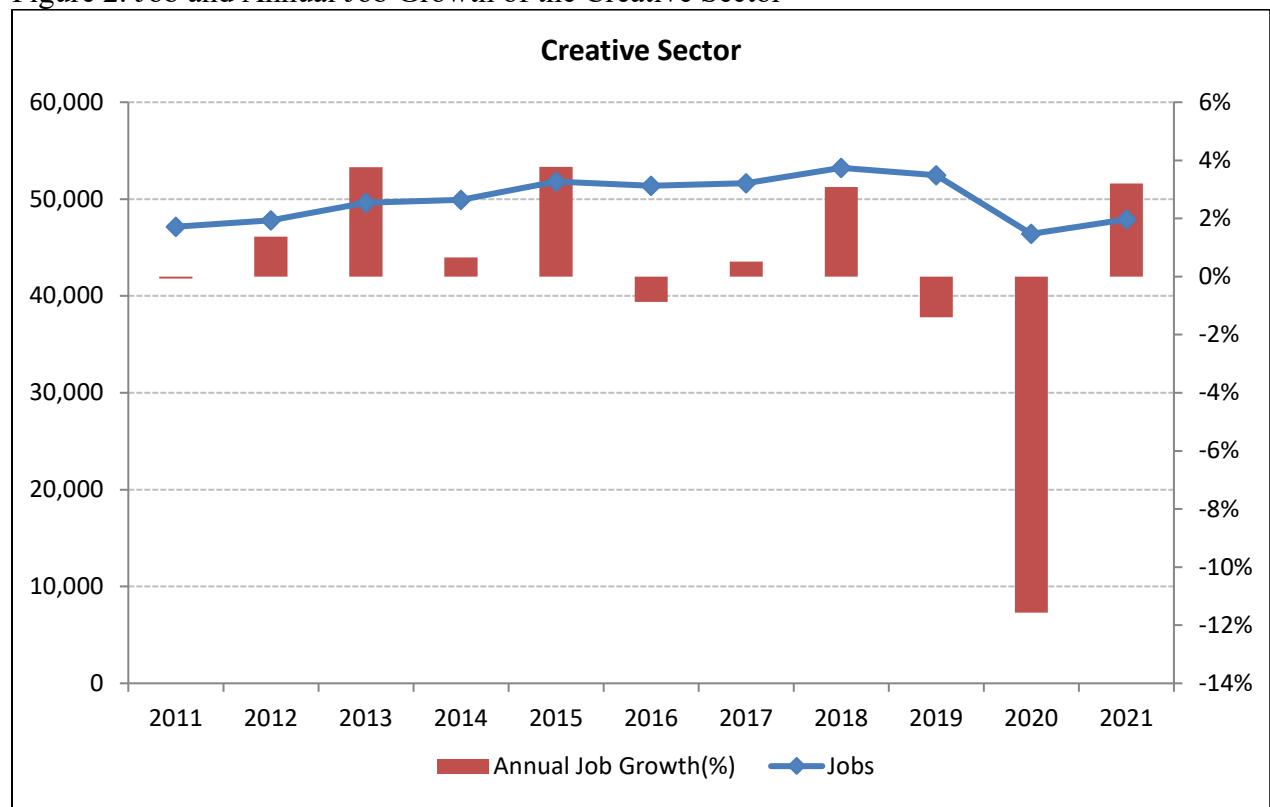
## CREATIVE SECTOR

In 2011, 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> The report expanded the scope of creative activity beyond the previous focal areas of arts and culture. The new definition added a number of industries such as Computer and Digital Media, Engineering/R&D, Marketing, and Design, among others. The purpose was to better reflect the integration of art, technology and other creative activities.

### Size & Growth

The thirteen creative industry groups accounted for an estimated 47,893 jobs in 2021, about 6.1% of all civilian jobs in Hawai‘i. Marketing, Photograph & Related and Performing and Creative Arts were the two largest groups in the sector, together the two groups accounted for about 38% of jobs in the sector in 2021.

Figure 2. Job and Annual Job Growth of the Creative Sector



Source: See Table 4 for data source.

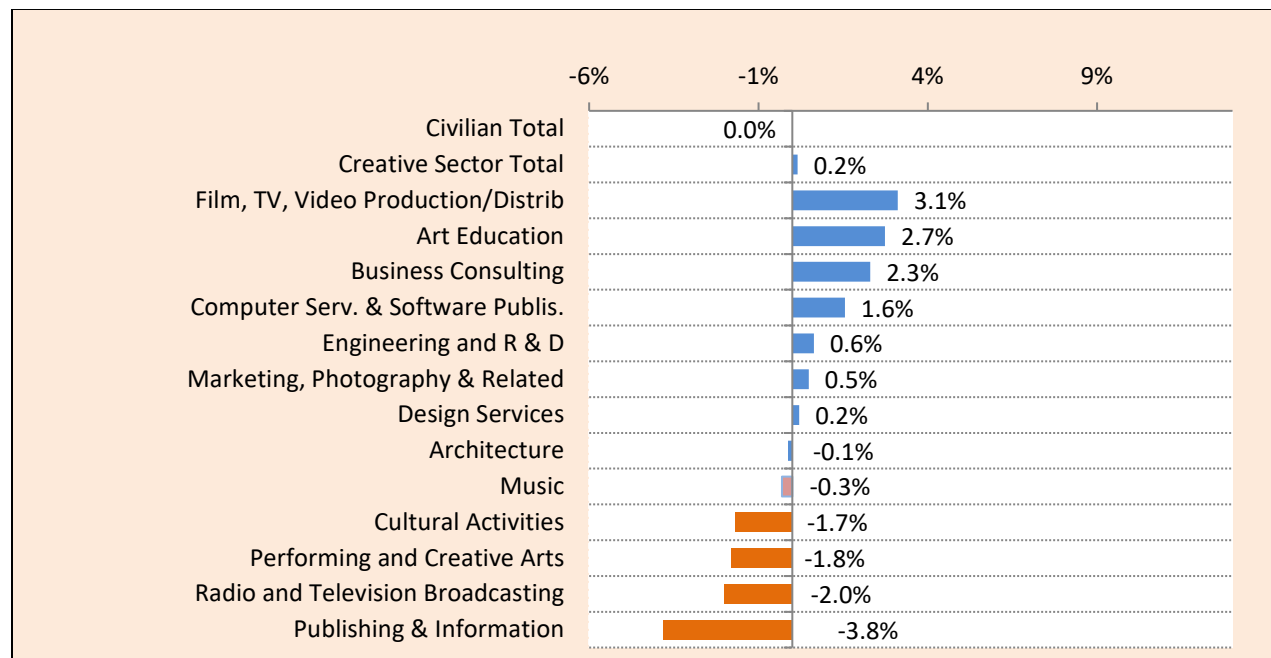
As a group, the creative sector’s job growth was 0.2 of a percentage point above the annual average growth rate of the state civilian economy over the 2011 to 2021 period. The sector’s growth rate was about the same as Hawai‘i’s civilian economy during the 2011 to 2019 period. Due to the impact of COVID-10, from 2019 to 2021, the annual average job growth rate of the creative sector was negative 4.5%, better than the negative 4.9% growth rate for Hawai‘i’s civilian jobs during the same 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/)

Film, TV, Video Production/Distribution grew jobs the most over the 2011 to 2021 period, 3.1% per year on average. Art Education showed the second highest job growth with a 2.7% average annual increase in jobs from 2011 to 2021; followed by Business Consulting at 2.3%.

Six groups in the sector, Publishing & Information, Radio/TV Broadcasting, Cultural Activities, Performing and Creative Arts Music, and Architecture failed to gain jobs over the 2011 to 2021 period. Jobs in Publishing & Information decreased from 2,281 in 2011 to 1,547 in 2021.

Table 6. Jobs in Creative Sector: Average Annual Growth over 2011-2021



	Annual Job Growth			Jobs in 2021
	2011-2021	2011-2019	2019-2021	
Civilian Total	0.0%	1.3%	-4.9%	789,629
Creative Sector Total	0.2%	1.3%	-4.5%	47,893
Film, TV, Video Production/Distrib	3.1%	3.7%	0.6%	2,170
Art Education	2.7%	5.2%	-6.5%	782
Business Consulting	2.3%	2.7%	0.8%	5,864
Computer Serv. & Software Publis.	1.6%	1.2%	2.9%	5,263
Engineering and R & D	0.6%	-0.3%	4.4%	6,110
Marketing, Photography & Related	0.5%	1.7%	-4.2%	10,837
Design Services	0.2%	0.8%	-2.0%	1,870
Architecture	-0.1%	0.1%	-0.9%	1,888
Music	-0.3%	3.3%	-13.6%	1,004
Cultural Activities	-1.7%	2.9%	-18.2%	2,401
Performing and Creative Arts	-1.8%	1.4%	-13.8%	7,222
Radio and Television Broadcasting	-2.0%	-1.0%	-6.0%	935
Publishing & Information	-3.8%	-3.5%	-4.9%	1,547

Source: See Table 4 for data source.

## Competitive Metrics

Many activities in the creative sector lost competitive share to the U.S. economy over the 2011 to 2021 period. Only one (Film, TV, Video Production/Distribution) among the thirteen groups in this sector outperformed its national counterpart during this period.

A number of creative industry groups have levels of concentration in the state's economy that exceed the nation as a whole. Cultural Activities are more than three times as concentrated in Hawai'i. Music, Architecture, Performing and Creative Arts, and Film, TV, Video Production/Distribution 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 & Information show a much lower concentration in Hawai'i than the same industries nationally.

With average annual earnings of \$66,942 in 2021, the activities in the creative sector were making a little more than the average for the overall Hawai'i economy. Compared with the same activities nationally, the average earnings in Hawai'i was only 66% of the national average. The lower earnings in Hawai'i were found in both business and 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 higher in Hawai'i than the nation overall. The activities that showed significant earnings gaps between Hawai'i and the U.S. include Publishing & Information, Marketing/Photography & Related, Film, TV, Video Production/Distribution, and Music.

Table 7. Hawai'i's Creative Sector Performance Compared with Nation

	Jobs per Annual			Avg. Annual Job Growth		When U.S. = 100%		
	Jobs	Estabs	Avg. Annual Earnings	above		Concentration 1/	Jobs per Estabs	Avg. Annual Earning
	2021	2021	2021	11-21	U.S.			
Total Civilian	789,629	15.2	65,637	0.0%	-1.1%	100%	85%	93%
<b>CREATIVE SECTOR</b>	<b>47,893</b>	<b>14.9</b>	<b>66,942</b>	<b>0.2%</b>	<b>-1.9%</b>	<b>82%</b>	<b>124%</b>	<b>66%</b>
Marketing, Photography & Related	10,837	27.4	36,505	0.5%	-1.4%	93%	193%	58%
Performing and Creative Arts	7,222	42.3	23,637	-1.8%	-1.5%	118%	165%	79%
Engineering and Research & Development	6,110	8.7	114,459	0.6%	-0.9%	86%	55%	90%
Business Consulting	5,864	13.7	73,072	2.3%	-1.2%	63%	153%	74%
Computer Services and Software Publishers	5,263	7.8	128,183	1.6%	-2.6%	42%	91%	79%
Cultural Activities	2,401	14.4	69,308	-1.7%	-2.7%	313%	127%	100%
Film, TV, Video Production/Distribution	2,170	12.4	80,868	3.1%	1.9%	124%	84%	69%
Architecture	1,888	10.2	97,926	-0.1%	-1.2%	140%	101%	110%
Design Services	1,870	23.3	42,890	0.2%	-1.4%	91%	206%	84%
Publishing & Information	1,547	13.6	73,730	-3.8%	-3.6%	50%	89%	40%
Music	1,004	28.4	35,263	-0.3%	-0.9%	138%	214%	70%
Radio and Television Broadcasting	935	13.8	72,326	-2.0%	-1.1%	99%	49%	72%
Art Education	782	59.3	16,871	2.7%	-0.7%	67%	309%	107%

1. Proportion of jobs in the activity in Hawai'i compared to the proportion nationally

Source: See Table 4 for data source.

## Overall Performance

Based on the performance metrics above, the creative industry groups are placed into the performance categories as below. Only one group, Film, TV, Video Production/Distribution, was rated as high performing for growth and competitiveness, compared with the same activities nationally.

Six other groups – Art Education, Business Consulting, Marketing, Photography & Related, Engineering and Research & Development, Design Services, and Computer Services and Software Publishers - grew jobs over the period but came up short competitively, compared with the performance of the same industry group nationally over the 2011 to 2021 period.

Architecture, Music, Cultural Activities, Radio and Television Broadcasting, Performing and Creative Arts, Publishing & Information, and were in the lowest performance group. All lost jobs over the 2011 to 2021 period.

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

## AGRIBUSINESS

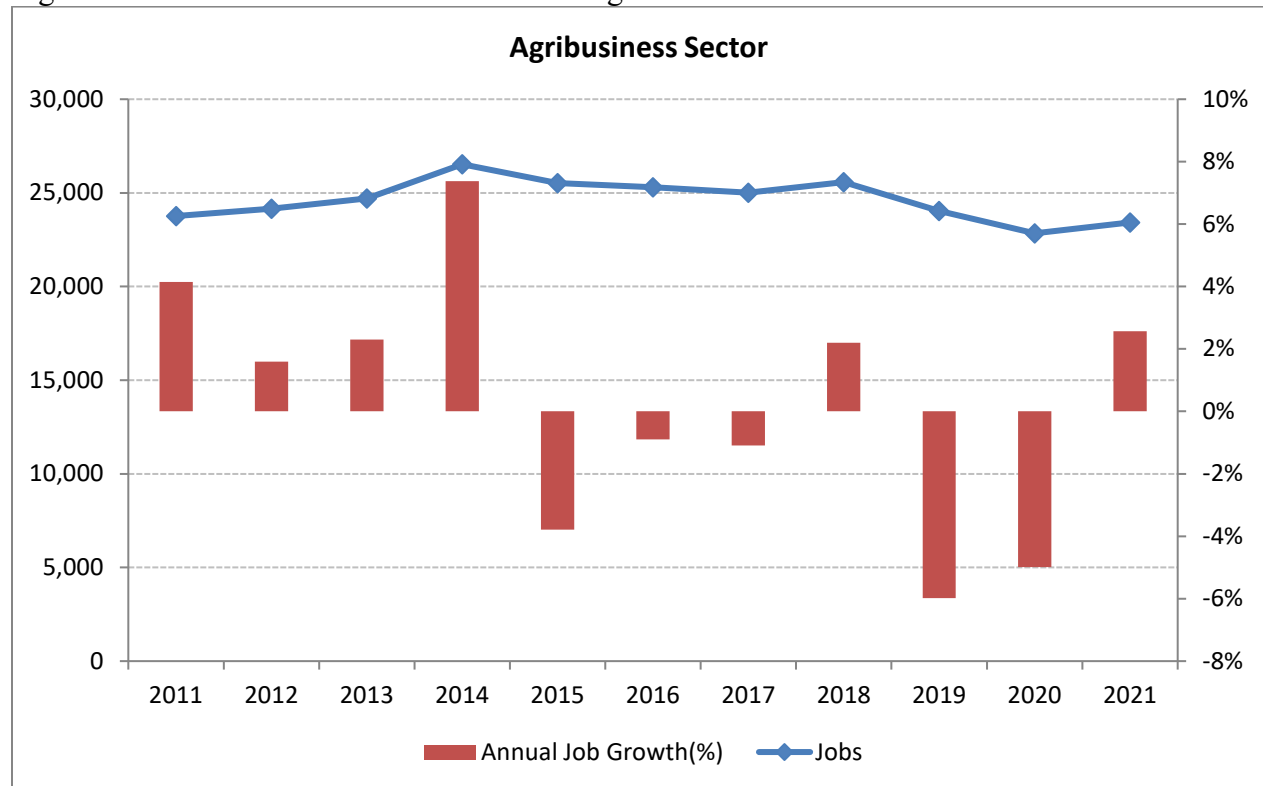
In 2021, the 23,427 jobs in Agribusiness were found in a range of inter-related industry groups that support the core farm sector. Most of the agribusiness jobs, including self-employed, are in Farm Production (56%). The second largest industry group in the sector was Agricultural Processing at 26% of the sector's jobs.

### Size & Growth

The agribusiness sector had a negative annual average job growth of 0.1% over the 2011 to 2021 period. Three of the six Agribusiness industry groups lost jobs over the period, job gains among three other groups were less than the losses.

The largest activity in the agribusiness sector is Farm Production. Jobs in this group decreased over the 2011 to 2021 period. From 2011 to 2019, jobs in this group decreased from 14,223 jobs to 13,174 jobs. From 2019 to 2021 jobs decreased to 13,092 jobs.

Figure 3. Job and Annual Job Growth of the Agribusiness Sector



Source: See Table 4 for data source.

The best performing agribusiness industry group over the 2011 to 2021 cycle was the Agricultural Support Services, with a 4.5% average annual increase in jobs.



Table 8. Jobs in Agribusiness Sector: Average Annual Growth over 2011-2021

	Annual Job Growth			Jobs in 2021
	2011-2021	2011-2019	2019-2021	
Civilian Total	0.0%	1.3%	-4.9%	789,629
Agribusiness Total	-0.1%	0.1%	-1.3%	23,427
Agriculture Support Services	4.5%	4.0%	6.3%	2,006
Fishing, Forestry & Hunting	1.0%	0.2%	4.2%	1,713
Agriculture Processing	0.0%	1.8%	-6.8%	6,074
Farm Production	-0.8%	-1.0%	-0.3%	13,092
Agriculture Packaging & Warehousing	-0.9%	-0.9%	-0.8%	196
Agriculture Inputs	-1.6%	-2.9%	3.5%	346

Source: See Table 4 for data source

## Competitive Metrics

Competitive metrics show that the comparable U.S. agricultural sector also experienced a job gain over the 2011 to 2021 period.

Only one of the four groups that gained jobs over the 2011 to 2021 period outperformed the same activities in the nation. Agricultural Support Services outperformed the same activities for the nation overall by 2.0 percentage points per year.

Table 9. Hawai'i Agribusiness Sector Performance Compared with Nation

	Jobs per		Avg.	Avg. Annual Job		When U.S. = 100%		
	Jobs	Estabs	Annual	Growth		Concen- tration 1/ Estabs	Jobs per Estabs	Avg. Annual Earning
	2021	2021	Earnings 2021	11-21	above U.S.			
Total Civilian	789,629	15.2	65,637	0.0%	-1.1%	100%	85%	93%
<b>AGRIBUSINESS</b>	<b>23,427</b>	<b>22.6</b>	<b>44,166</b>	<b>-0.1%</b>	<b>-1.0%</b>	<b>92%</b>	<b>73%</b>	<b>80%</b>
Farm Production	13,092	25.5	39,281	-0.8%	-0.9%	100%	71%	89%
Agric. Processing	6,074	19.1	52,383	0.0%	-1.7%	82%	43%	78%
Agric. Support Services	2,006	16.8	59,419	4.5%	2.0%	73%	113%	94%
Fishing, Forestry & Hunting	1,713	34.5	29,021	1.0%	-0.1%	350%	101%	83%
Agric. Inputs	346	16.0	62,518	-1.6%	-2.2%	34%	116%	74%
Agric. Packaging & Warehousing	196	16.7	59,794	-0.9%	-2.5%	24%	45%	90%

1. Proportion of jobs in the activity in Hawai'i compared to the proportion nationally

Source: See Table 4 for data source.

Agribusiness had a lower concentration level in Hawai'i than the nation for most activities. The clear exception was Fishing, Forestry & Hunting that is significantly more concentrated in Hawai'i than the nation.

### Overall Performance

From an overall performance standpoint, only Agriculture Support Services was in the Emerging category for the 2011 to 2021 period.

Agriculture Processing and Fishing, Forestry & Hunting were in the Transitioning category, and Agricultural Inputs, and Agricultural Farm Production, and Agriculture Packaging & Warehousing fell into the Declining category over the 2011 to 2021 period.

Emerging Activities	Base-Growth Activities
Agriculture Support Services	
Declining Activities	Transitioning Activities
Farm Production	Fishing, Forestry & Hunting
Agriculture Packaging & Warehousing	Agriculture Processing
Agriculture Inputs	

## HEALTH & WELLNESS

Health and Wellness has been of interest for several decades as a potential export activity. It has been proposed that first class medical and related health facilities in Hawai‘i could spur Health and Wellness tourism among the more affluent in Asian-Pacific countries that may not have the same level of health care. Unfortunately, there is no readily available data regarding such visitors.

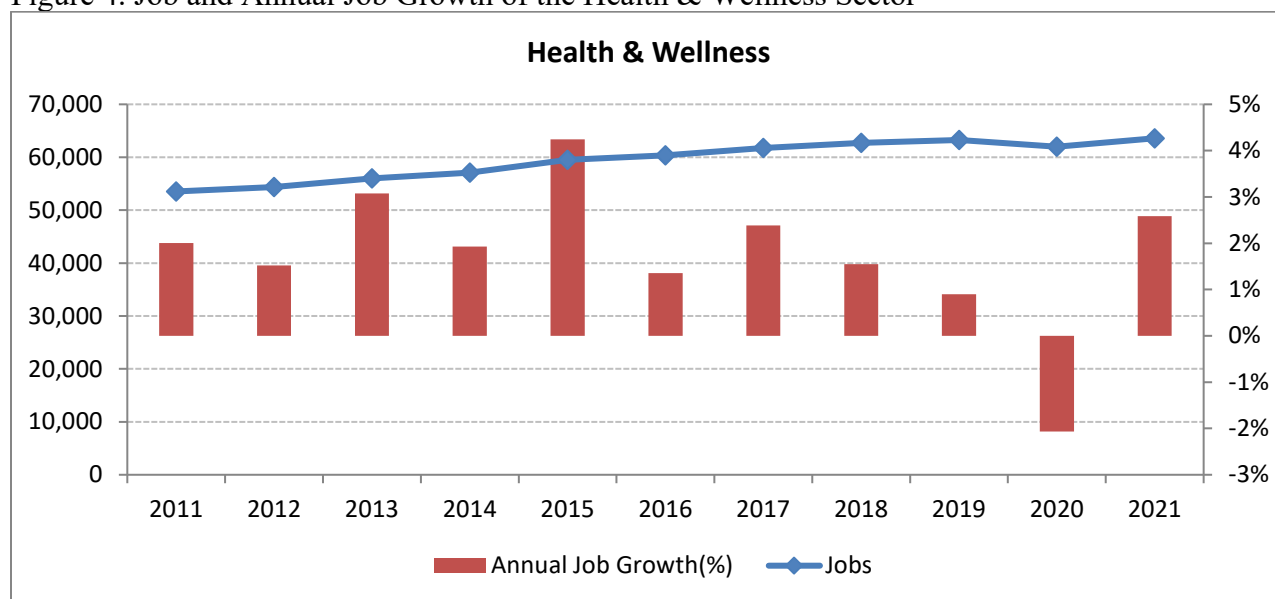
Recuperation and rejuvenation services have also been proposed as potential export activities that could utilize Hawai‘i’s beauty and calming environment. Spas and similar, non-medical treatment services have been integrated into the hotel industry and serve a specialized tourism market. However, these facilities and their markets are not distinct enough to be reflected separately in standard statistical data.

In order to provide some underlying data to support future discussions on the topic of the Health and Wellness sector, DBEDT adopted with some minor modifications, 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 Health and Wellness Sector accounted for an estimated 63,584 jobs in 2021. About 70% of the jobs were among Health Practitioners and Hospital & Nursing Facilities. All the industry groups in Health and Wellness grew jobs over the 2011 to 2021 period.

Figure 4. Job and Annual Job Growth of the Health & Wellness Sector



Source: See Table 4 for data source.

<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>

Overall, the Health and Wellness sector grew faster than the rest of the economy during the 2011-2021 period. This sector had average annual job growth of 2.1% from 2011 to 2019, and had average annual job growth of 0.2% from 2019 to 2021.

Health Practitioners showed modest growth. For the 2011 to 2021 period, this sector had an average job growth of 1.0% per year.

The highest job growth was observed in Specialty Health Care Services, a relatively small industry group, during the 2011-2021 period. This subsector gained jobs at an annual average rate of 5.5% during the period.

Table 10. Jobs in Health and Wellness: Average Annual Growth over 2011-2021

	Annual Job Growth			Jobs in 2021
	2011-2021	2011-2019	2019-2021	
Civilian Total	0.0%	1.3%	-4.9%	789,629
Health & Wellness Total	1.7%	2.1%	0.2%	63,584
Specialty Health Care Services	5.5%	7.3%	-1.4%	13,354
Health Practitioners	1.0%	0.8%	2.2%	23,659
Medical Labs and Imaging Centers	1.0%	0.4%	3.1%	1,921
Hospitals & Nursing Facilities	0.9%	1.4%	-1.0%	21,094
Pharmacies	0.6%	0.8%	-0.3%	3,557

Source: See Table 4 for data source.

## Competitive Metrics

Overall, the growth in Hawai‘i’s Health and Wellness Sector was slightly above the national average for the same sector over the 2011 to 2021 period. The higher job growth in Hawai‘i’s Specialty Health Care Services, Hospitals & Nursing Facilities, and Pharmacies offset the lower job growth in other groups of the sector.

Table 11. Hawai‘i Health and Wellness Sector Performance Compared with Nation

	Jobs per		Avg. Annual	Avg. Annual Job Growth		When U.S. = 100%		
	Jobs	Estabs	Earnings	above		Concen- tration 1/	Jobs per Estabs	Avg. Annual Earning
	2021	2021	2021	11-21	U.S.			
Total Civilian	789,629	15.2	65,637	0.0%	-1.1%	100%	85%	93%
<b>HEALTH &amp; WELLNESS</b>	<b>63,584</b>	<b>11.4</b>	<b>88,008</b>	<b>1.7%</b>	<b>0.4%</b>	<b>96%</b>	<b>51%</b>	<b>110%</b>
Health Practitioners	23,659	10.5	95,664	1.0%	-0.8%	101%	94%	104%
Hospitals & Nursing Facilities	21,094	10.2	98,211	0.9%	0.7%	80%	5%	120%
Specialty Health Care Services	13,354	14.4	69,412	5.5%	2.3%	109%	41%	125%
Pharmacies	3,557	18.8	53,283	0.6%	0.7%	124%	172%	93%
Medical Labs and Imaging Centers	1,921	13.3	75,248	1.0%	-1.5%	144%	100%	79%

1. Proportion of jobs in the activity in Hawai‘i compared to the proportion nationally

Source: See Table 4 for data source.

At \$88,008, the average earnings for the Health & Wellness Sector as a whole, exceeded the national average in 2021 by about 10%. This was the only major sector in the targeted industry portfolio that had earnings above the U.S. average for the same sector. Except for Medical Labs & Imaging Centers and Pharmacies, all other groups in the sector had earnings higher than the U.S. average.

## Overall Performance

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

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

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

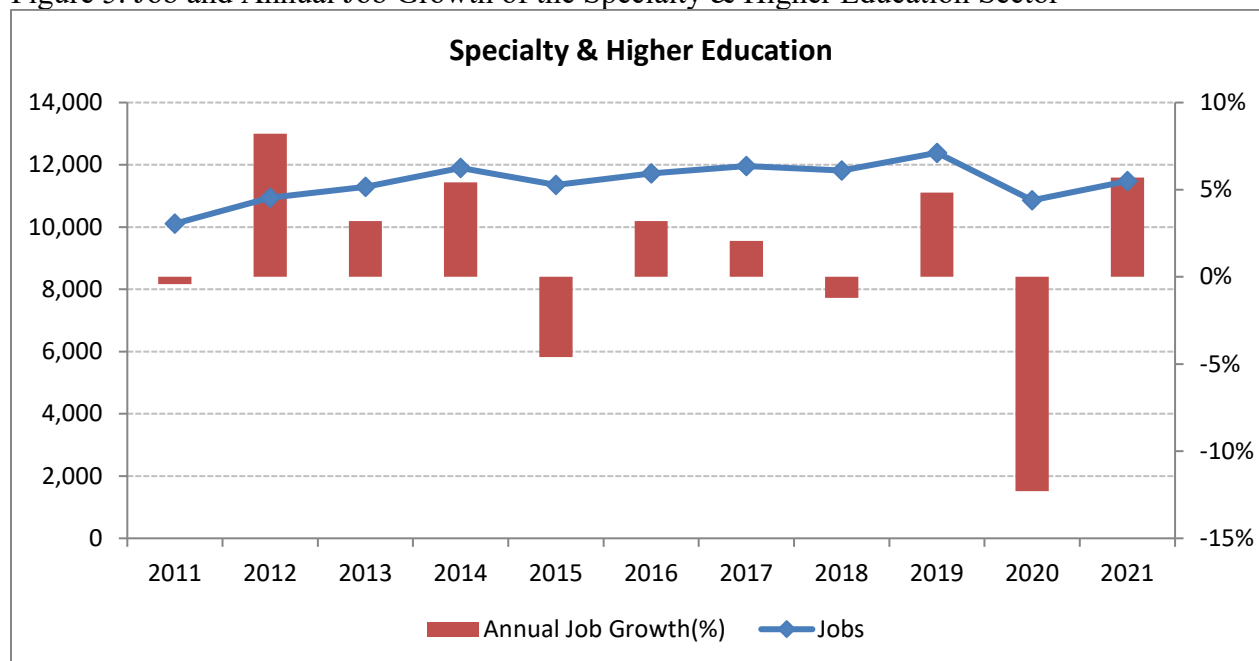
## EDUCATION

The private education sector, which includes private colleges and specialty schools, is an important segment of Hawai‘i’s economy. One area of particular interest for economic development is the number of international students in Hawai‘i. There is strong potential for Hawai‘i’s higher education system to attract more students from around the world. While the topic of foreign students is outside of the main focus of this section, it is an area that should be monitored as an area for economic development. The following section examines the growth and performance of the education activity of the private sector colleges and specialty schools.

### Size & Growth

Private post-secondary and specialty education in Hawai‘i accounted for 11,482 jobs in 2021. These sectors together performed better than the rest of the Hawai‘i economy. Jobs grew 1.3% annually, adding 1,372 new jobs to the economy over the 2011 to 2021 period. From 2011 to 2019, Specialty & Higher Education added 1,882 jobs; however, it lost 665 jobs from 2019 to 2021.

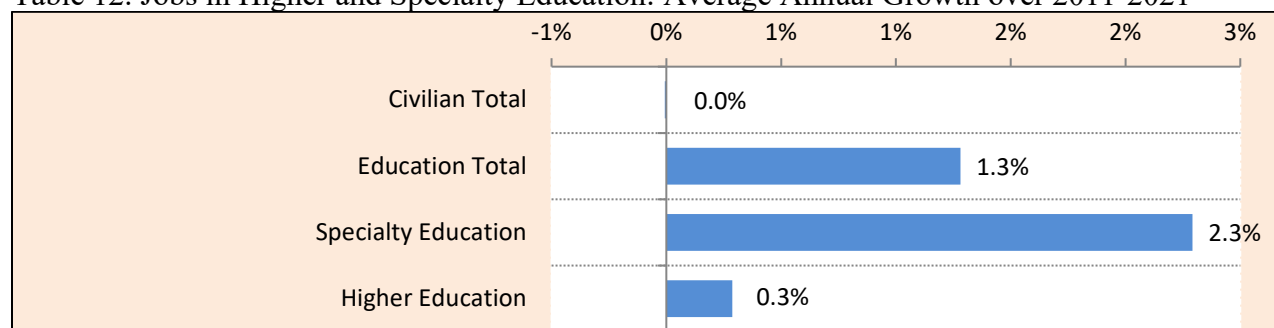
Figure 5. Job and Annual Job Growth of the Specialty & Higher Education Sector



Source: See Table 4 for data source.

From 2011 to 2021, Specialty Education job growth averaged 2.3% per year on average; Higher Education job growth averaged 0.3% per year. From 2011 to 2019, Specialty Education added jobs every year. From 2019 to 2020, Specialty Education jobs decreased from 6,668 to 5,490; from 2020 to 2021 jobs in this group increased to 6,004. Jobs on Higher Education decreased from 5,713 in 2019 to 5,373 in 2020, and then increased to 5,478 in 2021.

Table 12. Jobs in Higher and Specialty Education: Average Annual Growth over 2011-2021



	2011-2021	2011-2019	2019-2021	Jobs in 2021
Civilian Total	0.0%	1.3%	-4.9%	789,629
Education Total	1.3%	2.6%	-3.7%	11,482
Specialty Education	2.3%	4.2%	-5.1%	6,004
Higher Education	0.3%	0.9%	-2.1%	5,478

Source: See Table 4 for data source.

## Competitive Metrics

From 2011 to 2021, for both the Specialty Education and Higher Education job growth in Hawai‘i was below the national level and Hawai‘i lost some national competitive share.

The annual earnings of Specialty Education in Hawai‘i averaged \$30,184 in 2021, which was about 46% of the earning average of civilian jobs in Hawai‘i. This level of earnings was about 98% of the national level for the same group. The average earnings for Hawai‘i Higher Education was higher than Specialty Education. However, it was only about 56% of the national earnings for the same activities in 2021.

Table 13. Hawai‘i Private Education Sector Performance Compared with Nation

	Jobs 2021	Jobs per Estabs 2021	Avg. Annual Earnings 2021	Average Annual Job Growth		When U.S. = 100%		
				above		Concen- tration 1/ Estabs	Jobs per Estabs	Avg. Annual Earning
				11-21	U.S.			
Total Civilian	789,629	15.2	65,637	0.0%	-1.1%	100%	85%	93%
<b>EDUCATION (PRIVATE)</b>	<b>11,482</b>	<b>31.3</b>	<b>31,959</b>	<b>1.3%</b>	<b>-0.3%</b>	<b>80%</b>	<b>94%</b>	<b>67%</b>
Specialty Education	6,004	33.1	30,184	2.3%	-0.7%	97%	205%	98%
Higher Education	5,478	29.5	33,904	0.3%	-0.3%	66%	18%	56%

1. Proportion of jobs in the activity in Hawai‘i compared to the proportion nationally

Source: See Table 4 for data source.

## Overall Performance

During the 2011 to 2021 period, the Specialty Education group and the Higher Education group both increased jobs, but decreased competitiveness and fell into the Transitioning category.

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



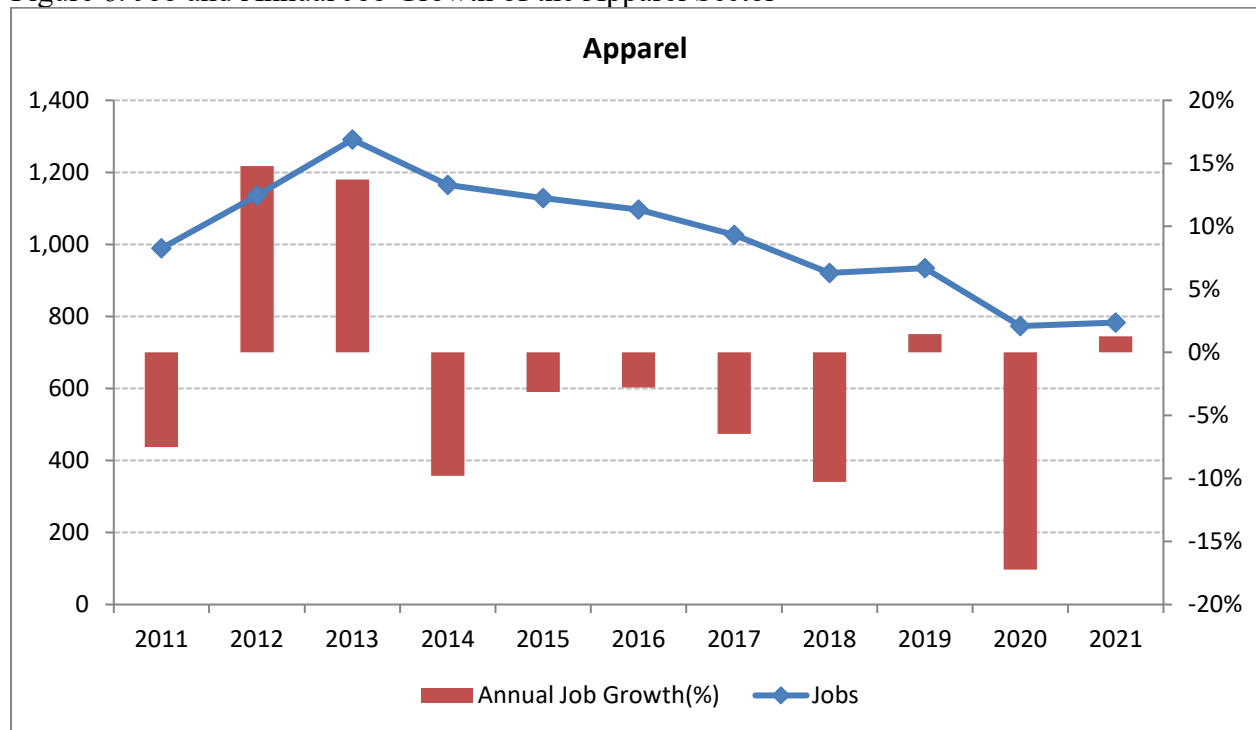
## OTHER TARGETED ACTIVITIES

Apparel and Call Centers have been pursued as sources of economic diversification. Apparel was promoted based on 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 were promoted based on Hawai‘i’s developing communications technology capacity, its mid Pacific location and multi-lingual resources.

### Size & Growth

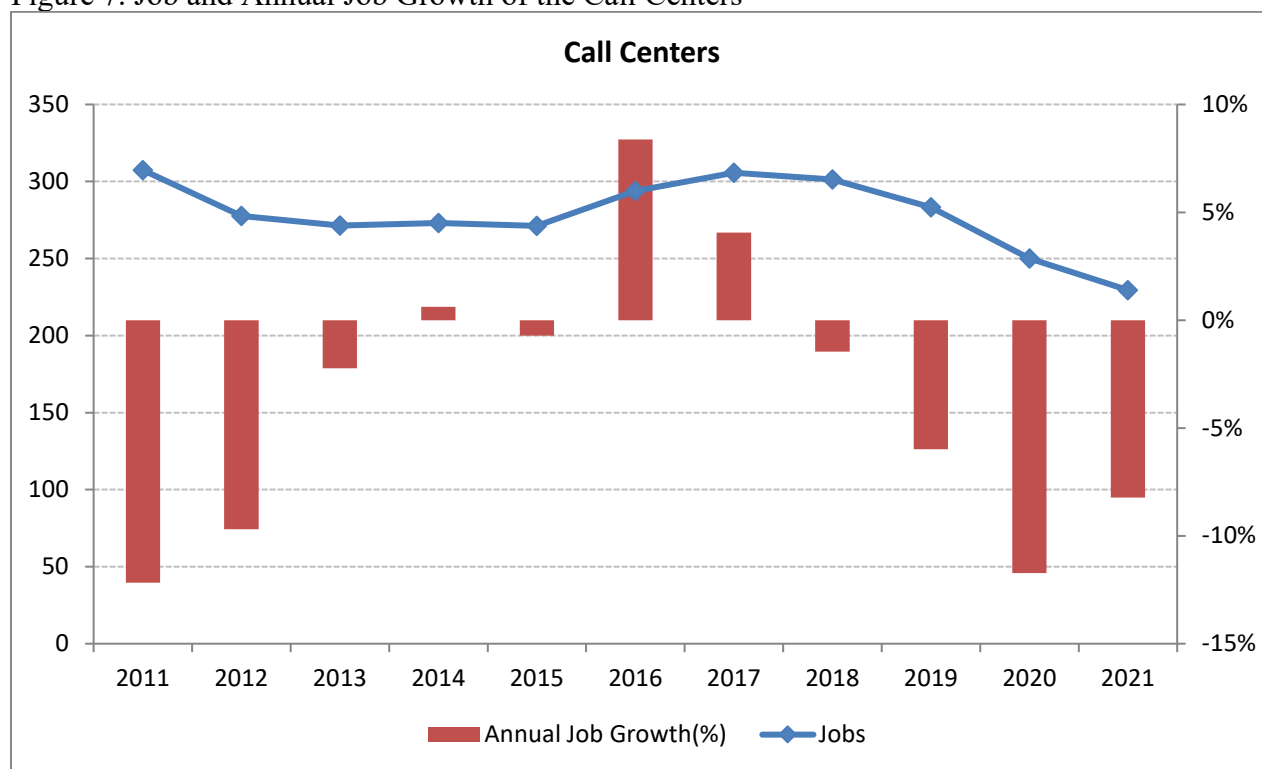
Both Apparel Manufacturing and Call Center activities in Hawai‘i lost jobs in the past ten years. From 2011 to 2021, jobs in the Apparel group decreased 2.3% per year on average, and jobs in Call Centers decreased 2.9% per year on average. From 2011 to 2019, Apparel jobs decreased 0.7% and Call Center jobs decreased 1.0% per year on average. From 2019 to 2021, Apparel decreased 8.4% and Call Center decreased 10.0%.

Figure 6. Job and Annual Job Growth of the Apparel Sector



Source: See Table 4 for data source.

Figure 7. Job and Annual Job Growth of the Call Centers



Source: See Table 4 for data source.

Table 14. Jobs in Apparel and Call Centers: Average Annual Growth over 2011-2021

	2011-2021	2011-2019	2019-2021	Jobs in 2021
Civilian Total	0.0%	1.3%	-4.9%	789,629
Apparel	-2.3%	-0.7%	-8.4%	783
Call Centers	-2.9%	-1.0%	-10.0%	230

Source: See Table 4 for data source.

## Competitive Metrics

In terms of job growth, Apparel decreased in both Hawai‘i and the nation. During the 2011-2021 period, Apparel in Hawai‘i lost 2.3% of its jobs annually, while the U.S. apparel industry lost 3.0% of its jobs annually. This partially reflects the global outsourcing trend for manufacturing in general.

During the 2011 to 2021 period, the U.S. Call Center industry had a job increase of 0.9% per year. In contrast, the Call Center industry in Hawai‘i experienced an average job decrease of 2.9% per year, during the same period.

The concentration level of Apparel in 2021 was 60% above the national level. In contrast, Call Centers had a very low job concentration in Hawai‘i’s economy compared to the activity nationally. The concentration of Call Centers in Hawai‘i was only 11% of the national level in 2021.

The annual average earnings for Apparel and Call Center were \$31,076 and \$26,868 respectively in 2021. These earning levels were about 63% and 51% of the average earnings nationally, respectively.

Table 15. Hawai‘i Apparel and Call Centers Performance Compared with Nation

	Jobs 2021	Jobs per Estabs 2021	Avg. Annual Earnings 2021	Avg. Annual Job Growth		When U.S. = 100%		
				11-21	above U.S.	Concen- tration 1/ Estabs	Jobs per Estabs	Avg. Annual Earning
OTHERS	1,013	33.2	30,122	-2.4%	-2.5%	40%	99%	58%
Apparel	783	32.2	31,076	-2.3%	0.7%	160%	164%	63%
Call Centers	230	37.2	26,868	-2.9%	-3.8%	11%	92%	51%

1. Proportion of jobs in the activity in Hawai‘i compared to the proportion nationally  
Source: See Table 4 for data source.

## Overall Performance

Based on the performance metrics, during the 2011 to 2021 period. Both the Apparel group and the Call Center group fell into the declining category, with an average job loss of 2.3% and 2.9% per year, respectively.

Emerging Activities	Base-Growth Activities
Declining Activities	Transitioning Activities
Apparel Call Centers	

## PERFORMANCE BY COUNTY

The following tables summarize the 2011 to 2021 county performance of the statewide targeted & emerging industries. Performance has been organized by Best Performing Targets (registering as base-growth & emerging industry groups) and Other Targeted Industry Performance (those that fell into the transitioning and declining categories).

The total number of jobs in Hawai'i's targeted & emerging industries without overlaps was 154,322 in 2021. Honolulu accounted for about 70%, followed by Hawai'i County at 14%, Maui at 12%, and Kaua'i at 5%. From 2011 to 2021, adjusting for overlaps, total jobs in the targeted & emerging industries increased by 10,215 jobs. Honolulu added 5,352 jobs, followed by Hawai'i at 1,763 jobs, Maui at 2,241 jobs, and Kaua'i at 711 jobs.

Table 16. Jobs and Job Changes from 2011 to 2021 by County

	2020 Jobs				
	State	Honolulu	Hawaii	Maui	Kauai
Total Civilian	793,269	554,447	100,304	94,812	43,705
Total Targeted w/o Overlap	156,476	108,611	22,178	18,015	7,414
TECHNOLOGY SECTOR	28,587	22,963	2,447	2,054	1,029
CREATIVE SECTOR	51,871	37,366	5,617	6,389	2,418
AGRIBUSINESS	23,451	9,756	8,643	3,240	1,806
HEALTH & WELLNESS	62,412	46,099	6,466	7,259	2,587
EDUCATION (PRIVATE)	10,740	8,831	871	683	230
OTHERS	980	820	54	79	27
	% in State 2020 Jobs				
Total Civilian	100%	70%	13%	12%	6%
Total Targeted w/o Overlap	100%	69%	14%	12%	5%
TECHNOLOGY SECTOR	100%	80%	9%	7%	4%
CREATIVE SECTOR	100%	72%	11%	12%	5%
AGRIBUSINESS	100%	42%	37%	14%	8%
HEALTH & WELLNESS	100%	74%	10%	12%	4%
EDUCATION (PRIVATE)	100%	82%	8%	6%	2%
OTHERS	100%	84%	6%	8%	3%
	Job Changes 2010 to 2020				
Total Civilian	13,747	2,058	7,293	1,688	2,709
Total Targeted w/o Overlap	13,958	7,925	2,400	2,367	1,091
TECHNOLOGY SECTOR	1,337	734	231	148	173
CREATIVE SECTOR	4,680	3,497	518	317	320
AGRIBUSINESS	627	584	617	-722	144
HEALTH & WELLNESS	9,925	5,581	1,129	2,723	497
EDUCATION (PRIVATE)	588	-8	228	186	58
OTHERS	-439	-414	-25	6	-7

Source: See Table 4 for data source.

## City & County of Honolulu

Adjusting for overlaps, Honolulu accounted for 107,347 of the state's targeted & emerging industry jobs in 2021, a 0.5% average annual increase from 2011. As shown in Table 17, among the six major sectors, no sector was high performing Base-Growth or Emerging activities in Honolulu County in the 2011 to 2021 period. Four sectors were in the Transitioning category, and two sectors were in the Declining category.

Table 17. Performance of the Major Groups of Honolulu Targeted Industry Portfolio

INDUSTRY GROUPS	Jobs in Honolulu		Avg. Ann. Job Growth (2011-2021)		Concentration of Industry in Honolulu Compared to U.S.		Average Annual Earnings (2021)	
	2021	Change 11-21	Honolulu	U.S.	2021	% Point Change 11-21	Honolulu	U.S.
TOTAL CIVILIAN JOBS	545,386	-15,093	-0.3%	1.1%	100%	0%	\$69,606	\$70,358
TOTAL TARGETED JOBS W/O OVERLAP	107,347	5,352	0.5%	1.4%	84%	4%	\$78,287	\$86,733
<b>Transitioning Activities</b>								
HEALTH & WELLNESS	47,004	5,615	1.3%	1.3%	102%	13%	\$92,626	\$79,647
EDUCATION (PRIVATE)	9,302	541	0.6%	1.6%	93%	3%	\$32,887	\$47,699
CREATIVE SECTOR	34,932	888	0.3%	2.0%	86%	-4%	\$73,512	\$102,072
TECHNOLOGY SECTOR	23,169	928	0.4%	2.3%	67%	-4%	\$106,298	\$138,943
<b>Declining Activities</b>								
AGRIBUSINESS	9,559	-49	-0.1%	0.8%	54%	2%	\$50,198	\$54,880
OTHERS	843	-313	-3.1%	0.0%	48%	-10%	\$32,242	\$51,702

Source: See Table 4 for data source. The sum of the individual industries does not add up to the total due to adjusting for overlaps among sectors.

Table 18 shows the performance of detailed targeted & emerging industry groups in Honolulu. Among the 38 detailed industry groups, 9 groups were high performing, with positive job growth combined with a job growth rate that was higher than the nation for the same activity. The high-performing activities in the target industry portfolio accounted for about 23,324 jobs or 4.3% of all civilian jobs in 2021. Between 2011 and 2021, those groups added 6,125 new jobs. In comparison, the whole civilian economy in Honolulu lost 15,093 new jobs during the same period.

About 80% of the high-performing activities had average annual earnings that exceeded \$70,000 in 2021. By comparison, the average earnings for the civilian economy in 2021 was \$69,606 by the projected 2021 estimate.

From 2011 to 2021, 12 activities, which included 71,125 jobs, fell into the Transitioning category. They gained jobs over the period but did not keep up with national growth for the same activities resulting in a loss of competitive national industry share. However, all of those activities grew faster in terms of jobs than the civilian economy as a whole.

Seventeen activities in the portfolio fell into the Declining industry category as the result of net job losses for the 2011 to 2021 period. Jobs in the Declining industry groups totaled an estimated 28,866 in 2021, representing a loss of 4,456 jobs from 2011.

Table 18. Performance of the Detailed Honolulu Targeted Industry Portfolio

INDUSTRY GROUPS	Jobs in Honolulu		Avg. Ann. Job Growth (2011-2021)		Concentration of Industry in Honolulu Compared to U.S.		Average Annual Earnings 2021	
	2021	Change 11-21	Honolulu	U.S.	2021	% Point Change 11-21	Honolulu	U.S.
<b>Base-Growth Activities</b>								
Film, TV, Video Production/Distrib	1,947	574	3.6%	1.2%	162%	49%	\$82,756	\$117,564
Pharmacies	2,631	244	1.0%	-0.1%	133%	29%	\$53,528	\$57,113
Music	647	190	3.5%	0.6%	129%	44%	\$39,079	\$50,349
Engineering and Related Serv.	6,059	941	1.7%	1.3%	129%	20%	\$115,997	\$109,384
Specialty Health Care Services	9,563	3,561	4.8%	3.2%	113%	28%	\$73,219	\$55,648
<b>Emerging Activities</b>								
Agric. Support Services	1,325	472	4.5%	2.5%	70%	20%	\$61,271	\$63,316
Technology Equipment Distr.	862	118	1.5%	1.1%	53%	9%	\$161,618	\$153,683
Alternative Power Generation	98	14	1.5%	0.1%	51%	12%	\$124,122	\$188,106
Agric. Inputs	192	12	0.6%	0.6%	28%	4%	\$70,933	\$84,364
<b>Transitioning Activities</b>								
Hospitals & Nursing Facilities	16,983	129	0.1%	0.2%	93%	11%	\$100,868	\$81,789
Technical Consulting Services	4,290	1,155	3.2%	3.7%	78%	6%	\$80,967	\$99,137
Fishing, Forestry & Hunting	779	46	0.6%	1.2%	230%	17%	\$43,782	\$35,150
Higher Education	5,240	15	0.0%	0.6%	92%	6%	\$33,626	\$60,221
Engineering and Research & Development	5,056	427	0.9%	1.5%	103%	7%	\$116,059	\$127,726
Health Practitioners	16,332	1,564	1.0%	1.9%	101%	5%	\$103,127	\$91,728
Business Consulting	4,641	983	2.4%	3.5%	73%	2%	\$79,914	\$98,495
Art Education	569	112	2.2%	3.4%	71%	1%	\$16,796	\$15,797
Marketing, Photography & Related	7,448	316	0.4%	1.9%	92%	-1%	\$38,034	\$63,134
Medical and Diagnostic Testing	1,495	117	0.8%	2.4%	162%	-4%	\$77,215	\$94,730
Specialty Education	4,062	525	1.4%	3.0%	95%	-3%	\$31,935	\$30,945
Computer Services and Software Publishers	4,230	433	1.1%	4.2%	49%	-9%	\$129,582	\$162,471

Table 18. Performance of the Detailed Honolulu Targeted Industry Portfolio (Cont.)

INDUSTRY GROUPS	Jobs in Honolulu		Avg. Ann. Job Growth (2011-2021)		Concentration of Industry in Honolulu Compared to U.S.		Avg. Annual Earnings (2021)	
	2021	Change 11-21	Honolulu	U.S.	2021	% Point Change 11-21	Honolulu	U.S.
<b>Declining Activities</b>								
Design Services	1,184	-23	-0.2%	1.6%	84%	-4%	\$44,291	\$51,187
Information & Telecom Tech.	3,818	-95	-0.2%	2.5%	62%	-9%	\$107,187	\$177,763
Architecture	1,494	-56	-0.4%	1.1%	160%	-2%	\$104,809	\$88,679
Computer Sys. Design & Related	5,220	-286	-0.5%	3.3%	67%	-19%	\$117,753	\$146,693
Agric. Processing	4,187	-294	-0.7%	1.7%	82%	-9%	\$53,821	\$66,733
Farm Production	2,916	-245	-0.8%	0.0%	32%	2%	\$39,563	\$44,145
Radio and Television Broadcasting	769	-168	-2.0%	-0.9%	117%	3%	\$75,043	\$101,150
Cultural Activities	2,169	-484	-2.0%	1.0%	409%	-75%	\$70,668	\$69,609
Agric. Packaging & Warehsg	161	-40	-2.2%	1.6%	29%	-8%	\$63,776	\$66,347
Other Technology Mfg	397	-104	-2.3%	0.3%	11%	-1%	\$87,145	\$128,935
Performing and Creative Arts	3,653	-968	-2.3%	-0.3%	86%	-7%	\$23,467	\$29,913
Apparel	642	-238	-3.1%	-3.0%	190%	22%	\$33,444	\$49,703
Call Centers	201	-75	-3.1%	0.9%	14%	-4%	\$28,407	\$52,176
Publishing & Information	1,126	-448	-3.3%	-0.2%	53%	-11%	\$68,524	\$184,798
R&D Services (exc. Biotech.)	704	-561	-5.7%	1.7%	42%	-36%	\$88,082	\$147,364
Biotechnology	201	-307	-8.9%	6.1%	27%	-80%	\$113,319	\$232,238
Chemical & Pharmaceutical Mfg	24	-63	-12.1%	1.7%	2%	-5%	\$94,526	\$152,774

Source: See Table 4 for data source.

## Hawai‘i County

Adjusting for overlaps, Hawai‘i County accounted for 21,777 of the state’s targeted & emerging industry jobs in 2021, a 0.8% average annual increase from 2011. As shown in Table 19, among the six major sectors, three sectors were high performing in Hawai‘i County in the 2011 to 2021 period. Three sectors were in the Transitioning category.

Table 19. Performance of the Major Groups of Hawai‘i County Targeted Industry Portfolio

INDUSTRY GROUPS	Jobs in HI County		Avg. Ann. Job Growth (2011-2021)		Concentration of Industry in HI County Compared to U.S.		Average Annual Earnings 2021	
	2021	Change 11-21	HI		% Point Change		2021	
			County	U.S.	2021	11-21	HI County	U.S.
TOTAL CIVILIAN JOBS	99,948	5,642	0.6%	1.1%	100%	0%	\$54,383	\$70,358
TOTAL TARGETED JOBS W/O OVERLAP	21,777	1,763	0.8%	1.4%	93%	-1%	\$52,306	\$86,733
<b>Emerging Activities</b>								
HEALTH & WELLNESS	6,608	1,205	2.0%	1.3%	79%	9%	\$68,766	\$79,647
EDUCATION (PRIVATE)	953	240	2.9%	1.6%	52%	9%	\$28,742	\$47,699
OTHERS	67	8	1.3%	0.0%	21%	3%	\$15,345	\$51,702
<b>Transitioning Activities</b>								
AGRIBUSINESS	8,686	322	0.4%	0.8%	270%	0%	\$38,226	\$54,880
TECHNOLOGY SECTOR	2,364	223	1.0%	2.3%	37%	-3%	\$97,655	\$138,943
CREATIVE SECTOR	4,993	47	0.1%	2.0%	67%	-10%	\$49,852	\$102,072

Source: See Table 4 for data source. The sum of the individual industries does not add up to the total due to adjusting for overlaps among sectors.

Table 20 shows the performance of detailed targeted & emerging industry groups in Hawai‘i County. Among the 38 detailed industry groups, 13 groups were high performing. The high-performing activities in the target industry portfolio accounted for about 6,567 jobs or 6.6% of all civilian jobs in 2021. Between 2011 and 2021, those groups generated 32.9% of the total gain in jobs for the civilian economy or about 1,857 new jobs.

About 26.0% of the high-performing activities had average annual earnings that exceeded \$60,000 in 2021. By comparison, the earnings average for the civilian economy in 2021 was \$52,306 by the projected 2021 estimate.

From 2011 to 2021, 13 activities with 8,136 jobs fell into the Transitioning category. They gained jobs over the period but did not keep up with national growth for the same activities resulting in a loss of competitive national industry share. However, six of those activities grew faster in terms of jobs than the civilian economy as a whole.

Twelve activities in the portfolio fell into the Declining industry category, as a result of net job losses for the 2011 to 2021 period. Jobs in the Declining industry groups totaled an estimated 8,744 in 2021, representing a loss of 495 jobs from 2011.



Table 20. Performance of the Detailed Hawai'i County Targeted Industry Portfolio

INDUSTRY GROUPS	Jobs in HI County		Avg. Ann. Job Growth 2011-2021		Concentration of Industry in HI County Compared to U.S.		Avg. Annual Earnings (2021)	
	2021	Change 11-21	HI County	U.S.	% Point Change		HI County	U.S.
					2021	11-21		
<b>Base-Growth Activities</b>								
Fishing, Forestry & Hunting	524	60	1.2%	1.2%	845%	44%	\$17,854	\$35,150
Alternative Power Generation	77	58	14.8%	0.1%	220%	167%	\$155,865	\$188,106
Cultural Activities	130	45	4.4%	1.0%	133%	42%	\$66,583	\$69,609
Specialty Health Care Services	1,811	842	6.5%	3.2%	116%	35%	\$55,584	\$55,648
Agric. Processing	1,071	198	2.1%	1.7%	115%	9%	\$51,182	\$66,733
Specialty Education	869	235	3.2%	3.0%	111%	7%	\$27,884	\$30,945
Agric. Support Services	362	142	5.1%	2.5%	105%	27%	\$52,141	\$63,316
<b>Emerging Activities</b>								
Apparel	55	11	2.2%	-3.0%	89%	39%	\$15,107	\$49,703
Radio and Television Broadcasting	72	26	4.5%	-0.9%	60%	26%	\$58,253	\$101,150
Art Education	68	27	5.2%	3.4%	47%	9%	\$15,864	\$15,797
Hospitals & Nursing Facilities	1,131	38	0.3%	0.2%	34%	2%	\$71,157	\$81,789
Agric. Packaging & Warehsg	27	22	18.6%	1.6%	27%	21%	\$50,527	\$66,347
Computer Services and Software Publishers	369	153	5.5%	4.2%	23%	4%	\$99,333	\$162,471
<b>Transitioning Activities</b>								
Higher Education	84	5	0.6%	0.6%	8%	0%	\$37,672	\$60,221
Design Services	290	38	1.4%	1.6%	112%	3%	\$39,356	\$51,187
Information & Telecom Tech.	478	92	2.2%	2.5%	42%	0%	\$175,663	\$177,763
Architecture	148	8	0.5%	1.1%	87%	-1%	\$80,350	\$88,679
Health Practitioners	3,075	329	1.1%	1.9%	104%	-3%	\$78,077	\$91,728
Engineering and Related Serv.	349	2	0.1%	1.3%	40%	-3%	\$89,898	\$109,384
Computer Sys. Design & Related	324	59	2.0%	3.3%	23%	-2%	\$76,079	\$146,693
Engineering and Research & Development	549	1	0.0%	1.5%	61%	-7%	\$106,159	\$127,726
R&D Services (exc. Biotech.)	358	6	0.2%	1.7%	116%	-13%	\$110,594	\$147,364
Marketing, Photography & Related	1,229	1	0.0%	1.9%	83%	-12%	\$30,464	\$63,134
Medical and Diagnostic Testing	223	8	0.4%	2.4%	132%	-22%	\$66,325	\$94,730
Technical Consulting Services	492	71	1.6%	3.7%	49%	-9%	\$42,421	\$99,137
Business Consulting	537	56	1.1%	3.5%	46%	-10%	\$51,018	\$98,495
<b>Declining Activities</b>								
Farm Production	6,604	-61	-0.1%	0.0%	400%	13%	\$36,747	\$44,145
Pharmacies	368	-13	-0.3%	-0.1%	102%	3%	\$49,935	\$57,113
Biotechnology	10	-1	-0.6%	6.1%	8%	-6%	\$34,137	\$232,238
Music	175	-18	-1.0%	0.6%	191%	-22%	\$26,026	\$50,349
Performing and Creative Arts	1,197	-141	-1.1%	-0.3%	154%	-6%	\$22,235	\$29,913
Film, TV, Video Production/Distrib	75	-15	-1.9%	1.2%	34%	-10%	\$70,167	\$117,564
Call Centers	11	-3	-2.1%	0.9%	4%	-1%	\$16,486	\$52,176
Technology Equipment Distr.	11	-3	-2.6%	1.1%	4%	-1%	\$125,202	\$153,683
Agric. Inputs	98	-39	-3.3%	0.6%	77%	-31%	\$50,593	\$84,364
Other Technology Mfg	27	-16	-4.5%	0.3%	4%	-2%	\$30,771	\$128,935
Publishing & Information	151	-133	-6.1%	-0.2%	39%	-29%	\$101,259	\$184,798
Chemical & Pharmaceutical Mfg	15	-53	-14.2%	1.7%	6%	-24%	\$72,879	\$152,774

Source: See Table 4 for data source

## Maui County

Adjusting for overlaps, Maui accounted for 17,815 of the state's targeted & emerging industry jobs in 2021, an 1.4% average annual increase from 2011. As shown in Table 21, among the six major sectors, three sectors were high performing in Maui County in the 2011 to 2021 period. One sector was in the Transitioning category and two sectors lost jobs.

Table 21. Performance of the Major Groups of Maui County Targeted Industry Portfolio

INDUSTRY GROUPS	Jobs in Maui		Avg. Ann. Job Growth (2011-2021)		Concentration of Industry in Maui Compared to U.S.		Avg. Annual Earnings (2021)	
	2021	Change 11-21	Maui	U.S.	2021	% Point Change 11-21	Maui	U.S.
TOTAL CIVILIAN JOBS	99,247	4,971	0.5%	1.1%	100%	0%	\$57,783	\$70,358
TOTAL TARGETED JOBS W/O OVERLAP	17,815	2,241	1.4%	1.4%	77%	4%	\$60,718	\$86,733
<b>Emerging Activities</b>								
HEALTH & WELLNESS	7,378	2,874	5.1%	1.3%	88%	30%	\$79,565	\$79,647
EDUCATION (PRIVATE)	880	417	6.6%	1.6%	49%	20%	\$27,620	\$47,699
OTHERS	77	22	3.4%	0.0%	24%	8%	\$21,490	\$51,702
<b>Transitioning Activities</b>								
TECHNOLOGY SECTOR	2,085	252	1.3%	2.3%	33%	-2%	\$94,245	\$138,943
<b>Declining Activities</b>								
CREATIVE SECTOR	5,744	-252	-0.4%	2.0%	78%	-16%	\$47,329	\$102,072
AGRIBUSINESS	3,356	-791	-2.1%	0.8%	105%	-29%	\$44,974	\$54,880

Source: See Table 4 for data source. The sum of the individual industries does not add up to the total due to adjusting for overlaps among sectors.

Table 22 shows the performance of detailed targeted & emerging industry groups in Maui. Among the detailed industry groups, 11 groups were high performing. The high-performing activities in the target industry portfolio accounted for about 5,445 jobs or 5.5% of all civilian jobs in 2021. Between 2011 and 2021, those groups generated 3,327 additional jobs. In comparison, the whole civilian economy in Maui only added 4,971 new jobs during the same period.

About 79.0% of the high-performing activities had average annual earnings that exceeded \$60,000 in 2021. By comparison, the earnings average for the civilian economy in 2021 was an estimated \$57,783.

In 2021, 11 activities with 7,524 jobs fell into the Transitioning category. They gained jobs over the period but did not keep up with national growth for the same activities, resulting in a loss of competitive national industry share. However, nine of those activities grew faster in terms of jobs than the civilian economy as a whole.

Sixteen activities in the portfolio fell into the Declining industry category as the result of net job losses for the 2011 to 2021 period. Jobs in the Declining industry groups totaled an estimated 6,397 in 2021, representing a loss of 1,759 jobs from 2011.

Table 22. Performance of the Detailed Maui County Targeted Industry Portfolio

INDUSTRY GROUPS	Jobs in Maui		Avg. Ann. Job Growth (2011-2021)		Concentration of Industry in Maui Compared to U.S.		Avg. Annual Earnings (2021)	
	2021	Change 11-21	Maui	U.S.	2021	% Point Change 11-21	Maui	U.S.
<b>Base-Growth Activities</b>								
Fishing, Forestry & Hunting	243	33	1.5%	1.2%	394%	31%	\$14,582	\$35,150
Specialty Education	825	377	6.3%	3.0%	106%	33%	\$24,577	\$30,945
<b>Emerging Activities</b>								
Specialty Health Care Services	1,530	985	10.9%	3.2%	99%	53%	\$66,688	\$55,648
Apparel	60	19	3.8%	-3.0%	98%	51%	\$23,136	\$49,703
Medical and Diagnostic Testing	155	37	2.7%	2.4%	92%	8%	\$74,740	\$94,730
Alternative Power Generation	26	21	18.0%	0.1%	73%	60%	\$129,865	\$188,106
Agric. Support Services	234	79	4.2%	2.5%	68%	13%	\$63,867	\$63,316
Hospitals & Nursing Facilities	2,191	1,678	15.6%	0.2%	66%	51%	\$95,644	\$81,789
Film, TV, Video Production/Distrib	110	55	7.2%	1.2%	50%	24%	\$66,479	\$117,564
Call Centers	17	3	2.0%	0.9%	7%	1%	\$15,658	\$52,176
Higher Education	55	41	14.3%	0.6%	5%	4%	\$72,854	\$60,221
<b>Transitioning Activities</b>								
Art Education	100	27	3.2%	3.4%	68%	2%	\$18,759	\$15,797
Information & Telecom Tech.	456	92	2.3%	2.5%	41%	1%	\$139,750	\$177,763
Technology Equipment Distr.	18	1	0.4%	1.1%	6%	0%	\$80,645	\$153,683
Marketing, Photography & Related	1,543	163	1.1%	1.9%	105%	-2%	\$34,328	\$63,134
Computer Services and Software Publishers	483	137	3.4%	4.2%	31%	-1%	\$135,029	\$162,471
Architecture	164	2	0.1%	1.1%	97%	-4%	\$65,034	\$88,679
Computer Sys. Design & Related	461	97	2.4%	3.3%	33%	-1%	\$112,330	\$146,693
Design Services	296	15	0.5%	1.6%	115%	-7%	\$40,897	\$51,187
Health Practitioners	3,126	218	0.7%	1.9%	106%	-7%	\$77,949	\$91,728
Technical Consulting Services	417	83	2.3%	3.7%	42%	-4%	\$39,464	\$99,137
Business Consulting	459	83	2.0%	3.5%	39%	-4%	\$39,516	\$98,495
<b>Declining Activities</b>								
Engineering and Related Serv.	357	-14	-0.4%	1.3%	42%	-5%	\$83,450	\$109,384
Pharmacies	377	-43	-1.1%	-0.1%	105%	-4%	\$53,772	\$57,113
Engineering and Research & Development	323	-38	-1.1%	1.5%	36%	-8%	\$101,816	\$127,726
Agric. Processing	515	-80	-1.4%	1.7%	56%	-17%	\$50,225	\$66,733
R&D Services (exc. Biotech.)	132	-21	-1.4%	1.7%	43%	-13%	\$105,698	\$147,364
Performing and Creative Arts	1,826	-304	-1.5%	-0.3%	236%	-18%	\$23,658	\$29,913
Agric. Packaging & Warehsg	5	-1	-1.6%	1.6%	5%	-2%	\$10,327	\$66,347
Cultural Activities	54	-10	-1.6%	1.0%	56%	-13%	\$46,011	\$69,609
Other Technology Mfg	48	-11	-2.0%	0.3%	7%	-1%	\$55,026	\$128,935
Farm Production	2,319	-794	-2.9%	0.0%	142%	-39%	\$45,019	\$44,145
Publishing & Information	201	-107	-4.2%	-0.2%	52%	-22%	\$84,142	\$184,798
Chemical & Pharmaceutical Mfg	8	-5	-4.9%	1.7%	3%	-2%	\$100,928	\$152,774
Agric. Inputs	40	-27	-5.1%	0.6%	31%	-22%	\$53,039	\$84,364
Radio and Television Broadcasting	58	-67	-7.4%	-0.9%	49%	-42%	\$64,656	\$101,150
Music	128	-209	-9.3%	0.6%	140%	-232%	\$34,075	\$50,349
Biotechnology	6	-28	-15.5%	6.1%	5%	-39%	\$139,017	\$232,238

Source: See Table 4 for data source.

## Kaua‘i County

Adjusting for overlaps, Kaua‘i County accounted for 7,163 of the state’s targeted & emerging industry jobs in 2021, an 1.1% annual increase from 2011. As shown in Table 23, among the six major sectors, three sectors were high performing in Kaua‘i County in the 2011 to 2021 period. Two sectors were in the Transitioning category and one sector lost jobs.

Table 23. Performance of the Major Groups of Kaua‘i County Targeted Industry Portfolio

INDUSTRY GROUPS	Jobs in Kauai		Avg. Ann. Job Growth (2011-2021)		Concentration of Industry in Kauai Compared to U.S.		Avg. Annual Earnings (2021)	
	2021	Change 11-21	Kauai	U.S.	2021	% Point Change 11-21	Kauai	U.S.
TOTAL CIVILIAN JOBS	45,048	3,973	0.9%	1.1%	100%	0%	\$51,276	\$70,358
TOTAL TARGETED JOBS W/O OVERLAP	7,163	711	1.1%	1.4%	68%	-1%	\$58,090	\$86,733
<b>Base-Growth Activities</b>								
AGRIBUSINESS	1,820	168	1.0%	0.8%	125%	3%	\$39,239	\$54,880
<b>Emerging Activities</b>								
HEALTH & WELLNESS	2,592	353	1.5%	1.3%	68%	2%	\$77,335	\$79,647
EDUCATION (PRIVATE)	256	85	4.1%	1.6%	31%	7%	\$29,772	\$47,699
<b>Transitioning Activities</b>								
TECHNOLOGY SECTOR	1,031	192	2.1%	2.3%	36%	0%	\$88,350	\$138,943
CREATIVE SECTOR	2,131	7	0.0%	2.0%	64%	-13%	\$45,943	\$102,072
<b>Declining Activities</b>								
OTHERS	26	-1	-0.2%	0.0%	18%	0%	\$24,822	\$51,702

Source: See Table 4 for data source. The sum of the individual industries does not add up to the total due to adjusting for overlaps among sectors.

Table 24 shows the performance of detailed targeted & emerging industry groups in Kauai. Among the detailed industry groups with jobs in 2021, 14 groups were in the high performing category; with positive job growth combined with a job growth rate that was higher than the nation for the same activity. The high performing activities in the target industry portfolio accounted for about 2,944 jobs or 6.5% of all civilian jobs in 2021. Between 2011 and 2021, these groups generated 37.0% of the total gain in jobs for the civilian economy or about 829 new jobs.

In 2021, about 48.5% of the high-performing activities had average annual earnings that exceeded \$60,000 by comparison; the earnings average for the overall civilian economy was lower at \$51,276.

Ten activities with 1,854 jobs fell into the Transitioning category for 2021. They gained jobs over the period but did not keep up with national growth for the same activities resulting in a loss of competitive national industry share. Four of the ten activities grew faster than the civilian economy as a whole in terms of jobs.

Eleven activities in the portfolio fell into the Declining industry category as the result of net job losses for the 2011 to 2021 period. Jobs in the Declining industry groups totaled an estimated 1,763 in 2021, representing a loss of 200 jobs from 2011.

Table 24. Performance of the Detailed Kaua‘i County Targeted Industry Portfolio

INDUSTRY GROUPS	Jobs in Kauai		Avg. Ann. Job Growth (2011-2021)		Concentration of Industry in Kauai Compared to U.S.		Avg. Annual Earnings (2021)	
	2021	Change 11-21	Kauai	U.S.	% Point Change		Kauai	U.S.
					2021	11-21		
<b>Base-Growth Activities</b>								
Fishing, Forestry & Hunting	168	28	1.9%	1.2%	600%	47%	\$16,283	\$35,150
Alternative Power Generation	58	56	44.7%	0.1%	364%	355%	\$137,567	\$188,106
Music	54	7	1.4%	0.6%	131%	11%	\$22,489	\$50,349
Pharmacies	181	3	0.2%	-0.1%	111%	5%	\$55,310	\$57,113
Architecture	82	22	3.2%	1.1%	106%	21%	\$69,996	\$88,679
<b>Emerging Activities</b>								
Apparel	26	3	1.1%	-3.0%	93%	32%	\$24,822	\$49,703
Health Practitioners	1,125	219	2.2%	1.9%	84%	4%	\$84,608	\$91,728
Agric. Processing	301	168	8.5%	1.7%	71%	34%	\$40,346	\$66,733
Specialty Education	243	76	3.8%	3.0%	69%	6%	\$27,794	\$30,945
Art Education	45	19	5.8%	3.4%	67%	14%	\$15,147	\$15,797
Specialty Health Care Services	450	174	5.0%	3.2%	64%	11%	\$53,440	\$55,648
Medical and Diagnostic Testing	47	11	2.7%	2.4%	62%	3%	\$56,242	\$94,730
Information & Telecom Tech.	151	34	2.6%	2.5%	30%	1%	\$118,587	\$177,763
Higher Education	14	9	12.3%	0.6%	3%	2%	\$65,137	\$60,221
<b>Transitioning Activities</b>								
Cultural Activities	45	3	0.6%	1.0%	102%	-2%	\$38,073	\$69,609
Agric. Support Services	85	16	2.1%	2.5%	54%	-2%	\$48,699	\$63,316
Technical Consulting Services	191	51	3.1%	3.7%	42%	-2%	\$37,608	\$99,137
Engineering and Related Serv.	167	9	0.6%	1.3%	43%	-3%	\$82,428	\$109,384
Business Consulting	199	47	2.7%	3.5%	38%	-2%	\$37,475	\$98,495
Design Services	100	8	0.8%	1.6%	86%	-6%	\$42,093	\$51,187
Marketing, Photography & Related	609	32	0.5%	1.9%	91%	-11%	\$32,031	\$63,134
Computer Sys. Design & Related	162	9	0.6%	3.3%	25%	-7%	\$91,104	\$146,693
Computer Services and Software Publishers	137	1	0.0%	4.2%	19%	-9%	\$116,727	\$162,471
Biotechnology	159	27	1.9%	6.1%	257%	-123%	\$95,312	\$232,238
<b>Declining Activities</b>								
Farm Production	1,247	-37	-0.3%	0.0%	168%	-3%	\$41,232	\$44,145
Radio and Television Broadcasting	36	-2	-0.5%	-0.9%	66%	4%	\$54,612	\$101,150
R&D Services (exc. Biotech.)	92	-5	-0.6%	1.7%	66%	-16%	\$124,301	\$147,364
Performing and Creative Arts	546	-36	-0.6%	-0.3%	156%	-4%	\$27,777	\$29,913
Hospitals & Nursing Facilities	789	-54	-0.7%	0.2%	52%	-4%	\$86,928	\$81,789
Engineering and Research & Development	177	-14	-0.7%	1.5%	44%	-10%	\$109,918	\$127,726
Agric. Packaging & Warehsg	3	0	-0.8%	1.6%	6%	-1%	\$10,832	\$66,347
Agric. Inputs	16	-7	-3.4%	0.6%	28%	-14%	\$58,195	\$84,364
Other Technology Mfg	4	-2	-4.7%	0.3%	1%	-1%	\$41,268	\$128,935
Publishing & Information	63	-43	-5.1%	-0.2%	36%	-23%	\$47,936	\$184,798
Film, TV, Video Production/Distrib	38	-37	-6.5%	1.2%	39%	-45%	\$47,187	\$117,564

Source: See Table 4 for data source.

## CONCLUSIONS

This report is the 13th 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 a number of industry groups performed well during the expansion phase (as measured by change in jobs). The 2011 - 2021 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 updated report added the 2021 data to illustrate how targeted industries have been performing after the recovery period of the recession.

Table 25 summarizes the best performing targeted industry groups for the 2011 to 2021 period in terms of average growth and national competitiveness. They all showed positive growth and at the same time outperformed the same activities nationally over the measurement period. Among the eight best performing industry groups, six groups had average earnings above the average for Hawai‘i’s economy.

Table 25. Highest Performing Targeted Activities, 2011 to 2021

INDUSTRY GROUPS	Jobs in Hawaii		Avg. Ann. Job Growth (2011-2021)		Concentration of Industry in Hawaii Compared to U.S.		Avg. Annual Earnings (2021)	
	2021	Change 11-21	HI	U.S.	2021	% Point Change 11-21	HI	U.S.
TOTAL CIVILIAN JOBS	789,629	-507	0.0%	1.1%	100%	0%	\$65,637	\$70,358
TOTAL TARGETED JOBS WITHOUT OVERLAP	154,322	10,215	0.7%	1.4%	84%	3%	\$71,711	\$86,733
<b>Base-Growth and Emerging Activities</b>								
Above Average State Earnings								
Technology Equipment Distr.	896	118	1.4%	1.1%	38%	5%	\$159,657	\$153,683
Alternative Power Generation	259	148	8.9%	0.1%	93%	57%	\$137,155	\$188,106
Engineering and Related Serv.	6,937	938	1.5%	1.3%	102%	12%	\$112,392	\$109,384
Hospitals & Nursing Facilities	21,094	1,791	0.9%	0.2%	80%	13%	\$98,211	\$81,789
Film, TV, Video Production/Distrib	2,170	573	3.1%	1.2%	124%	32%	\$80,868	\$117,564
Specialty Health Care Services	13,354	5,561	5.5%	3.2%	109%	30%	\$69,412	\$55,648
Below Average State Earnings								
Agric. Packaging & Warehousing	214	45	2.4%	1.3%	28%	5%	\$56,333	\$63,512
Agric. Support Services	1,888	601	3.9%	2.6%	69%	14%	\$53,868	\$57,955

\*For definition and data source, See Table 4